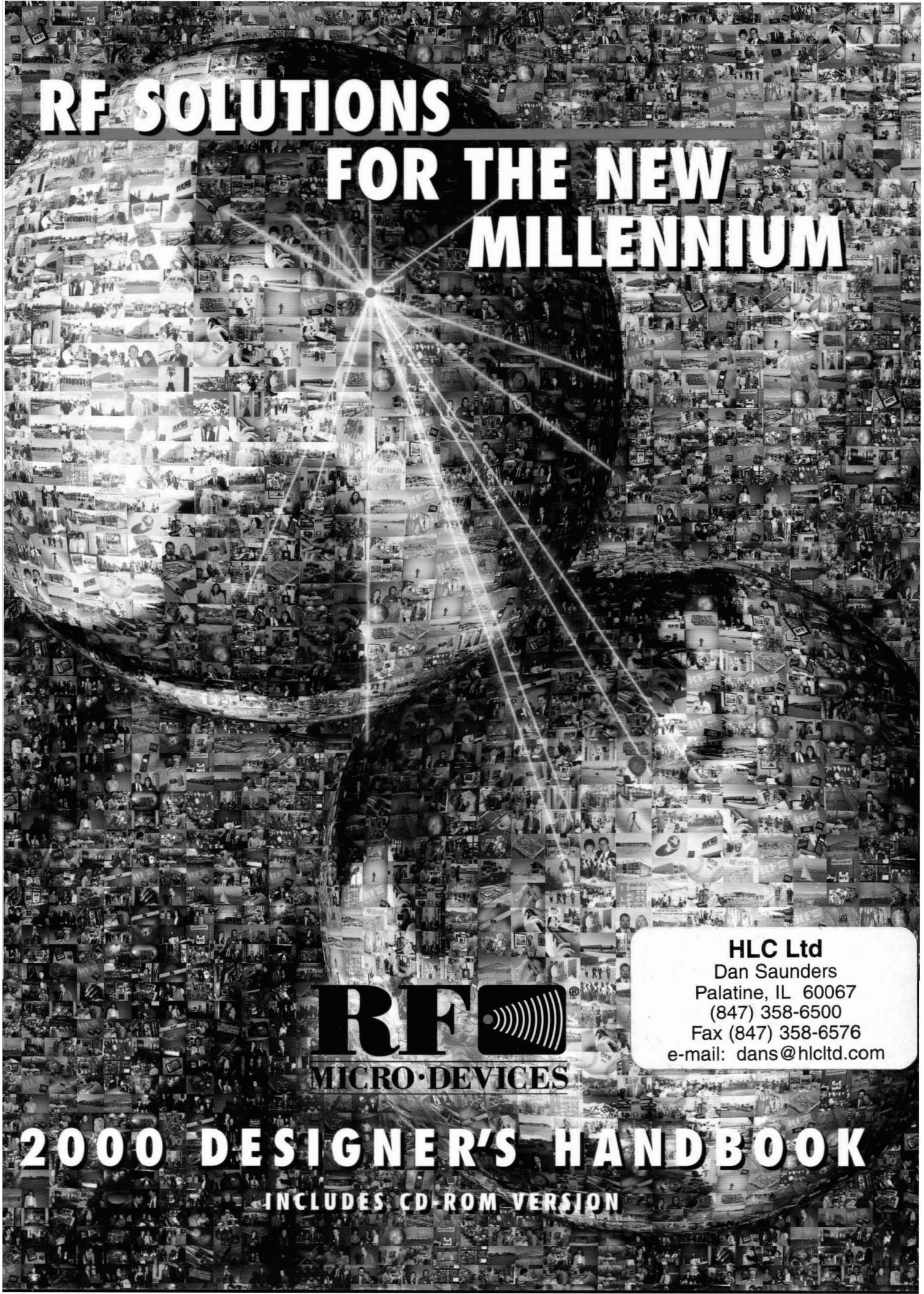
RF SOLUTIONS
FOR THE NEW
MILLENNIUM
RF
MICRO·DEVICES
2000 DESIGNER'S HANDBOOK
INCLUDES CD-ROM VERSION
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Alphanumeric Product List

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2000 DESIGNER'S HANDBOOK

RF MICRO·DEVICES®

RF SOLUTIONS FOR THE NEW MILLENNIUM

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RF Micro Devices will be the premier RFIC components manufacturer in the world.

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Founded in 1991, RF Micro Devices has become one of the largest suppliers of radio frequency integrated circuits (RFICs) for the global wireless market. Currently we offer the broadest range of standard RFICs in the market, covering all wireless receive and transmit functions. We serve varied RFIC markets ranging from cellular telephones to wireless security system devices. With our recent expansion into broadband products, we expect to extend the benefits of our Optimum Technology Matching® approach to areas such as cable modems, set-top boxes, CATV line amplifiers, etc.

The world of wireless technology is growing rapidly and, with millions of ICs being shipped every week, RF Micro Devices is at the forefront of this expansion. Every component in our new handbook is backed by RF Micro Devices' commitment to total quality. RFMD received ISO 9001 certification in August of 1998. We are dedicated to providing you with the technology and performance you need at a price that keeps your product competitive. We have earned our reputation by designing, testing and introducing innovative products to market quickly. RF Micro Devices' engineers know what the industry needs and what the technology can deliver.

RF Micro Devices uses its exclusive methodology, Optimum Technology Matching®, to determine which of six cutting-edge process technologies will maximize performance and minimize cost. Whether your needs are best met by Silicon Bipolar, Silicon BiCMOS, Silicon CMOS, Silicon Germanium, GaAs MESFET, or RF Micro Devices' GaAs HBT technology — the RF Micro Devices® design team is committed to your success.

Adjacent to our corporate headquarters in Greensboro, North Carolina, is our GaAs HBT fabrication facility — the world's largest production site for HBT. This technology is the most advanced GaAs HBT fabrication process for use in wireless communication products.

We're happy to be able to provide you with our new and expanded ***2000 Designer's Handbook***, which includes over 150 products for the wireless communications industry. Whatever your wireless application needs — amplifiers, modulators, receivers, transmitters, etc. — you will find extensive product offerings to fill your application requirements. This comprehensive one-volume resource is filled with information including data sheets complete with block diagrams, performance details, application notes, technical articles, product packaging types and sales and ordering information.

We are constantly adding new products and information. Please find our latest product information on our website (www.rfmd.com), or contact your local RFMD™ sales representative. See listing in Section 15.

Products within this handbook may be covered by one or more of the following United States patents: 5,608,353; 5,629,648. Other patents pending.

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1 Introduction And Selection Guide

Product Application Selection Matrix

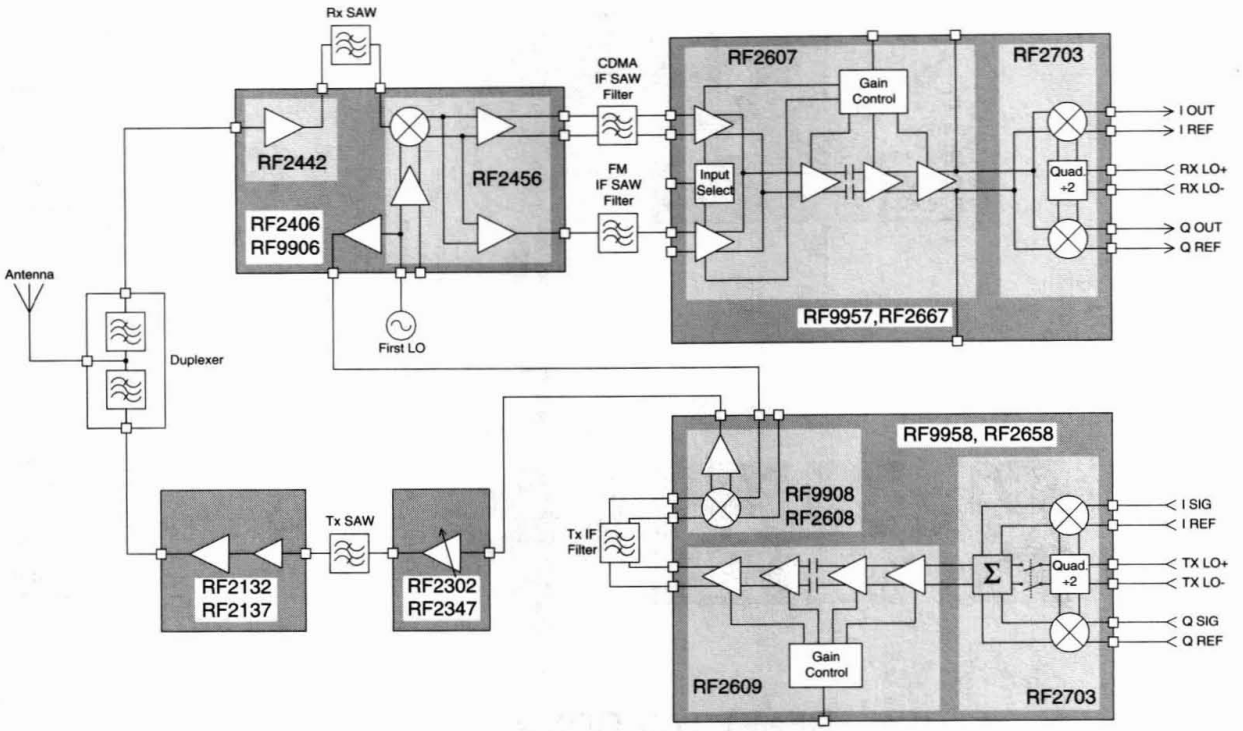
Application	Power Amplifier	Driver Amplifier	LNA/Mixer	Modulator/ Upconverter	Demodulator	IF/AGC	Transceiver	VCO/ Buffer
CDMA Cellular	RF2132 RF2137 RF2152 RF2162 RF2347	RF2303	RF2302 RF2347 RF2363 RF2406 RF2442 RF2456 RF2642 RF9906	RF2608 RF2628 RF2658 RF9908 RF9958	RF2667 RF2711 RF9957	RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	NA	RF2301
CDMA PCS	RF2125 RF2125P RF2126 RF2127 RF2146 RF2153 RF2157 RF2324	RF2303	RF2302 RF2363 RF2365 RF2442 RF2448 RF2445 RF9986	RF2638 RF2658 RF9938 RF9958	RF2667 RF2711 RF9957	RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	NA	RF2301
WCDMA		RF2303						
AMPS	RF2131 RF2137 RF2152 RF2119		RF2302 RF2363 RF2406 RF2411 RF2418 RF2442 RF2456	RF2608 RF2628 RF2658 RF9958	NA	NA	NA	RF2301
DCS1800 DCS1900	RF2126 RF2140 RF2145 RF2174		RF2302 RF2363 RF2365 RF2431 RF2442 RF2445 RF9936	RF2638 RF2639 RF2658 RF9938 RF9958	RF2667 RF2711 RF9957		NA	RF2301
GSM	RF2119 RF2138 RF2173		RF2302 RF2363 RF2406 RF2411 RF2418 RF2442	RF2402 RF2608 RF2628 RF2658 RF9958	RF2667 RF2711 RF9957		NA	RF2301 RF2504
ISM 433MHz	RF2103P RF2104 RF2105L RF2114 RF2115L RF2312 RF2317		RF2301 RF2302 RF2304 RF2401 RF2418	RF2412 RF2413 RF2454 RF2464	RF2667 RF2711 RF2903 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629 RF2670	RF2510 RF2512 RF2513 RF2516 RF2905 RF2907 RF2915 RF2917 RF2919 RF2925 RF2926 RF2945	RF2301 RF2510 RF2512 RF2513 RF2516
ISM 868/915MHz	RF2103P RF2104 RF2105L RF2115L RF2119 RF2131 RF2132 RF2137 RF2152 RF2155 RF2172 RF2312 RF2317		RF2301 RF2302 RF2304 RF2314 RF2401 RF2406 RF2411 RF2418 RF2442 RF2456 RF2457 RF9936 RF9986	RF2402 RF2412 RF2413 RF2423 RF2608 RF2628 RF2638 RF2639 RF2658 RF2909 RF9908 RF9958	RF2667 RF2711 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629 RF2670	RF2510 RF2512 RF2513 RF2905 RF2907 RF2908 RF2915 RF2917 RF2919 RF2925 RF2926 RF2945	RF2301 RF2504 RF2510 RF2512 RF2513 RF2516
ISM 2.4GHz	RF2126 RF2128 RF2129 RF2189		RF2301 RF2302 RF2304 RF2431 RF2442 RF9936 RF9986	RF2402 RF2412 RF2413 RF2422 RF2423 RF2454 RF2464 RF2608 RF2628 RF2638 RF2639 RF2658 RF2909 RF9908 RF9958	RF2667 RF2711 RF2903 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629 RF2670	RF2938	RF2301 RF2510

(Continued on next page)

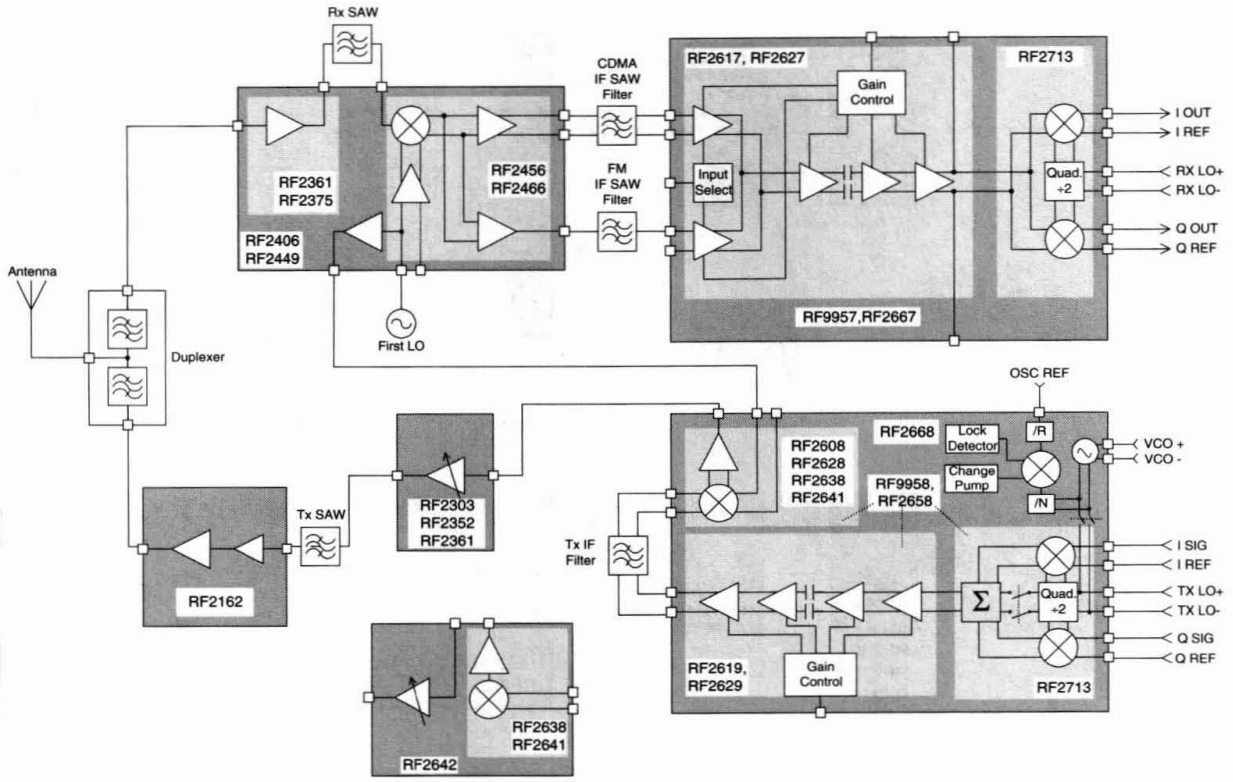
Application	Power Amplifier	Driver Amplifier	LNA/Mixer	Modulator/ Upconverter	Demodulator	IF/AGC	Transceiver	VCO/ Buffer
TDMA Cellular	RF2132 RF2137 RF2152 RF2162 RF2347		RF2302 RF2347 RF2406 RF2411 RF2442 RF9906	RF2402 RF2412 RF2413 RF2640 RF2658 RF9908 RF9958	RF2667 RF2711 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	NA	RF2301
TDMA PCS	RF2126 RF2127 RF2146 RF2153 RF2324		RF2302 RF2431 RF2442 RF2445 RF9936 RF9986	RF2422 RF2638 RF2639 RF2658 RF9938 RF9958	RF2667 RF2711 RF9957	RF2410 RF2420	NA	RF2301
Cable Modem	RF2312 RF2317		RF2302 RF2406 RF2411		RF2711	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	-	RF2301 RF2504
Cable TV	RF2312 RF2317 RF2320 RF2360		NA	NA	NA	NA	NA	NA
Industrial Radio	RF2103P RF2104 RF2105L RF2114 RF2115L		RF2302 RF2401 RF2406 RF2411 RF2418 RF2442 RF2456	RF2412 RF2413 RF2454 RF2464 RF2608 RF2628 RF2658 RF9908 RF9958	RF2667 RF2711 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	-	RF2301 RF2504
Two-Way Paging	RF2119		RF2401 RF2411 RF2418	NA	NA	-	-	RF2301 RF2504
TETRA	RF2114 RF2132 RF2137		RF2302 RF2401 RF2406 RF2418 RF2442 RF2456	RF2464 RF2658 RF9958	RF2667 RF2711 RF9957	RF2410 RF2420 RF2607 RF2609 RF2617 RF2619 RF2627 RF2629	NA	RF2301
DECT	RF2145		RF2302 RF2431 RF2442 RF2445 RF9986		RF2667 RF2711 RF9957		NA	RF2301

System Block Diagrams

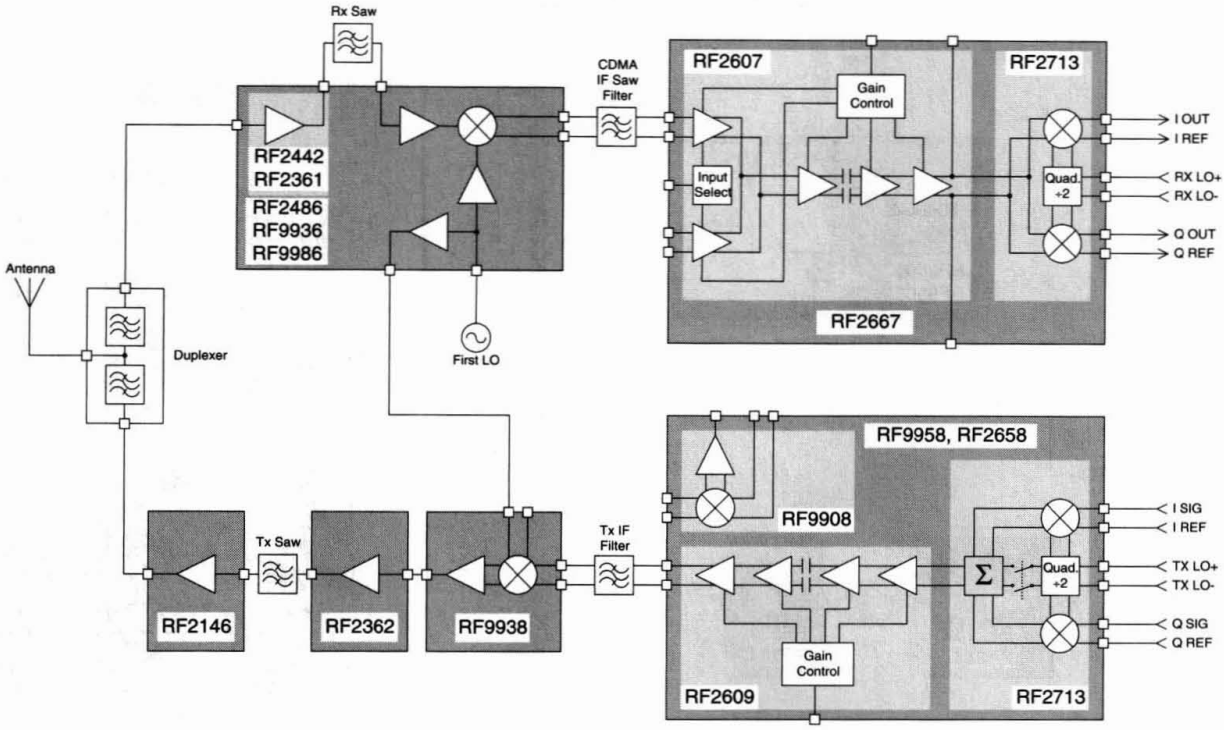
RFMD 3.6V/4.8V CDMA Cellular System Block Diagram



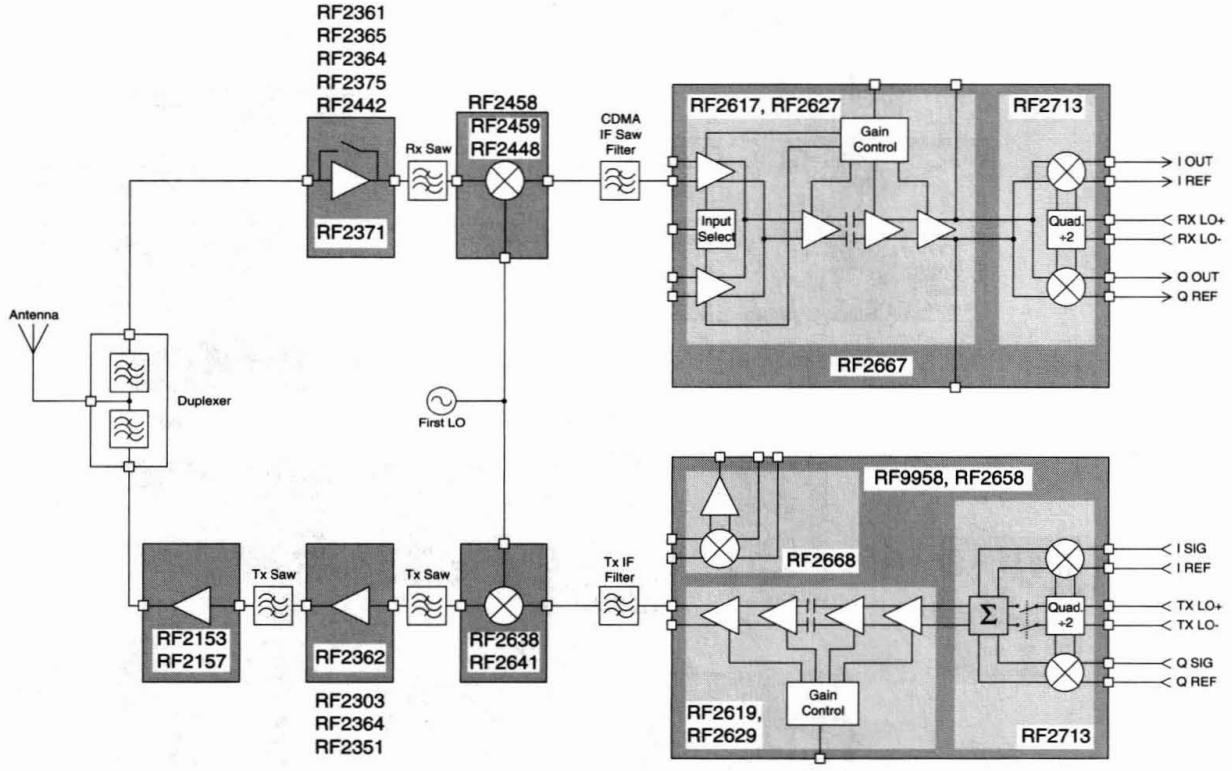
RFMD 3.0V CDMA Cellular System Block Diagram



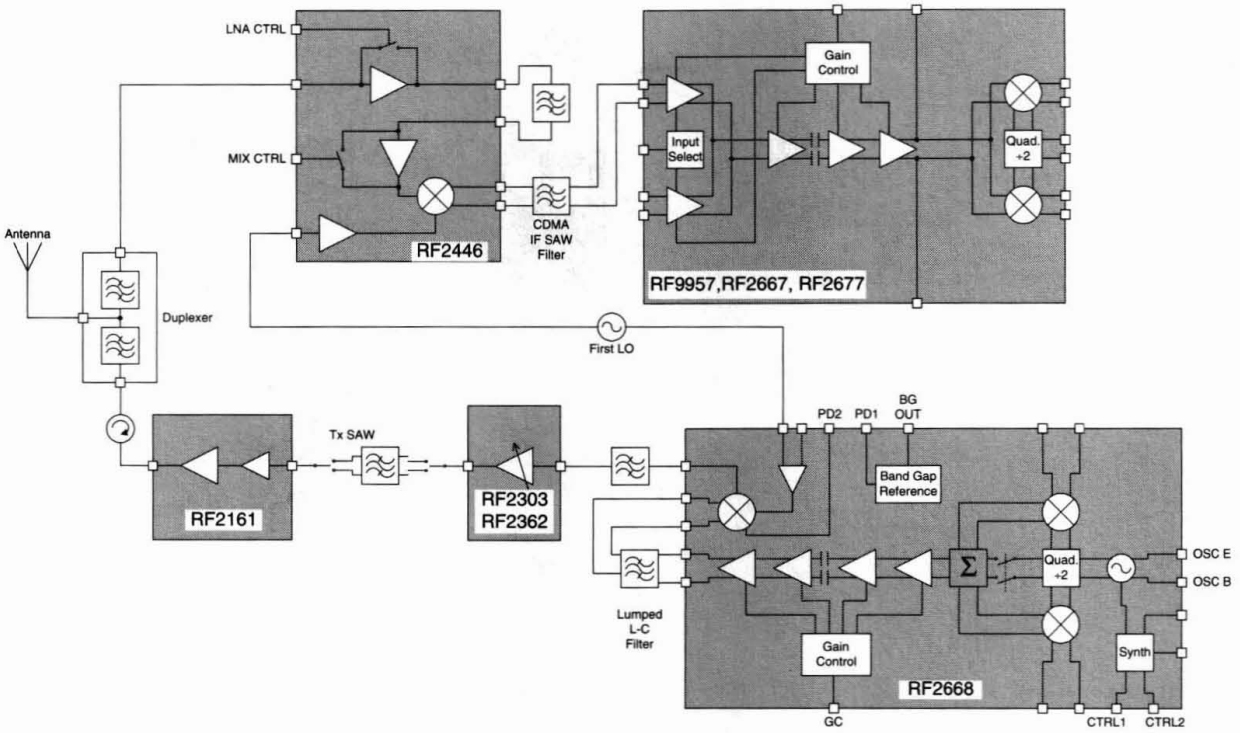
RFMD 3.6V/4.8V CDMA PCS
System Block Diagram



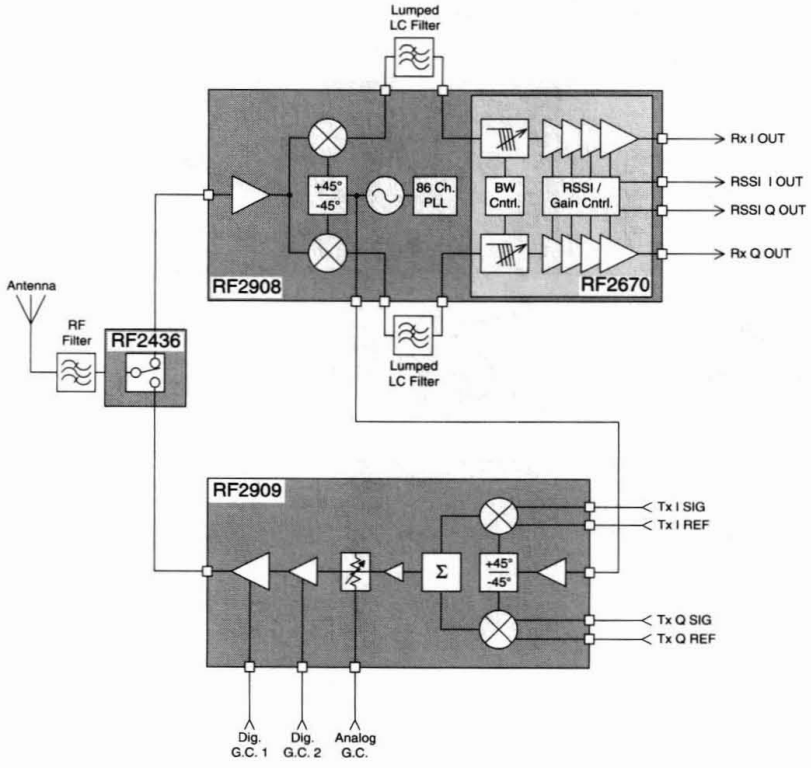
RFMD 3.0V CDMA PCS
System Block Diagram



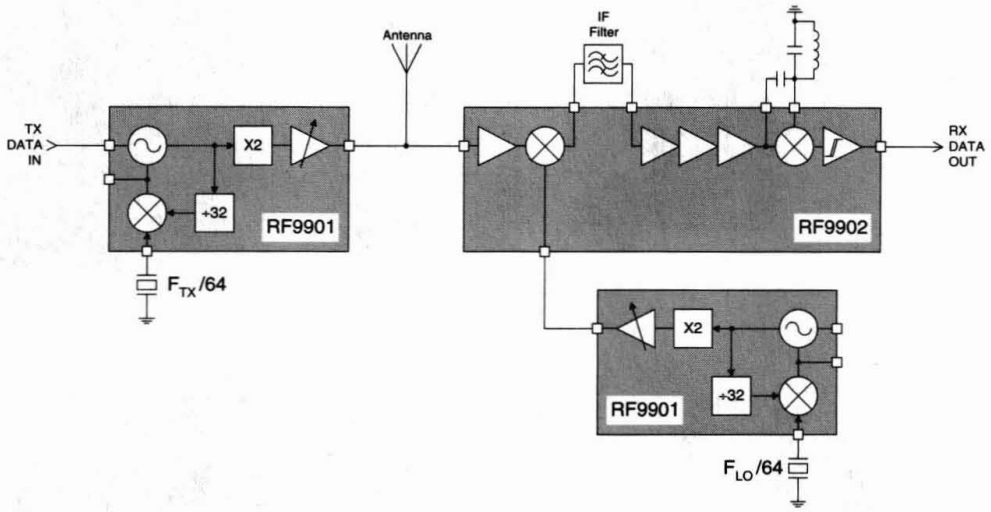
RFMD First Generation WCDMA Chipset Using Existing Products System Block Diagram



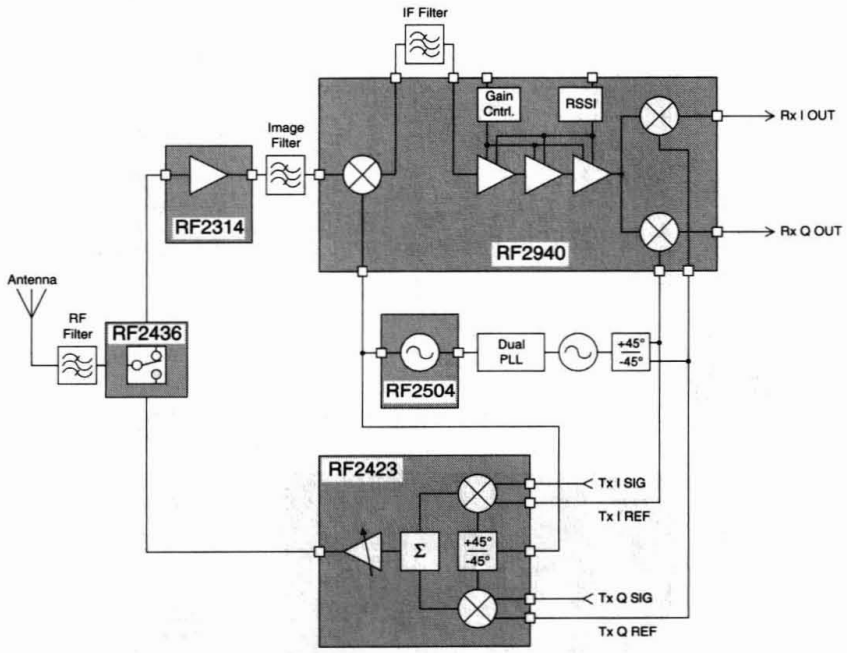
RFMD 915 MHz Spread Spectrum Chip Set System Block Diagram



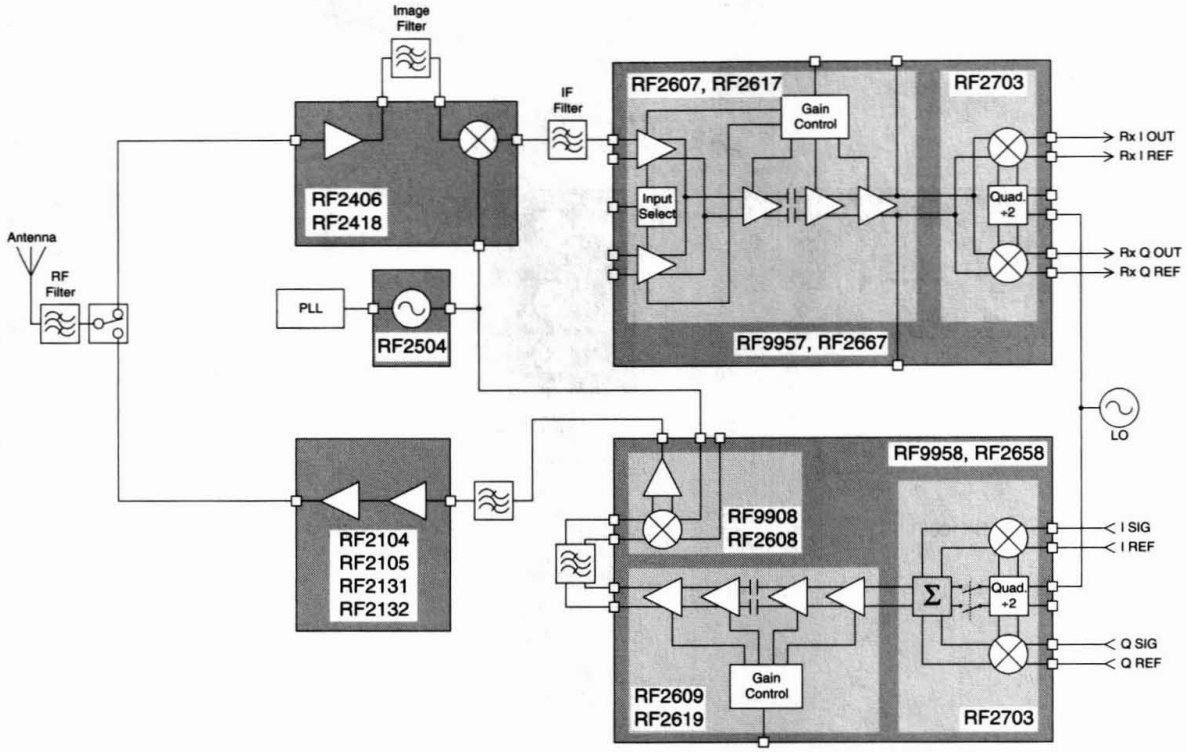
RFMD General Purpose FSK System Block Diagram



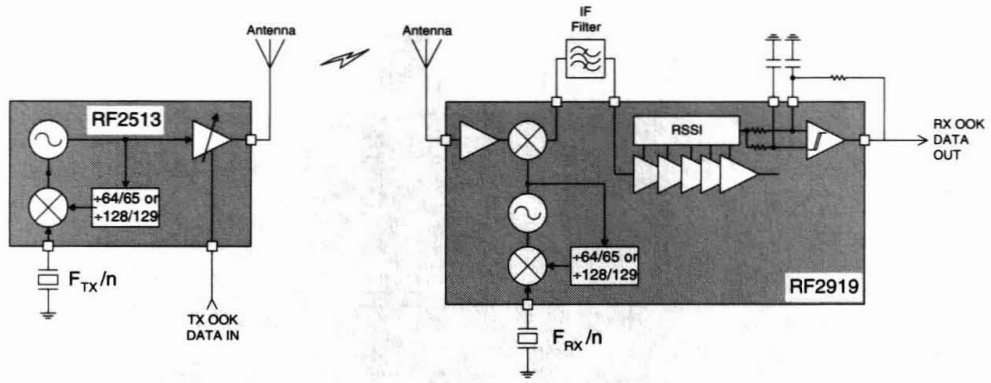
RFMD 915 MHz General Purpose Spread Spectrum System Block Diagram



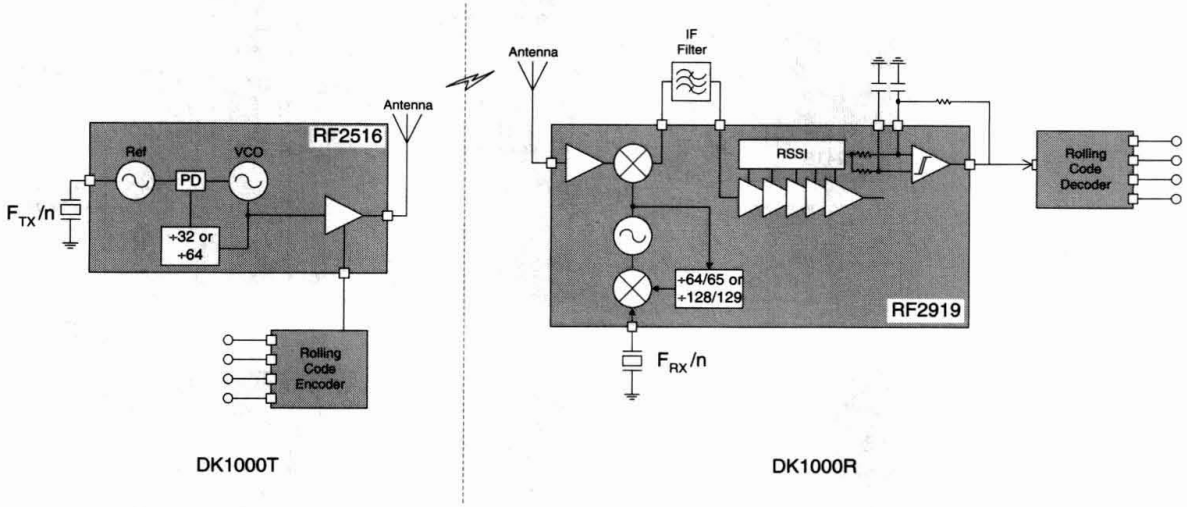
RFMD 915 MHz General Purpose Spread Spectrum System Block Diagram



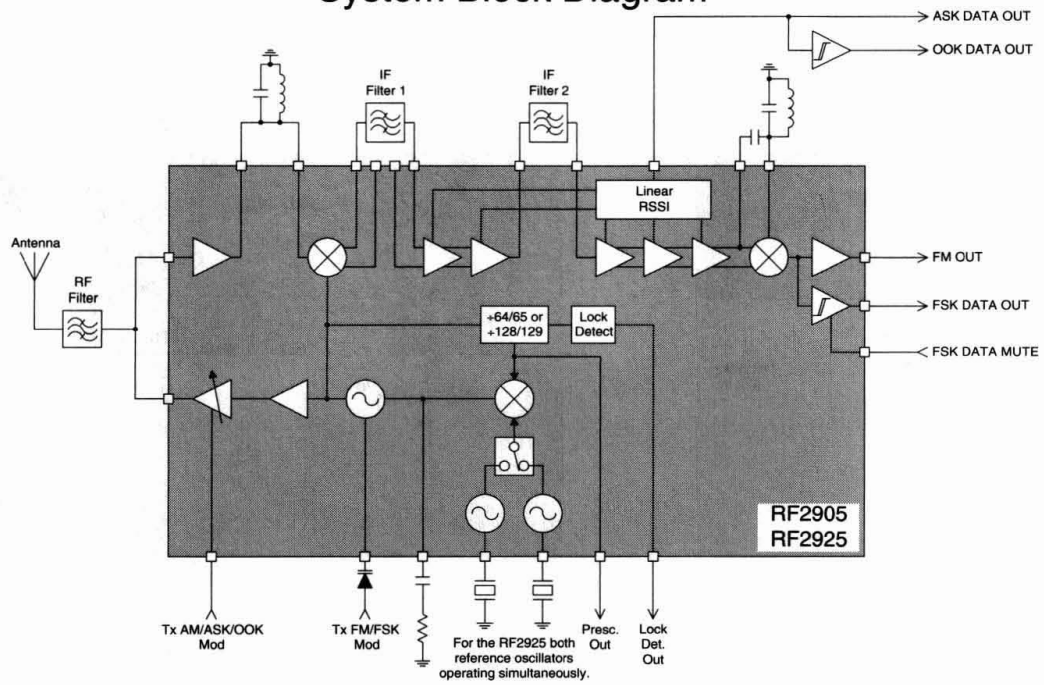
RFMD OOK Simplex Link System Block Diagram



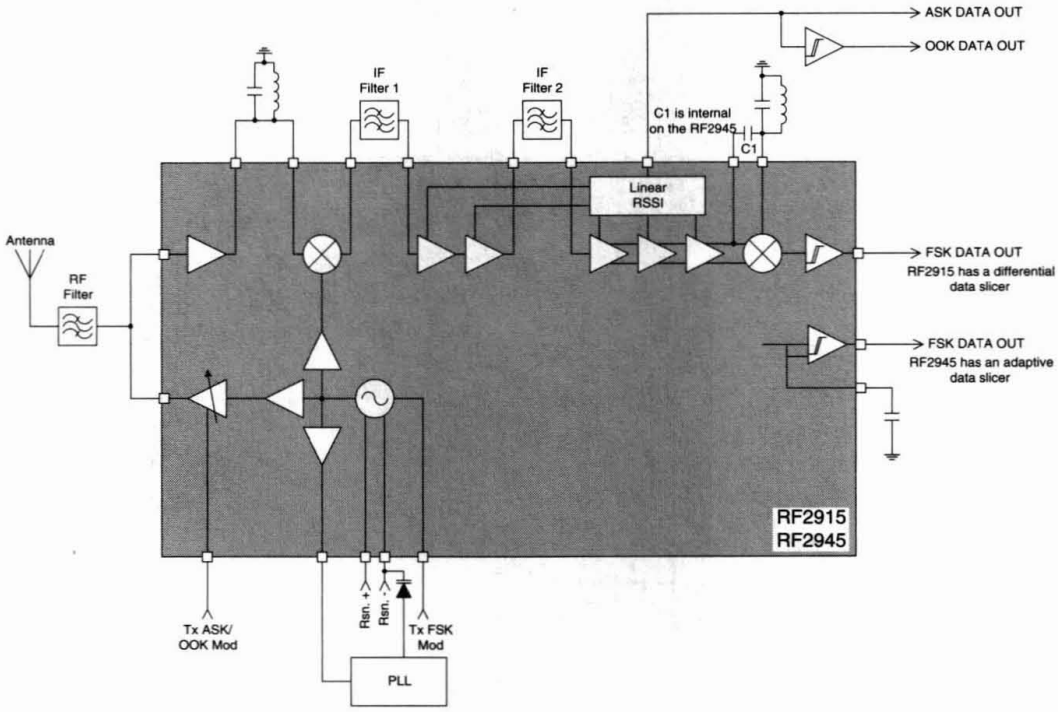
RFMD Remote Keyless Entry System Block Diagram



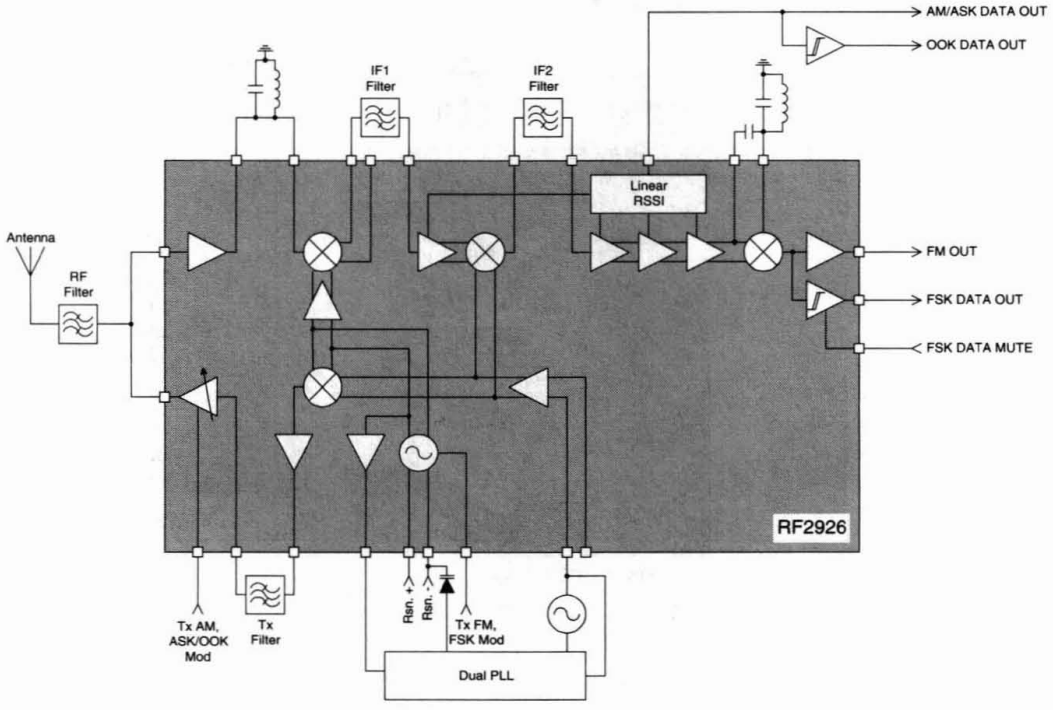
RFMD Single Chip 433/868/915 MHz Transceiver System Block Diagram



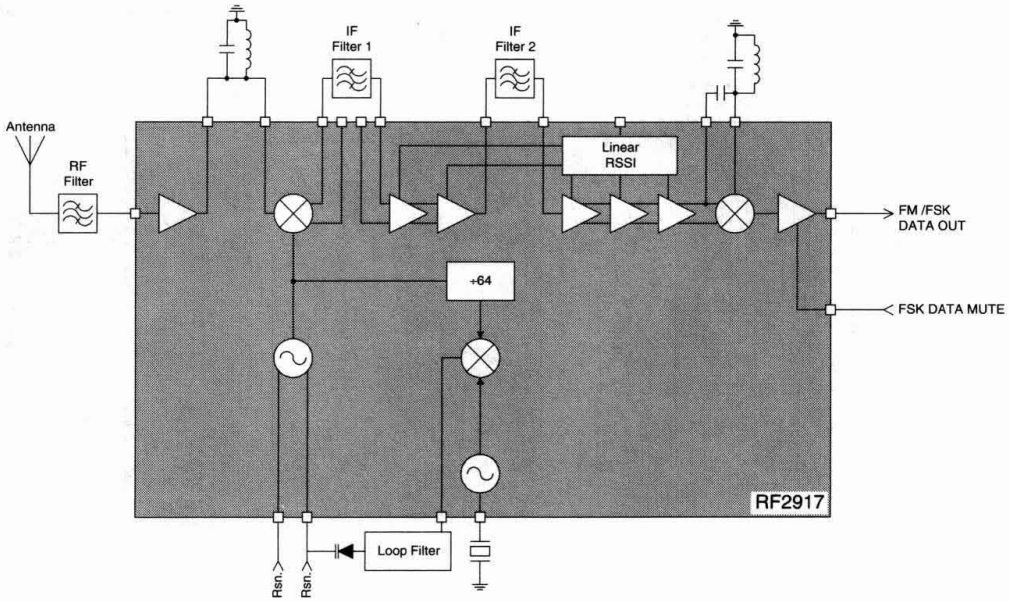
RFMD Single Chip 433/868/915 MHz FSK/ASK/OOK Transceiver System Block Diagram



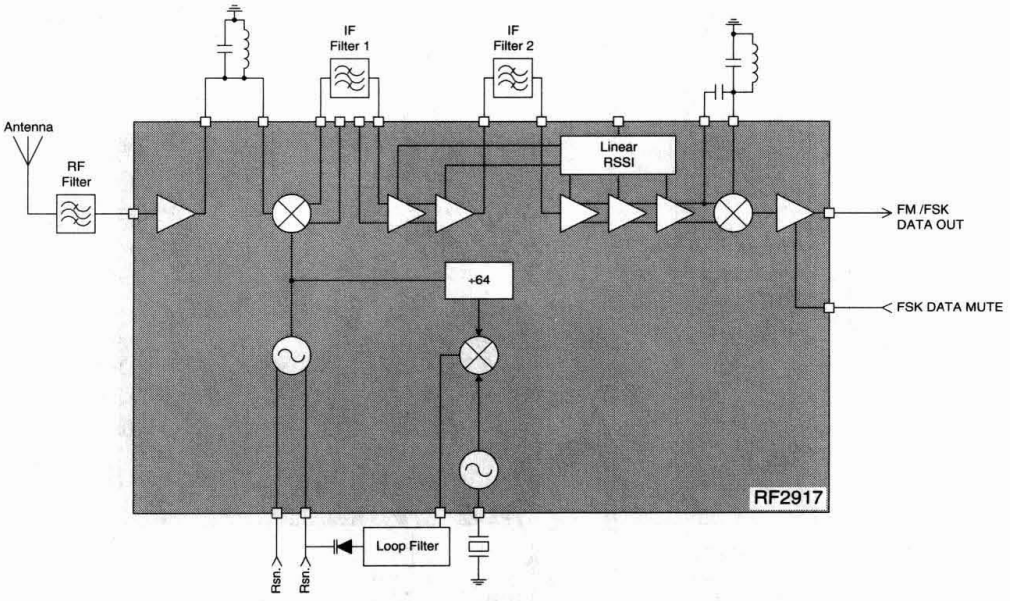
RFMD Single Chip 433/868/915 MHz FSK/ASK/OOK/FM/AM Dual Conversion Transceiver System Block Diagram



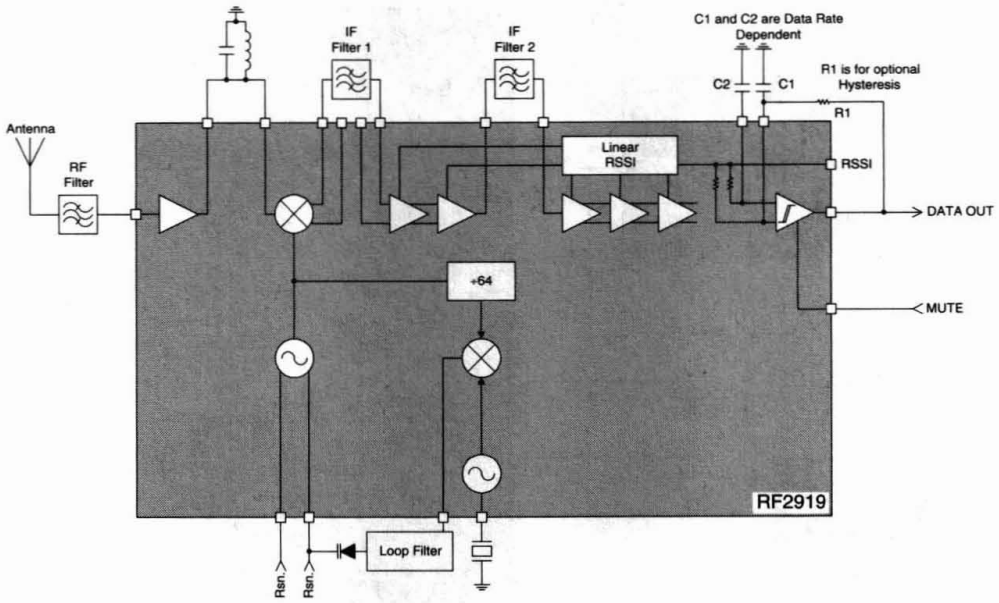
RFMD Single Chip 433/868/915 MHz FM/FSK Receiver System Block Diagram



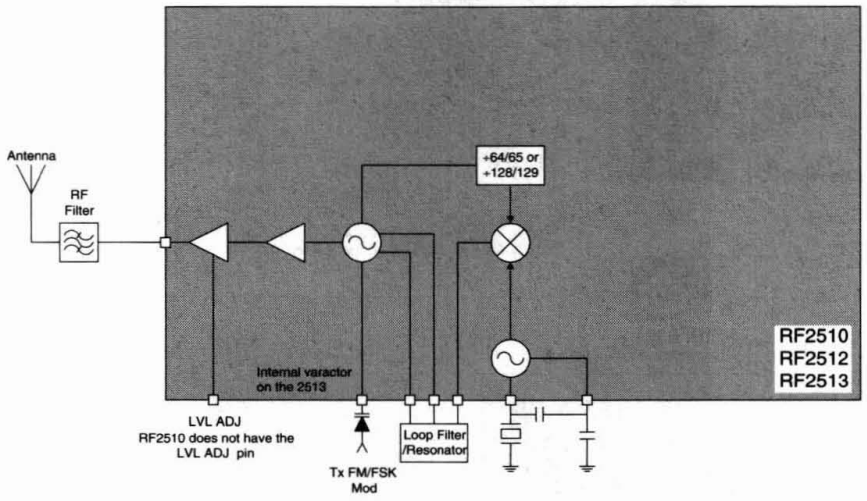
RFMD Single Chip 433/868/915 MHz FM/FSK Receiver System Block Diagram



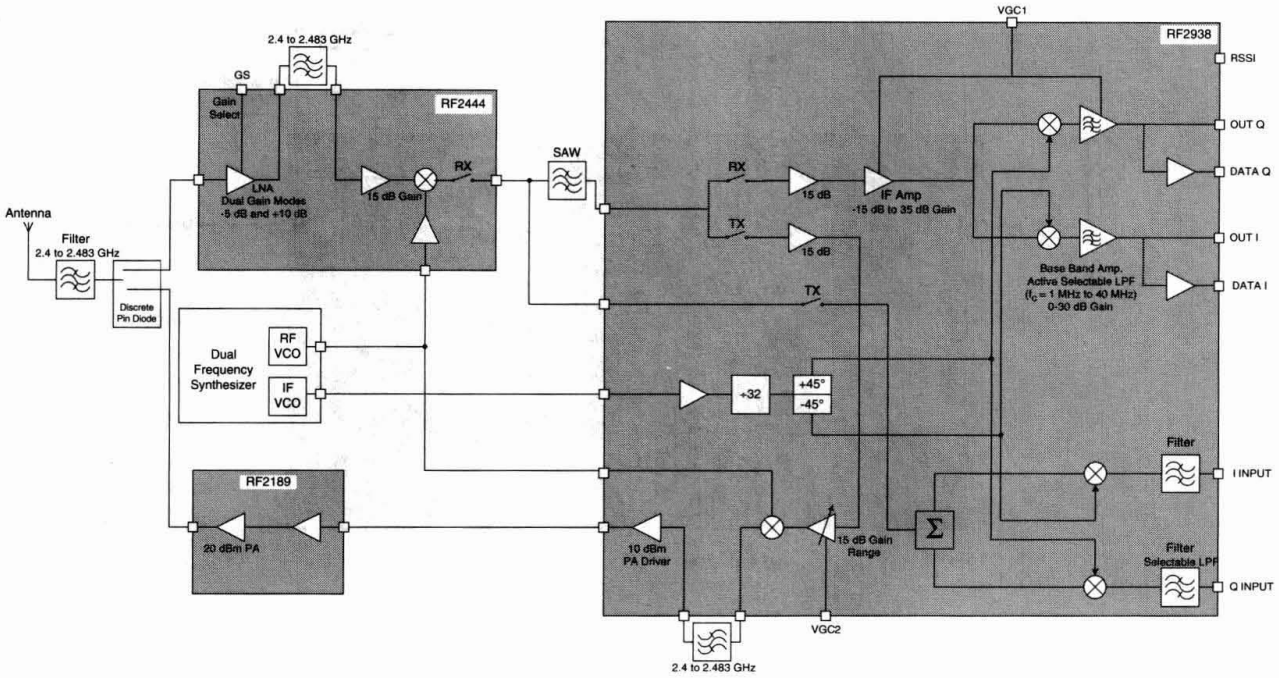
RFMD Single Chip 433/868/915 MHz ASK/OOK Receiver System Block Diagram



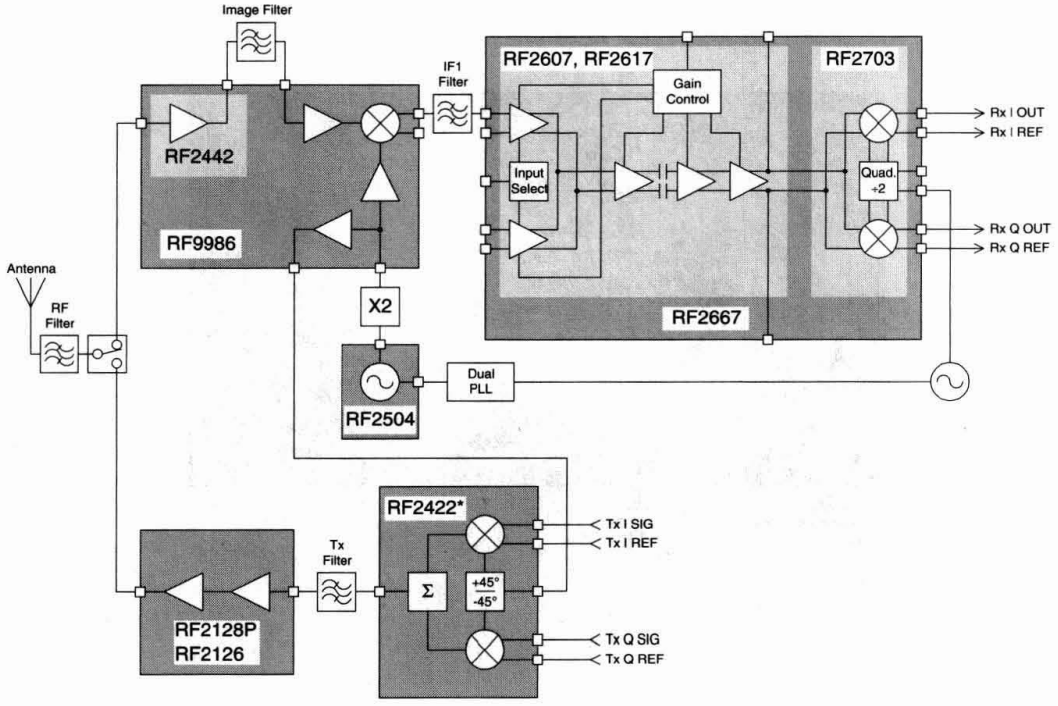
RFMD Single Chip 433/868/915 MHz FSK/FM Transmitter System Block Diagram



RFMD 2.4 GHz WLAN System Block Diagram



RFMD 2.4 GHz General Purpose System Block Diagram



Product Selection Guide

2 Power Amplifiers

Part	Description	Frequency (MHz)	Vcc (Volts)	Efficiency (%, Max)	Output Power	Package	Page
RF2103P	Medium Power Linear Amplifier	450 to 1000	2.7 to 7.5	47	750mW at 7.5V	SOP-14	2-1
RF2104	Medium Power Amplifier	400 to 1000	2.7 to 3.6	40	500mW at 3.6 V	SOP-16 QBW1	2-2
RF2105L	High Power Linear UHF Amplifier	430 to 930	2.7 to 6.5	48	1.2W at 5.8V	QLCC-16	2-3
RF2108	Linear Power Amplifier	800 to 950	4.2 to 7.5	57	1.4W at 4.8V	SOP-16 BW	2-4
RF2114	Medium Power Linear Amplifier	1 to 600	2.7 to 6.5	45	800mW at 5.8V	SOP-14	2-5
RF2115L	High Power UHF Amplifier	430 to 930	5.0 to 6.5	48	1.1W at 5.8V	QLCC-16	2-6
RF2117	High Efficiency 400MHz Amplifier	400 to 500	3.0 to 5.5	50		PSOP-16	2-7
RF2119	High Efficiency 2V Power Amplifier	800 to 960	2.0 to 5.0	53	2.0W at 3.0V	PSSOP-16	2-8
RF2125	High Power Linear Amplifier	1500 to 2200	2.7 to 7.5	45	1W at 6.0V	SOP-8-C	2-9
RF2125P	High Power Linear Amplifier	1500 to 2200	2.7 to 7.5	45	1W at 6.0V	PSOP-8	2-10
RF2126	High Power Linear Amplifier	1800 to 2500	3.0 to 6.5	45	1.3W at 6.0V	PSOP-8	2-11
RF2127	Medium Power Linear Amplifier	1500 to 1900	3.0 to 6.5	30	200mW at 6.0V	SOP-8	2-12
RF2128	Medium Power Linear Amplifier	1900 to 2500	3.0 to 6.5	30	200mW at 6.0V	SOP-8-C	2-13
RF2128P	Medium Power Linear Amplifier	1900 to 2500	3.0 to 6.5	33	200mW at 6.0V	PSOP-8	2-14
RF2129	3V, 2.5GHz Linear Power Amplifier	1800 to 2500	3.0 to 5.0	42	400mW at 3.3V	PSOP-8	2-15
RF2131	High Efficiency AMPS/ETACS Amplifier	800 to 950	4.0 to 7.0	64	1.2W at 4.8V	SOP-16 BW	2-16
RF2132	Linear Power Amplifier	800 to 950	4.2 to 6.0	55	1.6W at 4.8V	SOP-16 BW	2-17
RF2137	Linear Power Amplifier	800 to 950	4.2 to 6.0	55	1.6W at 5.0V	PSOP-8	2-18
RF2138	3V GSM Power Amplifier	800 to 950	2.7 to 4.8	58	4W at 3.5V	MP16K01A	2-19
RF2140	3V DCS Power Amplifier	1700 to 2000	2.7 to 4.8	51	2W at 3.5V	MP16K01A	2-20
RF2145	DCS1800/1900 Power Amplifier	1700 to 1900	2.7 to 6.5	55	1.6W at 4.8V	SOP-16 QBW1	2-21
RF2146	PCS Linear Power Amplifier	1500 to 2000	4.0 to 6.5	37	700 mW at 4.8V	SOP-16 QBW1	2-22
RF2152	Dual-Mode CDMA/AMPS or TDMA/AMPS 3V Power Amplifier	800 to 960	3.0 to 5.2	36/45	500 mW/1.1W at 3V	PSSOP-16	2-23
RF2153	CDMA/TDMA/PACS 1900MHz 3V Power Amplifier	1750 to 1910	3.0 to 4.5	40	800mW at 3.4V	MP16K01A	2-24
RF2155	3V Programmable Gain Power Amplifier	430 to 930	3.0 to 5.0	56	450mW at 3.6V	SOP-16 BW	2-25
RF2157	PCS CDMA/TDMA 3V Power Amplifier	1750 to 1910	3.0 to 4.5	35	800 mW at 3.4V	MLF16	2-26
RF2161	3V WCDMA Power 1900MHZ 3V Linear Power Amplifier	1850 to 2000	3.4	36	27dBm	MP16K01A	2-27
RF2162	3V 900MHz Linear Amplifier	800 to 960	3.4	35	800mW at 3.4V	MLF16	2-28
RF2172	900MHz ISM Band 3.6V, 250mW Amp with Analog Gain Control	902 to 928	3.0 to 3.6	58	24dBm at 3.6V	MLF16	2-29
RF2173	3V GSM Power Amplifier	800 to 950	2.7 to 4.8	56	36dBm at 3.5V	MLF16	2-30
RF2174	3V DCS Power Amplifier	1700 to 1950	2.7 to 4.8	51	33dBm at 3.5V	MLF16	2-31
RF2175	3V 400MHz Linear Amplifier	380 to 512	3.0 to 5.2	30	34dBm at 3.6V	PSSOP-16	2-32
RF2189	3V, 2.5GHz Linear Power Amplifier	1800 to 2500	3.0 to 5.0	42	26dBm at 3.3V	MLF16	2-33

3 Linear CATV Amplifiers

Part	Description	Frequency (GHz)	Vcc (Volts)	Icc (mA)	Isolation (dB)	Gain (dB)	NF (dB)	P1dB (dBm)	Package	Page
RF2312	Linear General Purpose Amplifier	DC to 2.5	5 to 12	40 to 115	20	15	3.8	+22	SOP-8	3-1
RF2317	Linear CATV Amplifier	DC to 3.0	12to15	100 to 200	20	14.5	4.9	+26	SOP-16 QBW1	3-2
RF2318	Linear Broadband Amplifier	DC to 5.0	9 to 12	50 to 65	15	8	6		SOP-8	3-3
RF2320	Linear General Purpose Amplifier	0.005 to 2.5	6 to 9	75 to 100	20	16	1.6	+22.5	SOP-16BW	3-4
RF2360	Linear General Purpose Amplifier	0.005 to 1.5	6 to 9	100	24	20	1.2	+24	SOP-16BW	3-5

4 General Purpose RF Amplifiers

Part	Description	Frequency (GHz)	Vcc (Volts)	Icc (mA)	Isolation (dB)	Gain (dB)	NF (dB)	P1dB (dBm)	Package	Page
RF2043	General Purpose Amplifier	DC to 6	5 to 6	70	16.5	11	7.6	+18.5	MicroX-CF	4-1
RF2044	General Purpose Amplifier	DC to 6	4.3 to 5.3	65	22	20	4.1	+18.5	MicroX-CF	4-2
RF2045	General Purpose Amplifier	DC to 6	4.6 to 5.6	65	18	14	5.0	+18	MicroX-CF	4-3
RF2046	General Purpose Amplifier	DC to 3	3 to 4	35	23	22	3.8	+12	MicroX-CF	4-4
RF2047	General Purpose Amplifier	DC to 6	3 to 4	40	19	16	4.2	+12	MicroX-CF	4-5
RF2048	General Purpose Amplifier	DC to 8	3 to 4	40	16.5	12	5.3	+12	MicroX-CF	4-6
RF2301	High Isolation Buffer Amplifier	0.3 to 2.5	2.7 to 6	18	50	21	8.0	+4	SOP-8	4-7
RF2302	Broadband Linear Variable Gain Amplifier	0.1 to 2.0	3.0 to 6.0	35		-11 to 14	4	+14	MSOP-8	4-8
RF2303	Broadband Linear Variable Gain Amplifier	0.1 to 2.0	3.0 to 6.0	25	35	-2 to 23	4	+16	MLF16	4-9
RF2304	General Purpose Low-Noise Amplifier	0.3 to 2.5	2.7 to 6.0	5 to 26	18	8	1.8	+6	SOP-8	4-10
RF2306	General Purpose Amplifier	DC to 2	>3.7	20 to 65	20	20	3.5	+12	SOP-8	4-11
RF2307	General Purpose Amplifier	DC to 3	>3.7	20 to 65	18	15	4.0	+14	SOP-8	4-12
RF2308	General Purpose Amplifier	DC to 4	>3.7	20 to 65	15	12	5.0	+13	SOP-8	4-13
RF2310	Wideband General Purpose Amplifier	DC to 2.5	3.5 to 6.0	20 to 65	20	15	5.0	+19	SOP-8	4-14
RF2311	General Purpose Amplifier	DC to 1.6	2.7 to 6.0	8 to 17	20	14	4.0	+8	SOP-8	4-15
RF2314	General Purpose Low Noise Amplifier	0.15 to 2.5	2.7 to 6.0	5 to 25	20	14	1.4	+8	SOT-23-5	4-16
RF2321	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	8	36	12	3.7	-7	SOT-23-5	4-17
RF2322	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	8	38	19	3.3	-7	SOT-23-5	4-18
RF2323	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	7	33	21	2.3	-7	SOT-23-5	4-19
RF2324	PCS CDMA/TDMA 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	24 to 43	36	22	1.8	+16	MSOP-8	4-20
RF2325	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	27	22	16	5.0	+7	SOT-23-5	4-21
RF2326	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	25	18	12	5.7	+7	SOT-23-5	4-22
RF2333	General Purpose Amplifier	DC to 6	5 to 6	70	17	10	8.2	+18.5	SOT-23-5	4-23
RF2334	General Purpose Amplifier	DC to 4	>4.8	65	20	16	5	+18.5	SOT-23-5	4-24
RF2335	General Purpose Amplifier	DC to 6	>5.0	65	17	12	5.6	+17	SOT-23-5	4-25
RF2336	General Purpose Amplifier	DC to 3	>3.5	35	21	20	3.8	+11	SOT-23-5	4-26
RF2337	General Purpose Amplifier	DC to 6	>3.6	40	17	15	4.5	+12	SOT-23-5	4-27
RF2338	General Purpose Amplifier	DC to 6	>3.6	40	16	12		+10.5	SOT-23-5	4-28
RF2347	3V Low Noise Amplifier/ 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	22	26	20.5	1.4	+15.5	MSOP-8	4-29
RF2351	3V PCS CDMA Split Band PA Driver	1.71 to 1.91	3.0 to 6.0	48	30	21	2.5	+16	MLF16	4-30
RF2352	3V CDMA Driver Amplifier	0.8 to 0.9	2.7 to 3.6	15		19.5	2.3		MLF16	4-31
RF2361	3V Low Noise Amplifier/ 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	22	26	20.5	1.4	+15.5	SOT23-5	4-32
RF2362	PCS CDMA/TDMA 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	38	32	20.1	2.2	+14.5	SOT23-5	4-33
RF2363	Dual-Band 3V Low Noise Amplifier	800 to 1000/ 1800 to 2000	2.5 to 5.0	5/ 7.5	20/ 30	18/ 21.5	1.3/ 1.4	-10/ -12	SOT23-8	4-34
RF2364	3V PCS Low Noise Amplifier	1.8 to 2.5	2.7 to 3.3	17	27	18	1.7	8.5	SOT23-5	4-35
RF2365	3V Low Noise Amplifier	1.5 to 2.5	3.0	5.0 to 8.0	25	18	1.6		SOT23-5	4-36
RF2371	3V Low Noise Amplifier	0.7 to 2.0	2.7 to 3.6	2.9		17	1.6		SOT23-8	4-37
RF2375	3V DCS Low Noise Amplifier	0.7 to 2.0	2.7 to 3.6	5.3		18	2.5		SOT23-8	4-38
RF2442	High-Linearity Low Noise Amplifier	0.50 to 2.5	2.5 to 5.0	16	24	20	1.5	+13	MSOP-8	4-39
RF2445	3V DCS Low Noise Amplifier	1700 to 2200	2.7 to 3.6	5	7	20	2.2	+2	MSOP-8	4-40
RF2451	3V Low Noise Amplifier	0.70 to 2.0	2.7 to 3.6	2.9		12	1.7	-3	MSOP-8	4-41

5 Modulators And Upconverters

Part	Description	Frequency (MHz)	Vcc (Volts)	Conversion Method	Icc (mA)	Gain Control (dB)	Mod BW (MHz)	Package	Page
RF2402	UHF Quadrature Modulator	600 to 1000	3 to 5.5	Direct	28	n/a	100	SOP-14	5-1
RF2412	Broadband Dual-Conversion Quadrature Modulator	100 to 1000	3 to 6.5	Dual	31	n/a	50	SOP-20	5-2
RF2413	Gain Controlled Dual-Conversion Quadrature Modulator	200 to 1000	3 to 6.5	Dual	35	60	25	SOP-20	5-3
RF2422	2.5GHz Direct Quadrature Modulator	800 to 2500	4.5 to 6.0	Direct	45	n/a	250	SOP-16	5-4
RF2423	100mW Spread-Spectrum Transmitter IC	800 to 1000	4.5 to 6.0	Direct	110	25	100	SOP-16	5-5
RF2424	UHF Quadrature Modulator	700 to 1000	2.7 to 5.5	Direct	45	n/a	TBD	SOP-16	5-6
RF2454	VHF Quadrature Modulator	200 to 600	3 to 5.5	Direct	28	n/a	100	SOP-14	5-7
RF2464	VHF Quadrature Modulator	200 to 600	4.5 to 5.5	Direct	28	n/a	100	SOP-14	5-8
RF2658	Transmit Modulator, IF AGC, and Upconverter	900 to 1000	2.7 to 3.3	Dual	43 to 63	88	50	SSOP-28	5-9
RF2668	CDMA/FM Transmit Modulator, IF AGC, and Upconverter with Integrated PLL	700 to 2000	2.7 to 3.3	Dual	40 to 69	95	20	LQFP-48	5-10
RF2713	Quadrature Modulator/Demodulator	0.1 to 250	2.7 to 6	Direct	10	n/a	50	SOP-14	5-11
RF2909	3V 915MHz Spread-Spectrum Transmitter IC	100 to 1100	2.7 to 5.0	Direct	30 to 175	20	10	SSOP-24	11-8
RF9958	CDMA/FM Transmit Modulator, IF AGC, and Upconverter	900 to 1000	2.7 to 3.3	Dual	43 to 63	88	50	SSOP-28	5-12

6 Mixers

Part	Description	Frequency (MHz)	IF (MHz)	Vcc (Volts)	Icc (mA)	Package	Page
RF2456	CDMA/FM Downconverter	500 to 1100	250	2.7 to 4.0	18	SSOP-16	6-1
RF2466	3V CDMA/FM Mixer	500 to 1100	0.1 to 250	2.7 to 4.0	18	MLF16	6-2
RF2608	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	2.7 to 5.0	22	SOP-8	6-3
RF2628	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	2.7 to 5.0	22	MSOP-8	6-4
RF2638	CDMA Upconverter/BPSK Modulator	500 to 2500	300	2.7 to 3.3	25	MSOP-8	6-5
RF2639	Upconverter/BPSK Modulator	500 to 2500	300	2.7 to 3.3	7	MSOP-8	6-6
RF2640	3V 900MHz Upconverter/ Driver Amplifier	824 to 849	180	2.7 to 3.3	45	MSOP-10	6-7
RF2641	CDMA Upconverter/BPSK Modulator	500 to 2500	DC to 300	2.7 to 3.3	13	MSOP-8	6-8
RF2642	3V 900MHz Upconverter/ Driver Amplifier with Bypass Mode	824 to 849	130	2.7 to 3.3	15	MLF16	6-9
RF9908	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	3.6	18	SOP-8	6-10
RF9938	PCS Upconverter/BPSK Modulator	1200 to 2500	200	3.6	27	SOP-8	6-11

7 Quadrature Demodulators

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	LO Freq	Amp Phase Bal	Demod Gain (dB)	Package	Page
RF2667	Receive AGC and Demodulator	50 to 300	2.7 to 3.3	20	2xIF	0.1dB, ±1°	-55 to +50	SSOP-24	7-1
RF2711	Quadrature Demodulator	0.1 to 250	4.5 to 5.5	4.5	2xIF	0.1dB, ±1°	14	SOP-14	7-2
RF2713	Quadrature Modulator/Demodulator	0.1 to 250	2.7 to 6	8	2xIF	0.1dB, ±1°	20	SOP-14	7-3
RF9957	CDMA/FM Receive AGC and Demodulator	50 to 250	2.7 to 3.3	14	2xIF	0.1dB, ±1°	-55 to +50	SSOP-24	7-4

8 Front-Ends

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Casc. Gain (dB)	Gain Control (dB)	Casc. IIP_3 (dBm)	Casc. NF (dB)	Package	Page
RF2401	Low Noise Amplifier/Mixer	300 to 1100	5	20	24	21	-17	4.3	SOP-14	8-1
RF2406	CDMA/FM Low Noise Amplifier/Mixer	500 to 1100	2.7 to 4	23	27	19.5	-4	4.3	SSOP-28	8-2
RF2411	Low Noise Amplifier/Mixer	500 to 1900	3 to 6.5	20	27	n/a	-8	2.4	SOP-14	8-3
RF2418	Low Current LNA/Mixer	400 to 1100	3 to 6.5	4.5	19	n/a	-13	3.9	SOP-14	8-4
RF2431	High Frequency LNA/Mixer	1500 to 2500	3 to 6.5	13	23	n/a	-14	3.5	SOP-16	8-5
RF2442	High-Linearity Low Noise Amplifier	500 to 2500	3	12	19	n/a	+3	1.8	MSOP-8	4-39
RF2444	High Frequency LNA/Mixer	2400 to 2500	2.7 to 3.6	20	28	16	-23 to -8	4.5 to 18	SSOP-16 EPP	8-6
RF2448	PCS CDMA Low Noise Amplifier/Mixer 1500MHz to 2200MHZ Downconverter	1500 to 2200	2.65 to 3.9	8	-4 to +25	29	-11 to +17.5	3 to 23	SSOP-16 EDF	8-7
RF2449	CDMA/FM Low Noise Amplifier/Mixer 900MHz Downconverter	869 to 894	2.75	20	28	21			SSOP-24	8-8
RF2457	900MHz 3V Low Current LNA/Mixer	902 to 928	2.7 to 3.3	5	8.5	13	-3	2.5	MSOP-10	8-9
RF2458	3V PCS Downconverter	1500 to 2500	2.7 to 3.6	38	14	n/a	+3	10	MSOP-10	8-10
RF2459	3V PCS Downconverter	1500 to 2500	2.7 to 3.6	20	10	n/a	+7	14	MSOP-8	8-11
RF2486	PCS Low Noise Amplifier/Mixer	1500 to 2500	2.7 to 5.0	52	26	n/a	-15	4.0	SSOP-24	8-12
RF9906	CDMA/FM Low Noise Amplifier/Mixer	500 to 1500	3.6	30	30	9	-13	2.6	SSOP-24	8-13
RF9936	PCS Low Noise Amplifier/Mixer	1500 to 2500	3.6	5 to 46	28	10	-9 to -14	2.5 to 5.1	SSOP-24	8-14
RF9986	PCS Low Noise Amplifier/Mixer	1500 to 2500	3.6	5 to 48	26	n/a	-11	2.5	SSOP-24	8-15

9 Attenuators and Switches

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Ins. Loss (dB)	Attn. Range/ Isolation (dB)	Attn. Step (dB)	Package	Page
RF2410	UHF Programmable Attenuator	500 to 2100	5	6	4.0	38	2	SOP-16	9-1
RF2420	Programmable Attenuator	DC to 950	3 to 6	4	4.0	44	2	SOP-16	9-2
RF2421	10dB Switched Attenuator	500 to 3000	2.7 to 6	0.5	1.0	10	10	SOP-8	9-3
RF2425	4-Port Transfer Switch	800 to 2000	2.7 to 6	1.5	0.6	23	n/a	SOP-8	9-4
RF2436	Transmit/Receive Switch	100 to 2500	2.7 to 6	1.5	0.5	24	n/a	SOT-23-5	9-5

10 IF Amplifiers

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Gain (dB, Max)	Gain Control (dB)	RSSI	Package	Page
RF2607	CDMA/FM Receive AGC Amplifier	12 to 285	3.6	14	48	96	no	SSOP-16	10-1
RF2609	CDMA/FM Transmit AGC Amplifier	12 to 175	3.6	23	42	90	no	SSOP-16	10-2
RF2617	3V CDMA/FM Receive AGC Amplifier	12 to 285	3.0	14	48	96	no	SSOP-16	10-3
RF2619	3V CDMA/FM Transmit AGC Amplifier	12 to 175	3.0	23	42	90	no	SSOP-16	10-4
RF2627	3V CDMA Receive AGC Amplifier	12 to 285	2.7 to 3.3	14	48	96	no	MSOP-8	10-5
RF2629	3V CDMA/FM Transmit AGC Amplifier	12 to 175	2.7 to 3.3	23	42	90	no	MSOP-8	10-6
RF2670	8MHz Dual Baseband AGC with Programmable Low Pass Filtering	0.01 to 8	2.7 to 3.6	13	80	70	yes	SSOP-24	10-7
RF2903	Integrated Spread Spectrum Receiver	150 to 1000	3.0 to 6.0	23	90	90	yes	SSOP-24	10-8

11 Transceivers

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc-Rx (mA)	Icc-Tx (mA)	TX Power (dBm)	RX Sensitivity (dBm)	Package	Page
RF2510	VHF/UHF Transmitter	300 to 1000	2.4 to 5.0	n/a	13	-4	n/a	SSOP-16	11-1
RF2512	UHF Transmitter	300 to 1000	2.7 to 5.0	n/a	25	+10	n/a	SSOP-24	11-2
RF2513	UHF Transmitter	300 to 1000	2.7 to 5.0	n/a	25	+6	n/a	SSOP-24	11-3
RF2516	VHF/UHF Transmitter	100 to 960	2.0 to 3.6	n/a	10.5	+10	n/a	SSOP-16	11-4
RF2905	433/868/915MHz FM/FSK/ASK/OOK Transceiver	300 to 1000	2.7 to 5.0	9	25	+10	-101	LQFP-48	11-5
RF2907	433/868/915MHz AM/ASK/OOK Transceiver	300 to 1500	2.7 to 5.0	11.5	20	+7.0	-97	SSOP-28	11-6
RF2908	915MHz Spread Spectrum Receiver with PLL Frequency Synthesizer	700 to 1100	2.7 to 3.6	50	n/a	n/a	TBD	LQFP-48	11-7
RF2909	3V 915MHz Spread-Spectrum Transmitter IC	100 to 1100	2.7 to 5.0	n/a	30 to 175	17	n/a	SSOP-24	11-8
RF2915	433/868/915MHz FSK/ASK/OOK Transceiver	300 to 1000	2.4 to 5.0	5.6	22	+8.5	-99	LQFP-32	11-9
RF2917	433/868/915MHz FM/FSK Receiver	300 to 1000	2.7 to 5.0	9	n/a	n/a	-101	LQFP-32	11-10
RF2919	433/868/915MHz ASK/OOK Receiver	300 to 1000	2.7 to 5.0	10	n/a	n/a	-104	LQFP-32	11-11
RF2925	433/868/915MHz FM/FSK/ASK/OOK Transceiver	300 to 1000	2.7 to 5.0	9	25	+10	-101	LQFP-48	11-12
RF2926	UHF Dual Conversion Transceiver	300 to 1000	2.7 to 5.0	10	37	+8.5	-99	LQFP-48	11-13
RF2938	2.4GHz Spread Spectrum Transceiver	45 to 500 and 2.4 to 2.5GHz	2.7 to 3.6	65	105	+6	n/a	TQFP-48 EPP	11-14
RF2945	433/868/915MHz FSK/ASK/OOK Transceiver	300 to 1000	2.4 to 5.0	6.1	22	+8.5	-96	LQFP-32	11-15
RF9901	FSK Transmitter	400 to 930	3.0 to 5.0	n/a	30	+2	n/a	SOP-16	11-16
RF9902	FSK Receiver	400 to 930	3.0 to 5.0	25	n/a	n/a	-85	SOP-16	11-17

12 VCOs

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Output Power (dBm)	Package	Page
RF2504	VCO/High-Isolation Buffer Amplifier	700 to 1500	2.2 to 5.0	5.5	-6	SOP-8	12-1
RF2506	VHF/UHF VCO/High-Isolation Buffer Amplifier	10 to 1000	2.7 to 3.6	9	-3	SOP-8	12-2

Data Sheet Classification

Preliminary

The heading "***Preliminary***" on a data sheet indicates that the device has undergone initial testing, and the device is available for sampling and low volume orders. In some cases, the samples supplied in this stage may differ slightly from the final production version. The device is still under evaluation and characterization, and therefore specifications are subject to change without notice.

Released

When there is no specific header on a data sheet the device has been released for production. Production quantities are available. The guaranteed limits will not be changed without notice to the local sales organizations and customers with open orders.

2 Power Amplifiers

Part	Description	Frequency (MHz)	Vcc (Volts)	Efficiency (%, Max)	Output Power	Package	Page
RF2103P	Medium Power Linear Amplifier	450 to 1000	2.7 to 7.5	47	750mW at 7.5V	SOP-14	2-1
RF2104	Medium Power Amplifier	400 to 1000	2.7 to 3.6	40	500mW at 3.6 V	SOP-16 QBW1	2-2
RF2105L	High Power Linear UHF Amplifier	430 to 930	2.7 to 6.5	48	1.2W at 5.8V	QLCC-16	2-3
RF2108	Linear Power Amplifier	800 to 950	4.2 to 7.5	57	1.4W at 4.8V	SOP-16 BW	2-4
RF2114	Medium Power Linear Amplifier	1 to 600	2.7 to 6.5	45	800mW at 5.8V	SOP-14	2-5
RF2115L	High Power UHF Amplifier	430 to 930	5.0 to 6.5	48	1.1W at 5.8V	QLCC-16	2-6
RF2117	High Efficiency 400MHz Amplifier	400 to 500	3.0 to 5.5	50		PSOP-16	2-7
RF2119	High Efficiency 2V Power Amplifier	800 to 960	2.0 to 5.0	53	2.0W at 3.0V	PSSOP-16	2-8
RF2125	High Power Linear Amplifier	1500 to 2200	2.7 to 7.5	45	1W at 6.0V	SOP-8-C	2-9
RF2125P	High Power Linear Amplifier	1500 to 2200	2.7 to 7.5	45	1W at 6.0V	PSOP-8	2-10
RF2126	High Power Linear Amplifier	1800 to 2500	3.0 to 6.5	45	1.3W at 6.0V	PSOP-8	2-11
RF2127	Medium Power Linear Amplifier	1500 to 1900	3.0 to 6.5	30	200mW at 6.0V	SOP-8	2-12
RF2128	Medium Power Linear Amplifier	1900 to 2500	3.0 to 6.5	30	200mW at 6.0V	SOP-8-C	2-13
RF2128P	Medium Power Linear Amplifier	1900 to 2500	3.0 to 6.5	33	200mW at 6.0V	PSOP-8	2-14
RF2129	3V, 2.5GHz Linear Power Amplifier	1800 to 2500	3.0 to 5.0	42	400mW at 3.3V	PSOP-8	2-15
RF2131	High Efficiency AMPS/ETACS Amplifier	800 to 950	4.0 to 7.0	64	1.2W at 4.8V	SOP-16 BW	2-16
RF2132	Linear Power Amplifier	800 to 950	4.2 to 6.0	55	1.6W at 4.8V	SOP-16 BW	2-17
RF2137	Linear Power Amplifier	800 to 950	4.2 to 6.0	55	1.6W at 5.0V	PSOP-8	2-18
RF2138	3V GSM Power Amplifier	800 to 950	2.7 to 4.8	58	4W at 3.5V	MP16K01A	2-19
RF2140	3V DCS Power Amplifier	1700 to 2000	2.7 to 4.8	51	2W at 3.5V	MP16K01A	2-20
RF2145	DCS1800/1900 Power Amplifier	1700 to 1900	2.7 to 6.5	55	1.6W at 4.8V	SOP-16 QBW1	2-21
RF2146	PCS Linear Power Amplifier	1500 to 2000	4.0 to 6.5	37	700 mW at 4.8V	SOP-16 QBW1	2-22
RF2152	Dual-Mode CDMA/AMPS or TDMA/AMPS 3V Power Amplifier	800 to 960	3.0 to 5.2	36/45	500 mW/1.1W at 3V	PSSOP-16	2-23
RF2153	CDMA/TDMA/PACS 1900MHz 3V Power Amplifier	1750 to 1910	3.0 to 4.5	40	800mW at 3.4V	MP16K01A	2-24
RF2155	3V Programmable Gain Power Amplifier	430 to 930	3.0 to 5.0	56	450mW at 3.6V	SOP-16 BW	2-25
RF2157	PCS CDMA/TDMA 3V Power Amplifier	1750 to 1910	3.0 to 4.5	35	800 mW at 3.4V	MLF16	2-26
RF2161	3V WCDMA Power 1900MHZ 3V Linear Power Amplifier	1850 to 2000	3.4	36	27dBm	MP16K01A	2-27
RF2162	3V 900MHz Linear Amplifier	800 to 960	3.4	35	800mW at 3.4V	MLF16	2-28
RF2172	900MHz ISM Band 3.6V, 250mW Amp with Analog Gain Control	902 to 928	3.0 to 3.6	58	24dBm at 3.6V	MLF16	2-29
RF2173	3V GSM Power Amplifier	800 to 950	2.7 to 4.8	56	36dBm at 3.5V	MLF16	2-30
RF2174	3V DCS Power Amplifier	1700 to 1950	2.7 to 4.8	51	33dBm at 3.5V	MLF16	2-31
RF2175	3V 400MHz Linear Amplifier	380 to 512	3.0 to 5.2	30	34dBm at 3.6V	PSSOP-16	2-32
RF2189	3V, 2.5GHz Linear Power Amplifier	1800 to 2500	3.0 to 5.0	42	26dBm at 3.3V	MLF16	2-33

RF2103P

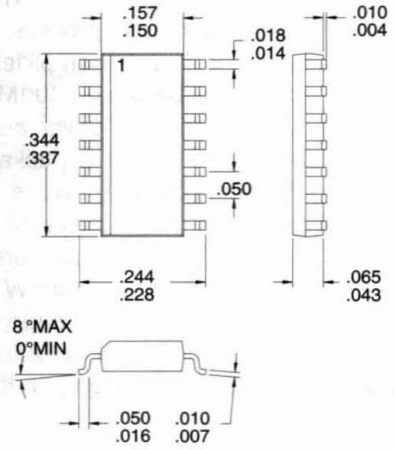
MEDIUM POWER LINEAR AMPLIFIER

Typical Applications

- Digital Communication Systems
- Spread Spectrum Communication Systems
- Driver for Higher Power Linear Applications
- Portable Battery Powered Equipment
- Commercial and Consumer Systems
- Base Station Equipment

Product Description

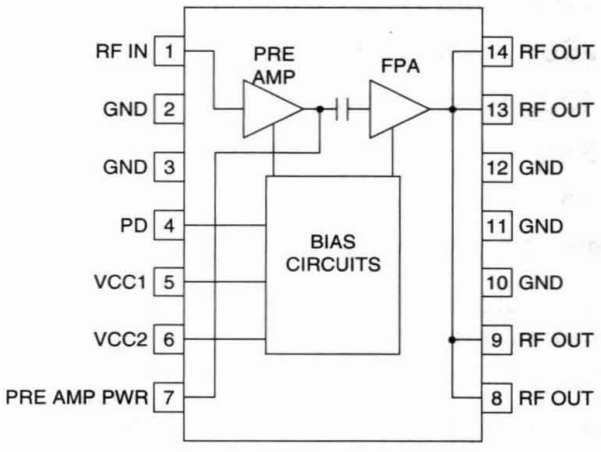
The RF2103P is a medium power linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final linear RF amplifier in UHF radio transmitters operating between 450MHz and 1000MHz. It may also be used as a driver amplifier in higher power applications. The device is self-contained with the exception of the output matching network, power supply feed line, and bypass capacitors, and it produces an output power level of 750mW (CW). The device can be used in 3 cell battery applications. The maximum CW output at 3.6V is 175mW. The unit has a total gain of 31dB, depending upon the output matching network.



Package Style: SOP-14

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 450MHz to 1000MHz Operation
- Up to 750mW CW Output Power
- 31dB Small Signal Gain
- Single 2.7V to 7.5V Supply
- 47% Efficiency
- Digitally Controlled Power Down Mode

Ordering Information

RF2103P	Medium Power Linear Amplifier
RF2103P PCBA	Fully Assembled Evaluation Board

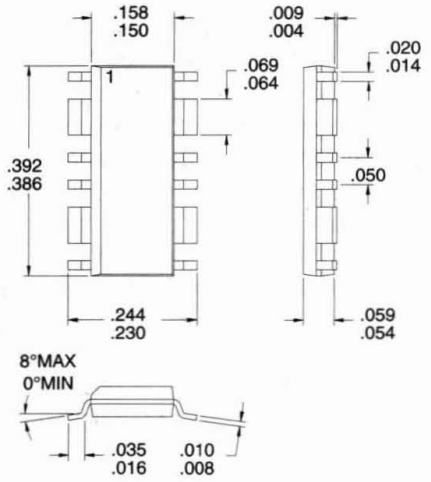
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 900MHz ISM Band Applications
- 400MHz Industrial Radios
- Driver for Higher Power Applications
- Portable Battery Powered Equipment
- Commercial and Consumer Systems
- Base Station Equipment

Product Description

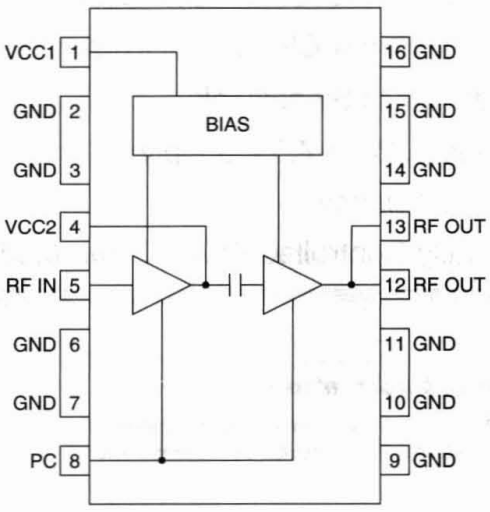
The RF2104 is a medium power amplifier IC. The device is manufactured on a low cost Silicon process, and has been designed for use as the final RF amplifier in UHF radio transmitters operating between 400MHz and 1000MHz. It may also be used as a driver amplifier in higher power applications. The device is packaged in a plastic quad-batwing 16-lead package, and is self-contained with the exception of the output matching network, power supply feed line, and bypass capacitors. It produces an output power level of up to 500mW (CW) at 3.6V. The device can be used in 3 cell battery applications. The maximum CW output at 3.6V is +27dBm. The unit has a total gain of 26dB, depending upon the output matching network.



Package Style: SOP-16 QBW1

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- 400MHz to 1000MHz Operation
- Up to 500mW CW Output Power
- 26dB Small Signal Gain
- 40dB Gain Control Range
- Single 2.7V to 3.6V Supply
- 40% Efficiency

Ordering Information

RF2104	Medium Power Amplifier
RF2104 PCBA-L	Fully Assembled Evaluation Board (830MHz)
RF2104 PCBA-H	Fully Assembled Evaluation Board (915MHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

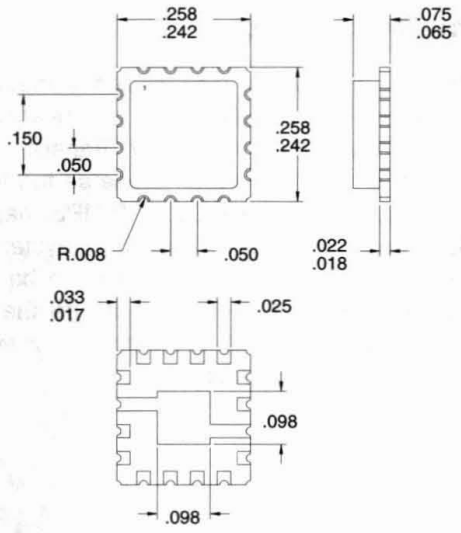
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 900 MHz ISM Band Applications
- 400 MHz Industrial Radios
- Digital Communication Systems
- Driver Stage for Higher Power Applications
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

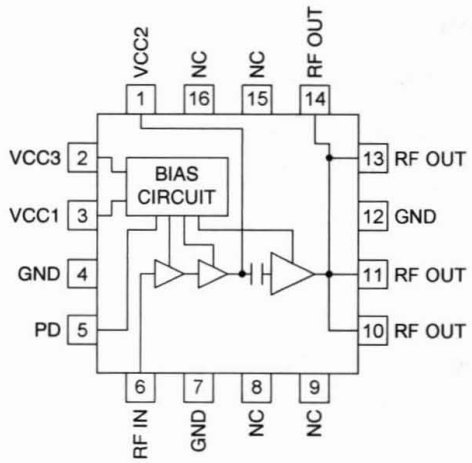
The RF2105L is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in digital cellular phone transmitters or ISM applications requiring linear amplification. It is packaged in a 16-lead ceramic package with a backside ground. The device is self-contained with the exception of the output matching network and power supply feed line.



Package Style: QLCC-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2.7V to 6.5V Supply
- Up to 1.2W CW Output Power
- 33dB Small Signal Gain
- 48% Efficiency
- Digitally Controlled Power Down Mode
- Small Package Outline (0.25" x 0.25")

Ordering Information

RF2105L	High Power Linear UHF Amplifier
RF2105L PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

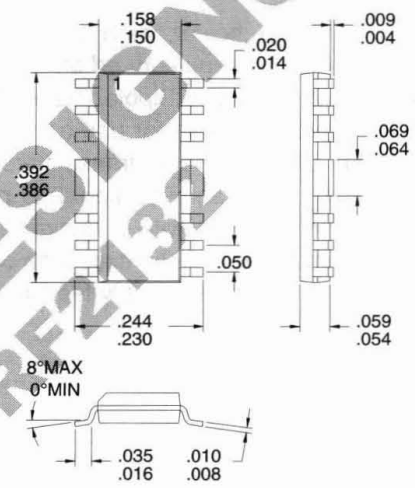
Typical Applications

- 4.8V AMPS Cellular Handsets
- 4.8V CDMA/AMPS Cellular Handsets
- Driver Amplifier in Cellular Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2108 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 4-cell CDMA/AMPS hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 950MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics.

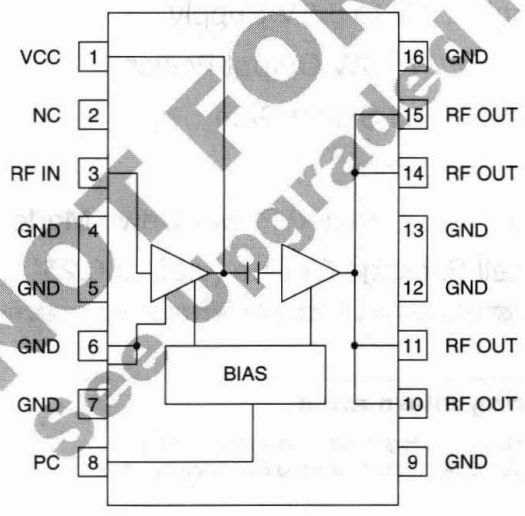
NOT FOR NEW DESIGNS
See Upgraded Product RF2132



Package Style: SOP-16 Batwing

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4.2V to 6.0V Supply
- 28dBm Linear Output Power
- 29dB Gain With Analog Gain Control
- 45% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 950MHz Operation

Ordering Information

RF2108	Linear Power Amplifier
RF2108 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

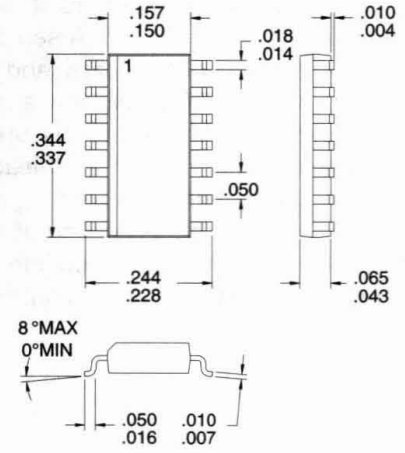
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Digital Communication Systems
- Spread Spectrum Communication Systems
- Driver for Higher Power Linear Applications
- Portable Battery Powered Equipment
- Commercial and Consumer Systems
- Base Station Equipment

Product Description

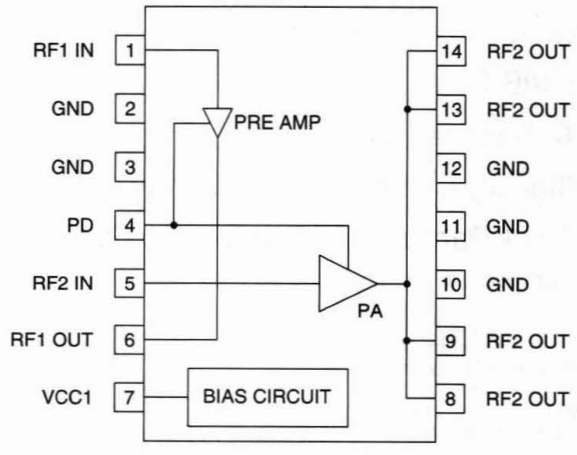
The RF2114 is a medium to high power linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final linear RF amplifier in UHF radio transmitters operating between 1MHz and 600MHz. It may also be used as a driver amplifier in higher power applications. The device is self-contained with the exception of the output matching network, power supply feed line, and bypass capacitors. The device can be used in 3-cell battery applications. The maximum CW output at 3V is 125mW. The unit has a total gain of 35dB, depending upon the output matching network.



Package Style: SOP-14

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 1MHz to 600MHz Operation
- Over 800mW CW Output Power
- 35dB Small Signal Gain
- Single 2.7V to 6.5V Supply
- 45% Efficiency
- Digitally Controlled Power Down Mode

Ordering Information

RF2114	Medium Power Linear Amplifier
RF2114 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

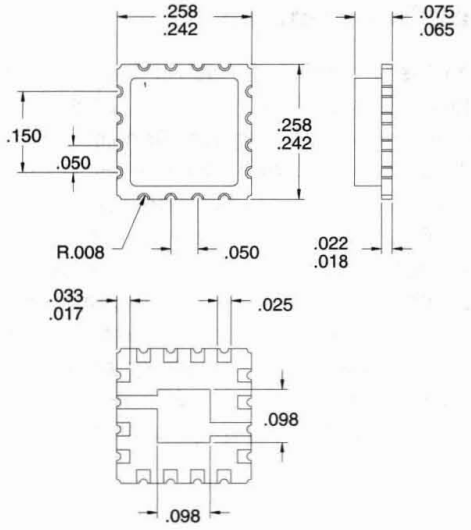
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Analog Communication Systems
- Analog Cellular Systems (AMPS & TACS)
- 900MHz Spread Spectrum Systems
- 400MHz Industrial Radios
- Driver Stage for Higher Power Applications
- Portable Battery Powered Equipment

Product Description

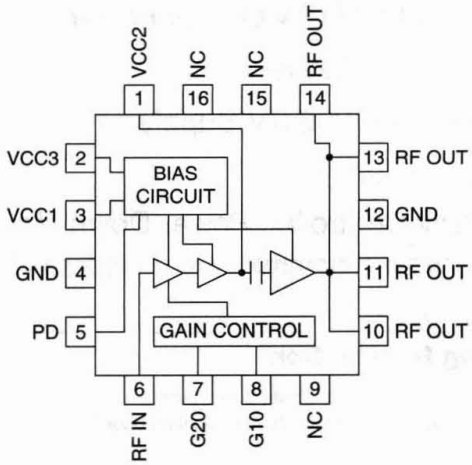
The RF2115L is a high power amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in analog cellular phone transmitters or ISM applications operating at 915MHz. The device is packaged in a 16-lead ceramic quad leadless chip carrier with a backside ground. The device is self-contained with the exception of the output matching network and power supply feed line. A two-bit digital control provides 4 levels of power control, in 10dB steps.



Package Style: QLCC-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 5V to 6.5V Supply
- Up to 1.0W CW Output Power
- 33dB Small Signal Gain
- 48% Efficiency
- Digitally Controlled Output Power
- Small Package Outline (0.25" x 0.25")

Ordering Information

RF2115L	High Power UHF Amplifier
RF2115L PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

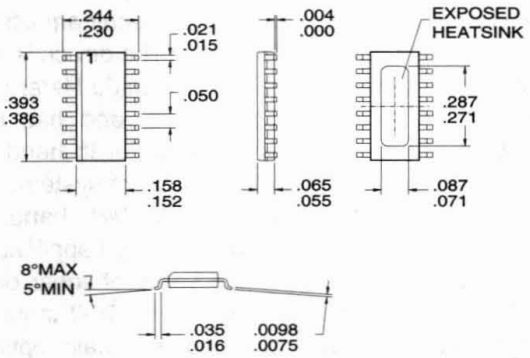
HIGH EFFICIENCY 400MHZ AMPLIFIER

Typical Applications

- 3.6V Analog Handsets
- Analog Communication Systems
- 400MHz Industrial Radios
- Portable Battery Powered Equipment

Product Description

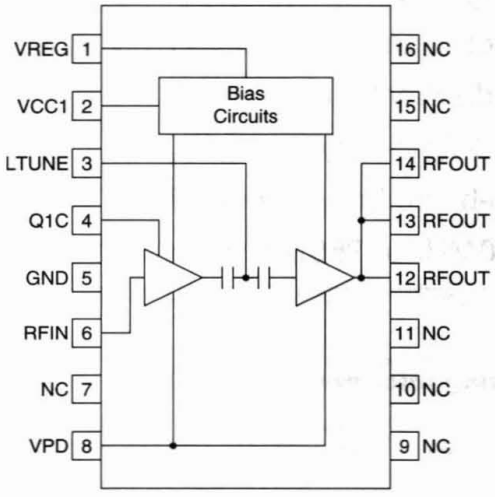
The RF2117 is a high power amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in analog cellular phone transmitters between 400MHz and 500MHz or ISM applications operating at 433MHz. The device is packaged in a low cost 16-lead plastic package with a metal backside. The device is self-contained with the exception of the output matching network and power supply feed line.



Package Weight
typically 0.22 grams

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Package Style: PSOP-16

Features

- Single 3V to 5.5V Supply
- Up to 2W CW Output Power
- 33dB Small Signal Gain
- >50% Efficiency
- 400-500 MHz Operation

Ordering Information

RF2117	High Efficiency 400MHz Amplifier
RF2117 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

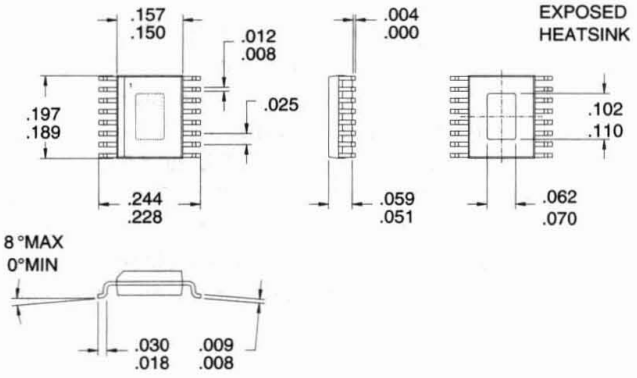
HIGH EFFICIENCY 2V POWER AMPLIFIER

Typical Applications

- Two-Way Pagers
- 915MHz ISM Band Equipment
- Spread Spectrum Systems
- 3V AMPS/ETACS Cellular Handsets
- CDPD Portable Data Cards
- Personal Digital Cellular

Product Description

The RF2119 is a high-power, high-efficiency amplifier IC targeting 2V to 4V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 960MHz band. The device is well suited for either CW or pulsed applications. At 3V, the RF2119 can deliver 29.5dBm of linear output power. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics. The package is a PSSOP-16 with backside ground.

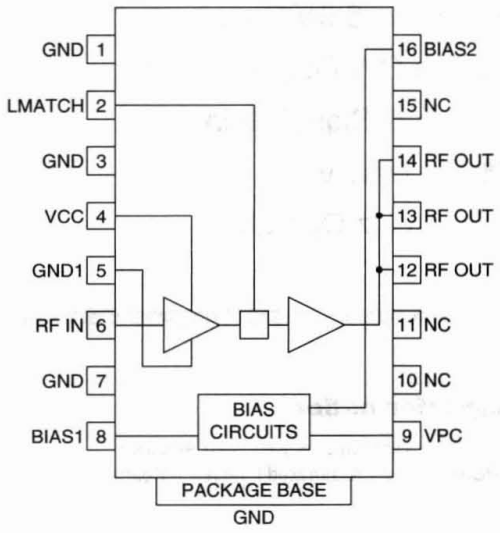


Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

Package Style: PSSOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2V to 5V Supply
- 30dBm Output Power at 2.5V
- 30dB Small Signal Gain
- 53% Efficiency
- On-board Power Down Mode
- 800MHz to 960MHz Operation

Ordering Information

RF2119	High Efficiency 2V Power Amplifier
RF2119 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

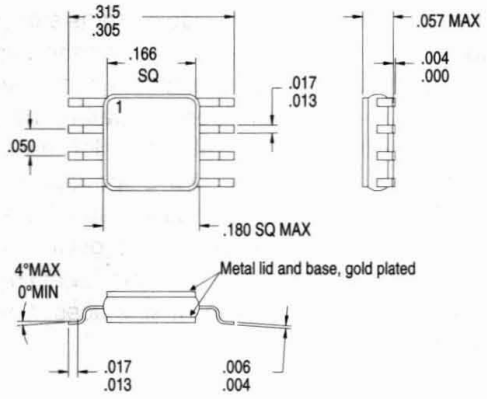
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- PCS Communication Systems
- Digital Communication Systems
- DECT Cordless Applications
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2125 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in digital PCS phone transmitters and base stations requiring linear amplification operating between 1500MHz and 2200MHz. It will also function as a high efficiency amplifier for constant envelope applications such as DECT. The device is packaged in an 8-lead ceramic package with a backside ground. The device is self-contained with the exception of the output matching network and power supply feed line. It produces a typical output power level of 1W.



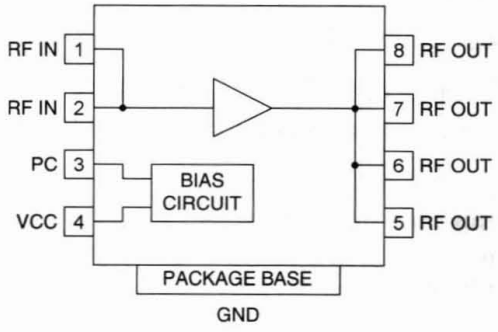
Package Style: SOP-8-C

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Single 2.7V to 7.5V Supply
- 1W Output Power
- 14dB Gain
- 45% Efficiency
- Power Down Mode
- 1500MHz to 2200MHz Operation



Functional Block Diagram

Ordering Information

RF2125	High Power Linear Amplifier
RF2125 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2125P

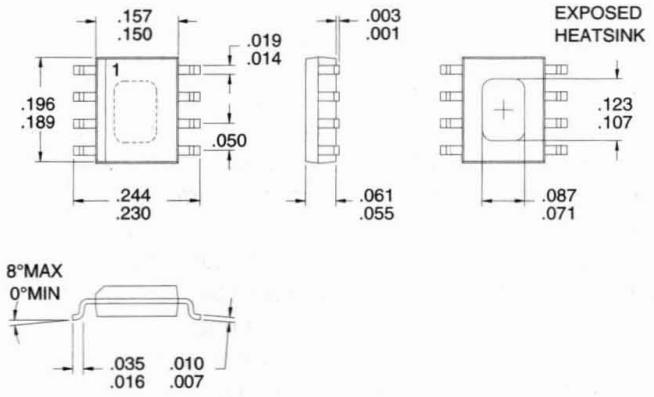
HIGH POWER LINEAR AMPLIFIER

Typical Applications

- PCS Communication Systems
- Digital Communication Systems
- DECT Cordless Applications
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2125P is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process and has been designed for use as the final RF amplifier in digital PCS phone transmitters and base stations requiring linear amplification operating between 1500MHz and 2200MHz. It will also function as a high efficiency amplifier for constant envelope applications such as DECT. The device is packaged in an 8-lead plastic package with a backside ground. The device is self-contained with the exception of the output matching network and power supply feed line. It produces a typical output power level of 1W.

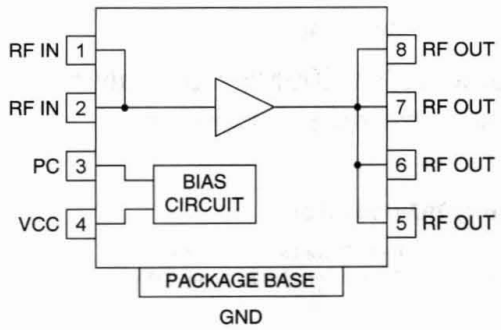


Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

Package Style: PSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2.7V to 7.5V Supply
- 1W Output Power
- 14dB Gain
- 45% Efficiency
- Power Down Mode
- 1500MHz to 2200MHz Operation

Ordering Information

RF2125P	High Power Linear Amplifier
RF2125P PCBA	Fully Assembled Evaluation Board

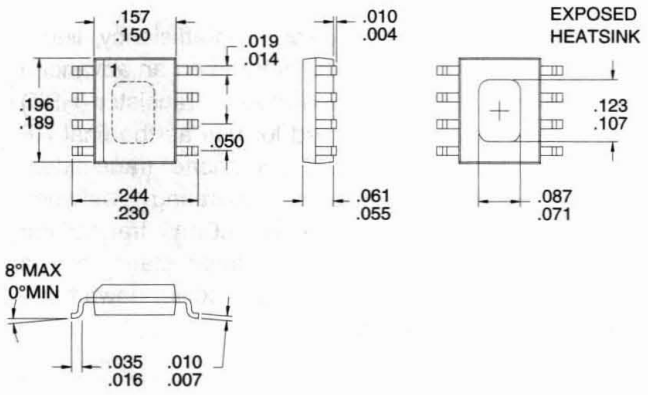
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 2.5GHz ISM Band Applications
- Digital Communication Systems
- PCS Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2126 is a high-power, high-efficiency, linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process and has been designed for use as the final RF amplifier in 2.45 GHz ISM applications such as WLAN and POS terminals. The part will also function as the final stage in digital PCS phone transmitters requiring linear amplification operating between 1800MHz and 2500MHz. The device is packaged in an 8-lead plastic package with a backside ground. The device is self-contained with the exception of the output matching network and power supply feed line. It produces a typical output power level of 1W.

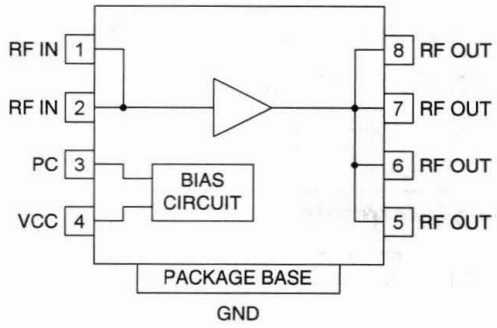


Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

Package Style: PSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 6.5V Supply
- 1.3W Output Power
- 12dB Gain
- 45% Efficiency
- Power Down Mode
- 1800MHz to 2500MHz Operation

Ordering Information

RF2126	High Power Linear Amplifier
RF2126 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

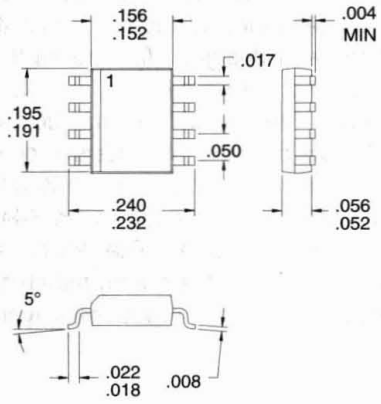
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- DECT Cordless Applications
- PCS Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

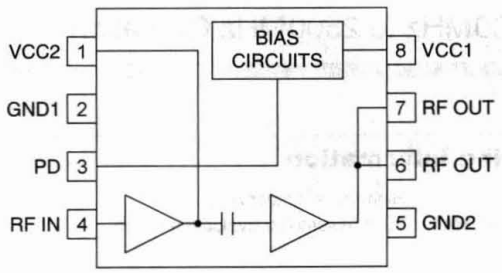
The RF2127 is a medium-power, high-efficiency, linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 1800MHz digital PCS phone transmitters requiring linear amplification operating between 1800MHz and 1900MHz, with over 100mW transmitted power. It will also function as the driver stage for the RF2125 high power amplifier. A simple power down function is included for TDD operation.



Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3.0V to 6.5V Supply
- 100mW Linear Output Power
- 25dB Small Signal Gain
- 30% Efficiency
- Digitally Controlled Power Down Mode
- 1500MHz to 1900MHz Operation

Ordering Information

RF2127	Medium Power Linear Amplifier
RF2127 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

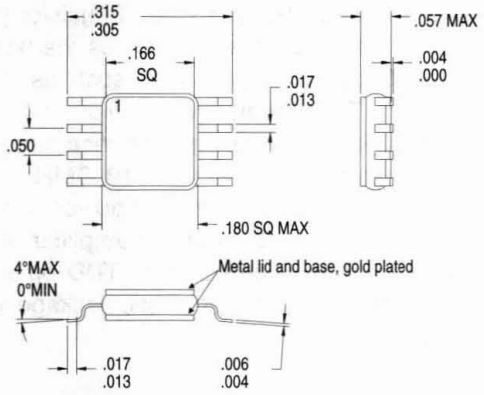
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- PCS Communication Systems
- 2.5GHz ISM Band Applications
- Wireless LANs
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2128 is a medium-power, high-efficiency, linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 2.45GHz ISM applications such as WLAN and POS terminals. The part also will function as the final stage in digital PCS phone transmitters requiring linear amplification operating between 1900MHz and 2200MHz, with over 100mW transmitted power, or as the driver stage for the RF2125 high power amplifier. A simple power down function is included for TDD operation.



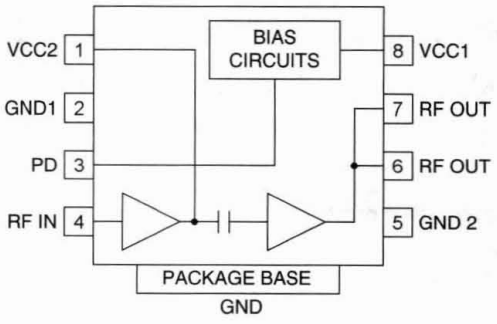
Package Style: SOP-8-C

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Single 3.0V to 6.5V Supply
- 100mW Linear Output Power
- 25dB Small Signal Gain
- 30% Efficiency
- Digitally Controlled Power Down Mode
- 1900MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2128	Medium Power Linear Amplifier
RF2128 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

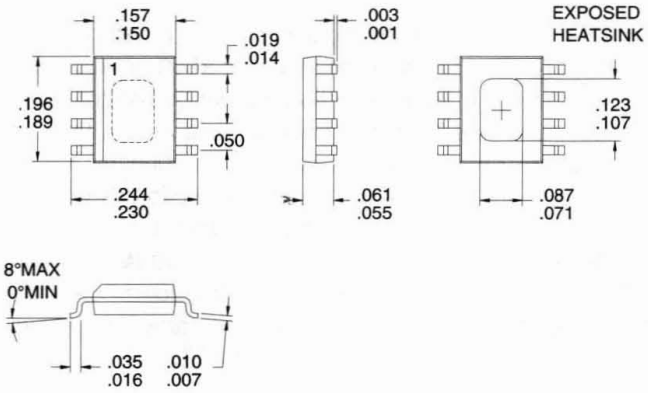
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- PCS Communication Systems
- 2.5GHz ISM Band Applications
- Wireless LANs
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2128P is a medium-power, high-efficiency, linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 2.45GHz ISM applications such as WLAN and POS terminals. The part also will function as the final stage in digital PCS phone transmitters requiring linear amplification operating between 1900MHz and 2200MHz, with over 100mW transmitted power, or as the driver stage for the RF2125 high power amplifier. A simple power down function is included for TDD operation. The part is packaged in a low-cost plastic package with a metal backside.



Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

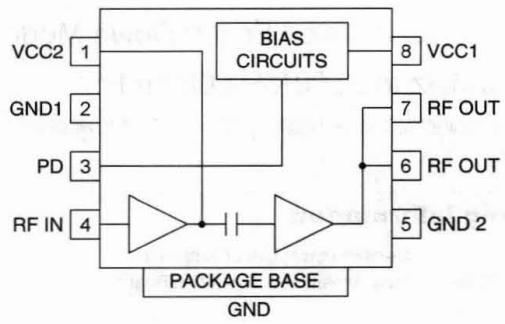
Package Style: PSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Single 3.0V to 6.5V Supply
- 100mW Linear Output Power
- 28dB Small Signal Gain
- 33% Efficiency
- Digitally Controlled Power Down Mode
- 1900MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2128P	Medium Power Linear Amplifier
RF2128P PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

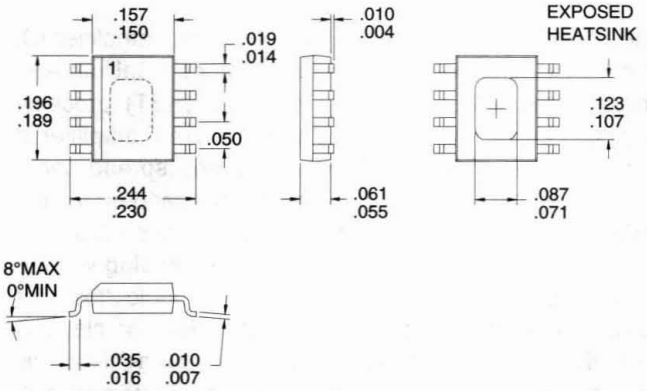
3V, 2.5GHZ LINEAR POWER AMPLIFIER

Typical Applications

- 2.5GHz ISM Band Applications
- PCS Communication Systems
- Wireless LAN Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- Broadband Spread Spectrum Systems

Product Description

The RF2129 is a linear, medium power, high efficiency amplifier IC designed specifically for low voltage operation. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 2.5GHz spread spectrum transmitters. The device is packaged in an 8-lead plastic package with a backside ground and is self-contained with the exception of the output matching network and power supply feed line.



Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

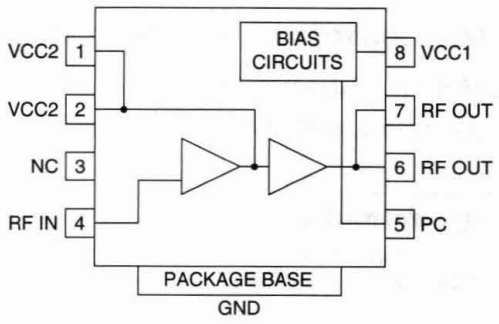
Package Style: PSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Single 3.3V Power Supply
- +26dBm Saturated Output Power
- 27dB Small Signal Gain
- High Power Added Efficiency
- Power Down Mode
- 1800MHz to 2500MHz Frequency Range



Functional Block Diagram

Ordering Information

RF2129	3V, 2.5GHz Linear Power Amplifier
RF2129 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

MICRO·DEVICES

RF2131

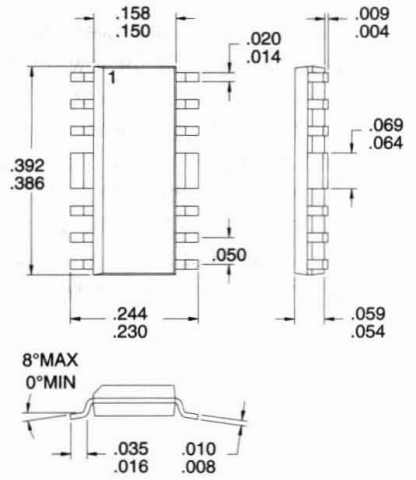
HIGH EFFICIENCY AMPS/ETACS AMPLIFIER

Typical Applications

- AMPS/ETACS Cellular Handsets
- CDPD Portable Data Cards
- 900MHz ISM Band Equipment
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

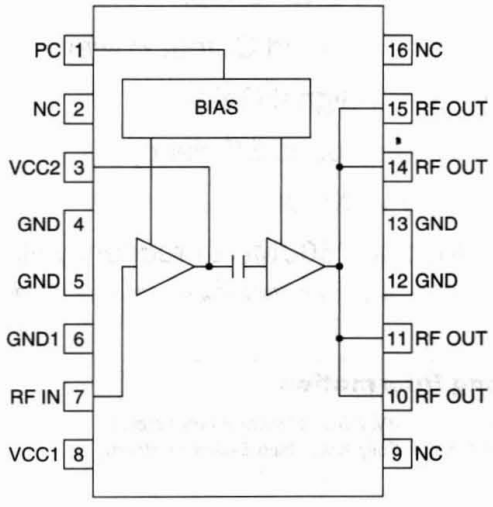
The RF2131 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in AMPS and ETACS hand held equipment, spread spectrum systems, CDPD, and other applications in the 800MHz to 950MHz band. On-board power control provides over 30dB of control range with an analog voltage input, and provides power down with a logic "low" for standby operation. Although it is intended for class C operation, linear class AB operation can be achieved by raising the bias level. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power and efficiency characteristics.



Package Style: SOP-16 BW

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4.0V to 7.0V Supply
- 1.2W Output Power
- 25dB Gain With Analog Gain Control
- 64% Efficiency
- Digitally Controlled Power Down Mode
- 800MHz to 950MHz Operation

Ordering Information

RF2131	High Efficiency AMPS/ETACS Amplifier
RF2131 PCBA	Fully Assembled Evaluation Board

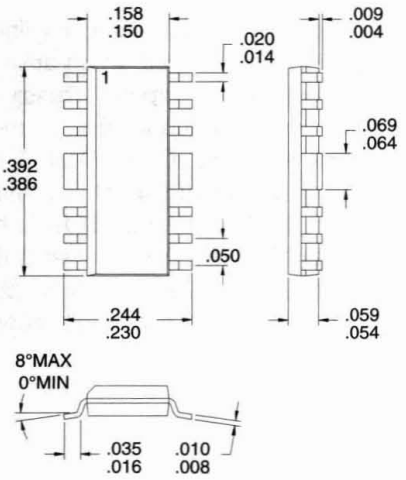
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 4.8V AMPS Cellular Handsets
- 4.8V CDMA/AMPS Handsets
- 4.8V JCDMA/TACS Handsets
- Driver Amplifier in Cellular Base Stations
- Portable Battery Powered Equipment

Product Description

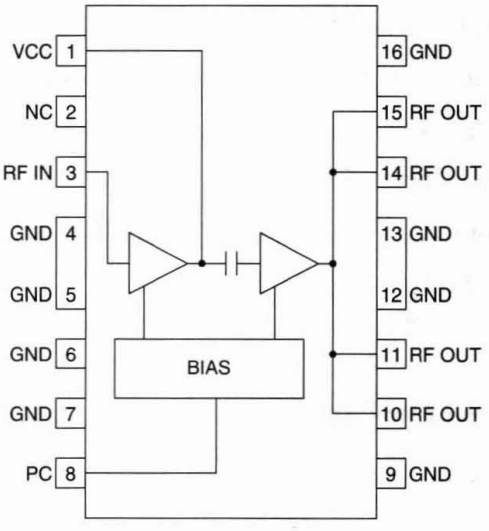
The RF2132 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 4-cell CDMA/AMPS hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 950MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics over varying supply and control voltages.



Package Style: SOP-16 BW

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4.2V to 6.0V Supply
- Up to 29 dBm Linear Output Power
- 29dB Gain With Analog Gain Control
- 45% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 950MHz Operation

Ordering Information

RF2132	Linear Power Amplifier
RF2132 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

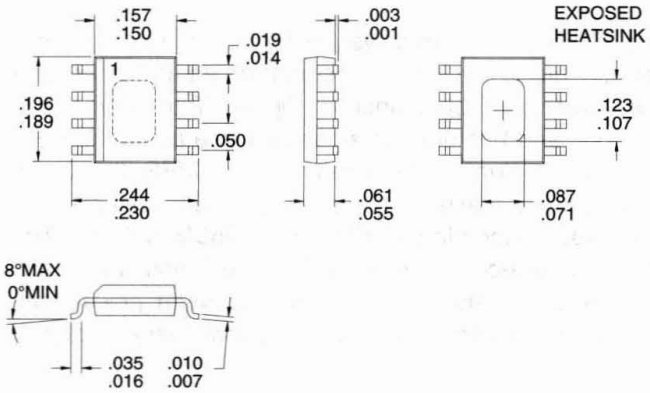
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 4.8V AMPS Cellular Handsets
- 4.8V CDMA/AMPS Handsets
- 4.8V JCDMA/TACS Handsets
- Driver Amplifier in Cellular Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2137 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 4-cell CDMA/AMPS hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 950MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics at all recommended supply voltages.

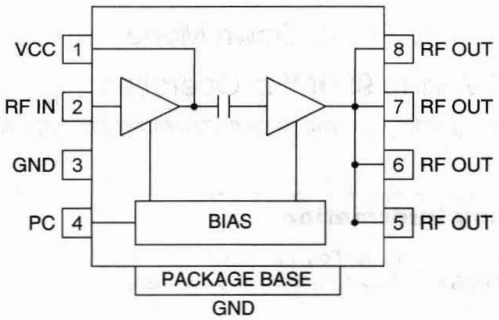


Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

Package Style: PSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4.2V to 6.0V Supply
- Up to 29 dBm Linear Output Power
- 27dB Gain With Analog Gain Control
- 45% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 950MHz Operation

Ordering Information

RF2137	Linear Power Amplifier
RF2137 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

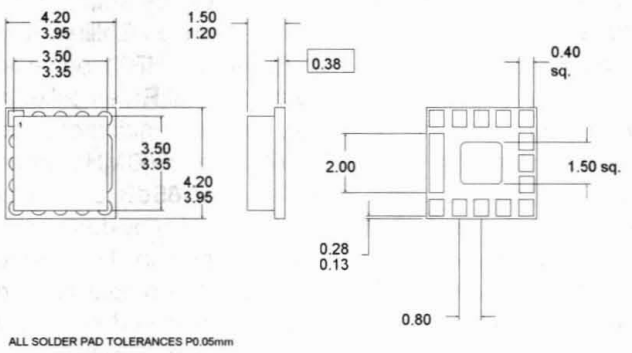
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 3V GSM Cellular Handsets
- 3V Dual-Band/Triple-Band Handsets
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

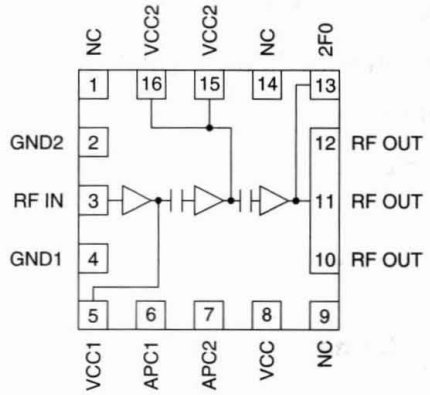
The RF2138 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in GSM hand held-digital cellular equipment and other applications in the 800MHz to 950MHz band. On-board power control provides over 70dB of control range with an analog voltage input, and provides power down with a logic "low" for standby operation. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power and efficiency characteristics. The RF2138 can be used together with the RF2140 for dual-band operation. The device is packaged in an ultra-small ceramic package, minimizing the required board space.



Package Style: MP16K01A

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2.7V to 4.8V Supply Voltage
- +36dBm Output Power at 3.5V
- 32dB Gain with Analog Gain Control
- 58% Efficiency
- 800MHz to 950MHz Operation
- Supports GSM and E-GSM

Ordering Information

RF2138	3V GSM Power Amplifier
RF2138 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

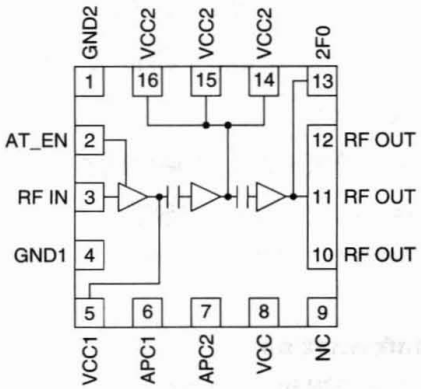
- 3V DCS1800 (PCN) Cellular Handsets
- 3V DCS1900 (PCS) Cellular Handsets
- 3V Dual-Band/Triple-Band Handsets
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

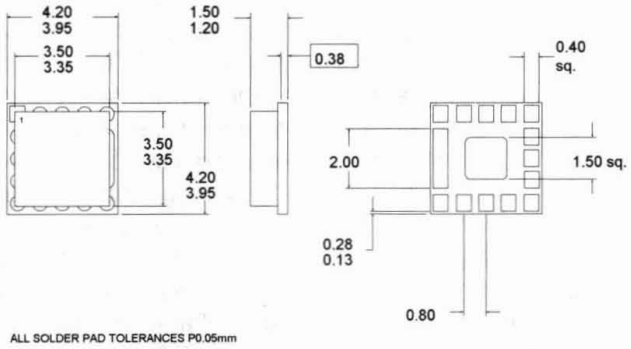
The RF2140 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in DCS1800/1900 hand held-digital cellular equipment and other applications in the 1700MHz to 2000MHz band. On-board power control provides over 65dB of control range with an analog voltage input, and provides power down with a logic "low" for standby operation. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power and efficiency characteristics.The RF2140 can be used together with the RF2138 for dual-band operation. The device is packaged in an ultra-small ceramic package, minimizing the required board space.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: MP16K01A

Features

- Single 2.7V to 4.8V Supply Voltage
- +33dBm Output Power at 3.5V
- 27dB Gain with Analog Gain Control
- 51% Efficiency
- 1700MHz to 1950MHz Operation
- Supports DCS1800 and PCS1900

Ordering Information

RF2140	3V DCS Power Amplifier
RF2140 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

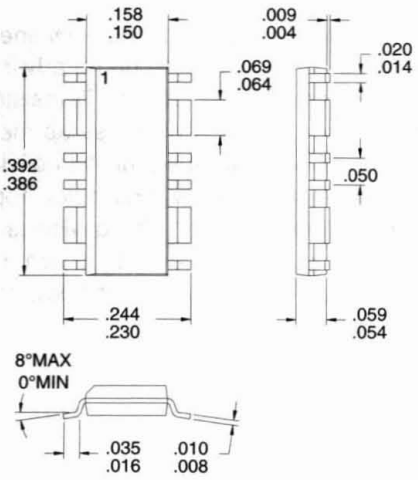
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 4.8V DCS1800/1900 Handsets
- 3V DECT Handsets and Base Stations
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

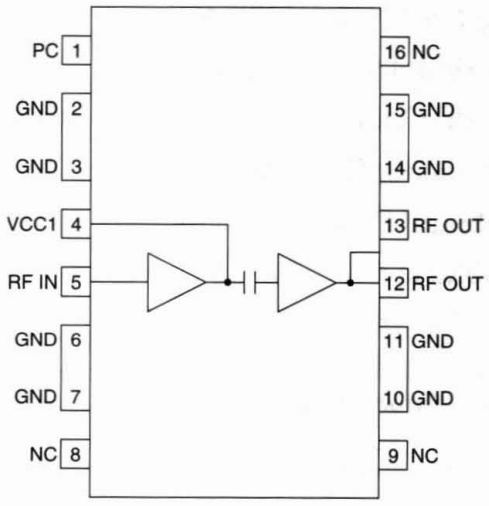
The RF2145 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in a 4-cell DCS1800 or DCS1900 handset. The device is packaged in a 16-lead plastic package with wide ground leads, and is self-contained with the exception of the output matching network and power supply feed line. Only a single positive voltage is required to operate with full power and efficiency, and on-board power control and power-down functions are provided.



Package Style: SOP-16 QBW1

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4.8V Power Supply
- +32dBm Output Power
- 28dB Small Signal Gain
- 55% Power Added Efficiency
- Power Control
- 1700MHz to 1900MHz Frequency Range

Ordering Information

RF2145	DCS1800/1900 Power Amplifier
RF2145 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

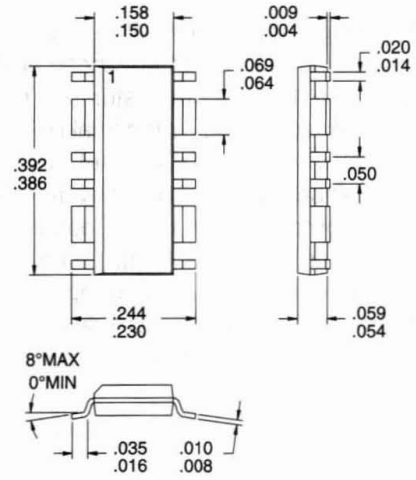
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 4.8V CDMA PCS Handsets
- 4.8V TDMA PCS Handsets
- 4.8V PACS PCS Handsets
- Driver Amplifier in Cellular Base Stations
- Portable Battery Powered Equipment

Product Description

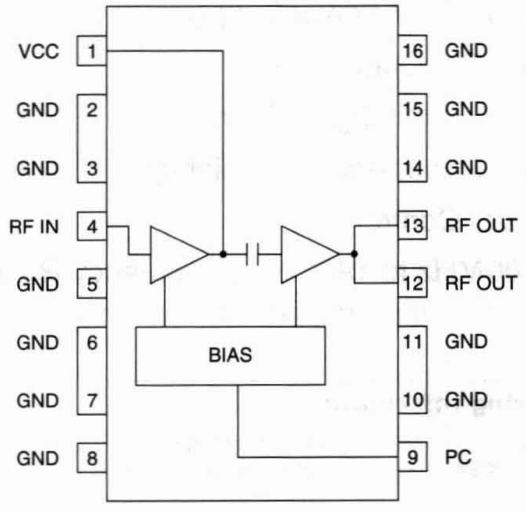
The RF2146 is a high power, high efficiency linear amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 4-cell CDMA hand-held digital cellular equipment, spread spectrum systems, and other applications in the 1500 to 2000 MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics.



Package Style: SOP-16 QBW1

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 4V to 6.5V Supply
- 28.5dBm Linear Output Power
- 18.5dB Gain With Analog Gain Control
- 37% Linear Efficiency
- On-board Power Down Mode
- 1500MHz to 2000MHz Operation

Ordering Information

RF2146	PCS Linear Power Amplifier
RF2146 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

Preliminary

RF2152

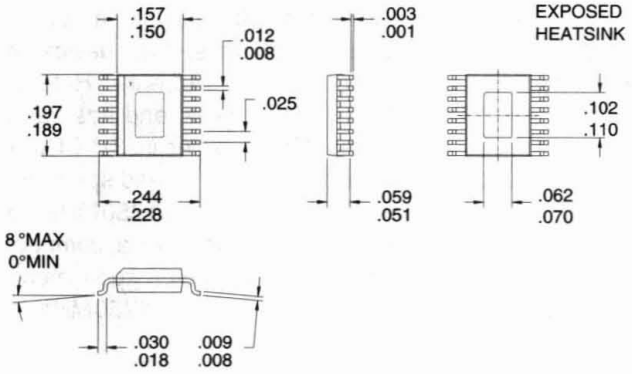
DUAL-MODE CDMA/AMPS OR TDMA/AMPS 3V POWER AMPLIFIER

Typical Applications

- 3V CDMA/AMPS Cellular Handsets
- 3V JCDMA/TACS Cellular Handsets
- 3V TDMA/AMPS Cellular Handsets
- Spread Spectrum Systems
- CDPD Portable Data Cards
- Portable Battery-Powered Equipment

Product Description

The RF2152 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 3V CDMA/AMPS hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 950MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics. The package is a PSSOP-16 with backside ground.

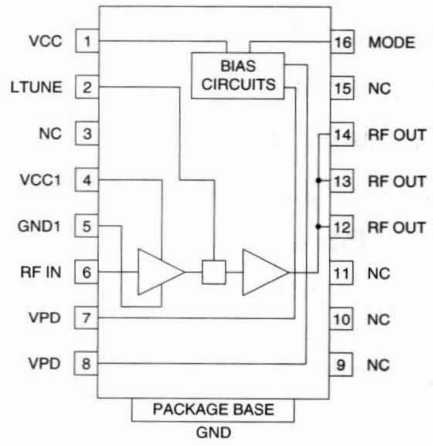


Refer to "Handling of PSOP and PSSOP Products" on page 16-15 for special handling information.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: PSSOP-16



Functional Block Diagram

Features

- Single 3V Supply
- 28dBm Linear Output Power
- 30dB Linear Gain
- 35% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 960MHz Operation

Ordering Information

RF2152	Dual-Mode CDMA/AMPS or TDMA/AMPS 3V Power Amplifier
RF2152 PCBA-N	Fully Assembled Evaluation Board 824-849MHz
RF2152 PCBA-J	Fully Assembled Evaluation Board 877-924MHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2153

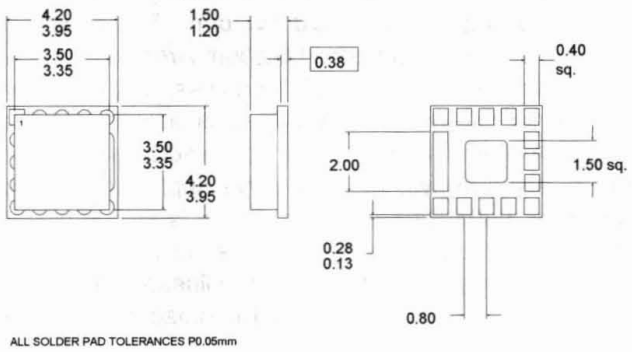
CDMA/TDMA/PACS 1900MHZ 3V POWER AMPLIFIER

Typical Applications

- PACS Handsets and Base Stations
- 3V 1850-1910MHz CDMA PCS Handsets
- 3V 1750-1780MHz CDMA PCS Handsets
- 3V TDMA PCS Handsets
- Spread Spectrum Systems
- Commercial and Consumer Systems

Product Description

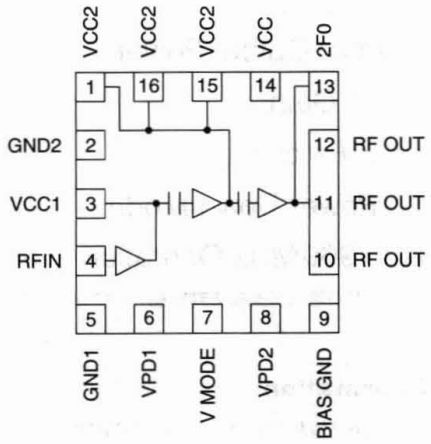
The RF2153 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 3V CDMA and TDMA hand-held digital equipment, spread spectrum systems, and other applications in the 1750MHz to 1910MHz band. The device is packaged in a compact 4mmx4mm (LCC). The device's frequency response can be optimized for linear performance in the 1750MHz to 1910MHz band.



ALL SOLDER PAD TOLERANCES P0.05mm

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Package Style: MP16KO1A

Features

- Single 3V Supply
- 29dBm Linear Output Power
- 30dB Linear Gain
- 33% Linear Efficiency CDMA
- 40% Linear Efficiency TDMA
- On-board Power Down Mode

Ordering Information

RF2153	CDMA/TDMA/PACS 1900MHz 3V Power Amplifier
RF2153 PCBA	Fully Assembled Evaluation Board

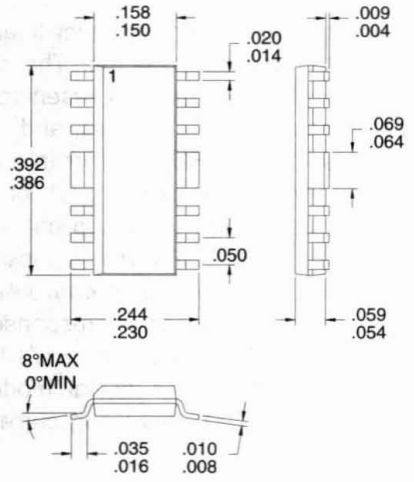
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Analog Communication Systems
- 900MHz Spread Spectrum Systems
- 400MHz Industrial Radios
- Driver Stage for Higher Power Applications
- 3V Applications

Product Description

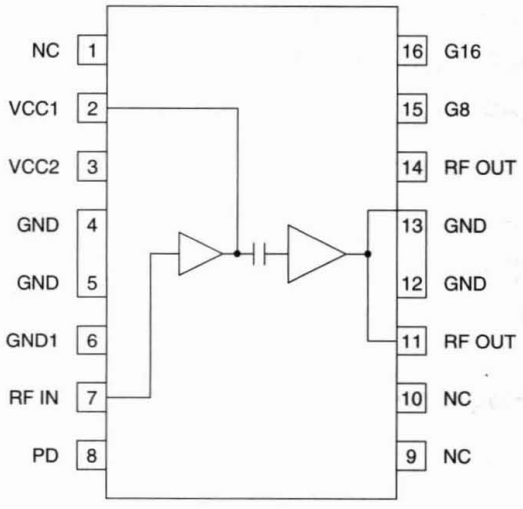
The RF2155 is a 3V medium power programmable gain amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in analog cellular phone transmitters or ISM applications operating at 915MHz. The device is self-contained with the exception of the output matching network and power supply feed line. A two-bit digital control provides 4 levels of power control, in 8dB steps.



Package Style: SOP-16 BW

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V Supply
- 500mW CW Output Power
- 31dB Small Signal Gain
- Up to 60% Efficiency
- Digitally Controlled Output Power
- 430MHz to 930MHz Frequency Range

Ordering Information

RF2155	3V Programmable Gain Power Amplifier
RF2155 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

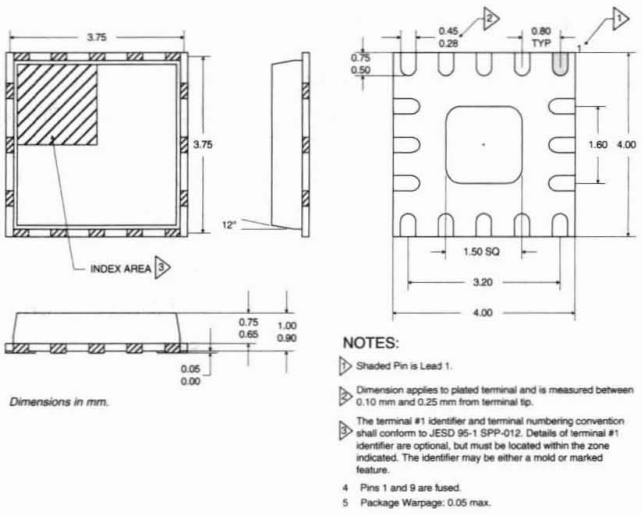
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 3V 1850-1910MHz CDMA PCS Handsets
- 3V 1750-1780MHz CDMA PCS Handsets
- 3V TDMA PCS Handsets
- Spread Spectrum Systems
- Commercial and Consumer Systems
- Portable Battery-Powered Equipment

Product Description

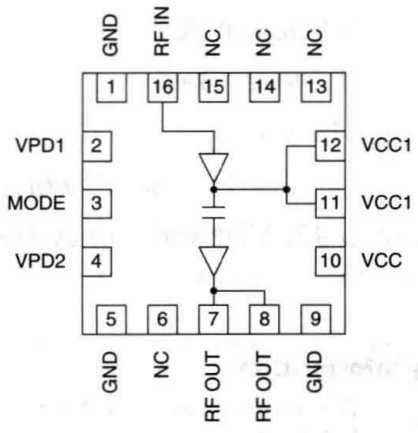
The RF2157 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 3V CDMA and TDMA hand-held digital equipment, spread spectrum systems, and other applications in the 1710MHz to 1910MHz band. The device is packaged in a compact 4mmx4mm LCC, as well as a 4mmx4mm MLF (micro leaded package). The frequency response can be optimized for linear performance over 1710MHz to 1910MHz. The device features a digital mode switch which can be used to minimize operating current under low output power conditions.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V Supply
- 29dBm Linear Output Power
- 24dB Linear Gain
- 35% Linear Efficiency
- On-board Power Down Mode
- 1750MHz to 1910MHz Operation

Ordering Information

RF2157	PCS CDMA Power Amplifier
RF2157 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2161

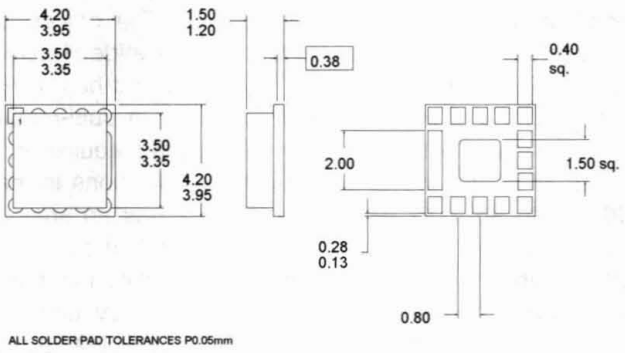
3V WCDMA POWER 1900MHZ 3V LINEAR POWER AMPLIFIER

Typical Applications

- 3V 1850-1910 CDMA-2000 Handsets
- 3V 1920-1980 WCDMA Handsets
- Spread Spectrum Systems
- Commercial and Consumer Systems
- Portable Battery-Powered Equipment

Product Description

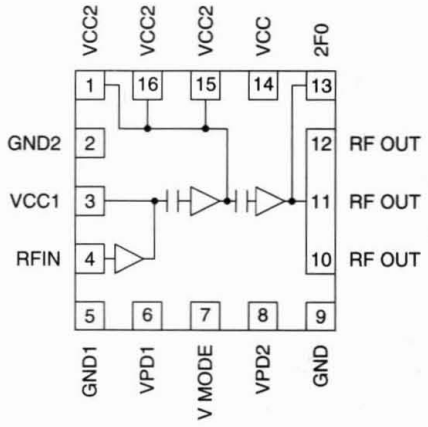
The RF2161 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 3V CDMA-2000 and WCDMA handsets, spread spectrum systems, and other applications in the 1920MHz to 1980MHz band. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics over all recommended supply voltages.



Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MP16KO1A



Functional Block Diagram

Features

- Single 3V Supply
- 27dBm Linear Output Power
- 30dB Linear Gain
- 35% Linear Efficiency
- On-board Power Down Mode

Ordering Information

RF2161	3V WCDMA Power 1900MHZ 3V Linear Power Amplifier
RF2161 PCBA	Fully Assembled Evaluation Board

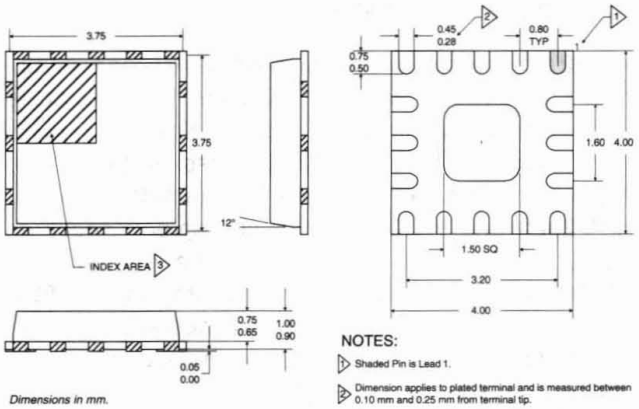
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 3V CDMA/AMPS Cellular Handsets
- 3V JCDMA/TACS Cellular Handsets
- 3V TDMA/AMPS Cellular Handsets
- Spread Spectrum Systems
- CDPD Portable Data Cards
- Portable Battery-Powered Equipment

Product Description

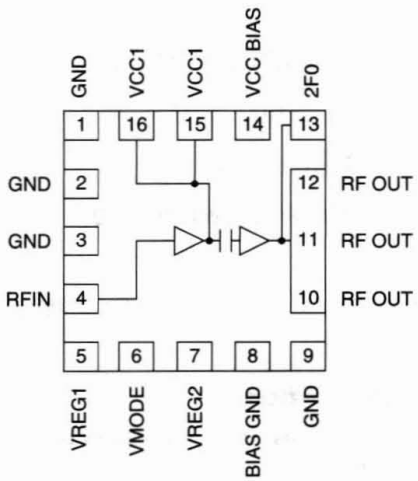
The RF2162 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 3V CDMA/AMPS hand-held digital cellular equipment, spread spectrum systems, and other applications in the 800MHz to 960MHz band. The RF2162 has an analog bias control voltage to maximize efficiency. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics. The package is an ultra small 4mmx4mm ceramic land grid array with backside ground.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V Supply
- 29dBm Linear Output Power
- 29dB Linear Gain
- 35% Linear Efficiency
- On-board Power Down Mode
- 800MHz to 960MHz Operation

Ordering Information

RF2162	3V 900MHz Linear Amplifier
RF2162 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2172

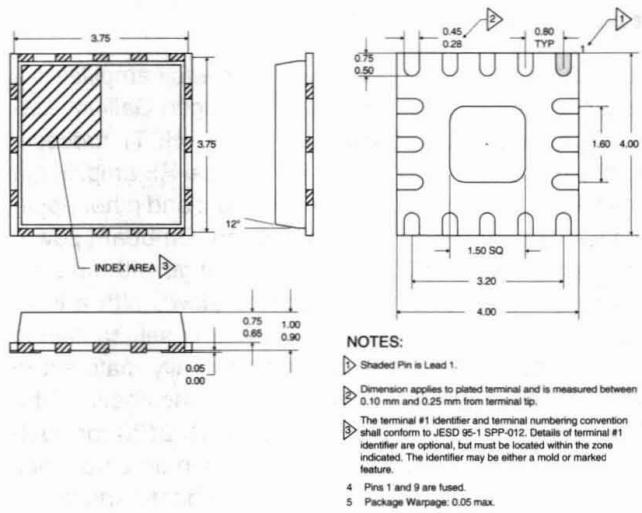
900MHZ ISM BAND 3.6V, 250MW AMP WITH ANALOG GAIN CONTROL

Typical Applications

- 3.6V Spread Spectrum Cordless Phones
- 902MHz to 928MHz ISM Band Systems
- Spread Spectrum Systems
- Commercial and Consumer Systems
- Portable Battery-Powered Equipment

Product Description

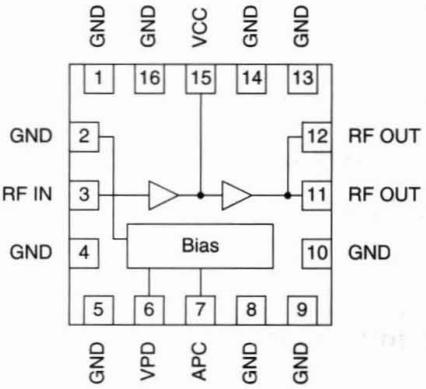
The RF2172 is a medium-power high efficiency amplifier IC targeting 3.6V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in frequency hopping/direct sequence spread spectrum cordless telephones or other applications in the 902MHz to 928MHz ISM band. The device is packaged in a compact 4mm x 4mm LCC. The device features analog gain control to optimize transmit power while maximizing battery life in portable equipment requiring up to 100mW transmit power at the antenna port.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 24dBm Typical Output Power
- 0dB to 28dB Variable Gain with Analog Control
- 58% Efficiency at Max Output
- On-Board Power Down Mode
- 902MHz to 928MHz Operation

Ordering Information

RF2172	900MHz ISM Band 3.6V, 250mW Amp with Analog Gain Control
RF2172 PCBA	Fully Assembled Evaluation Board

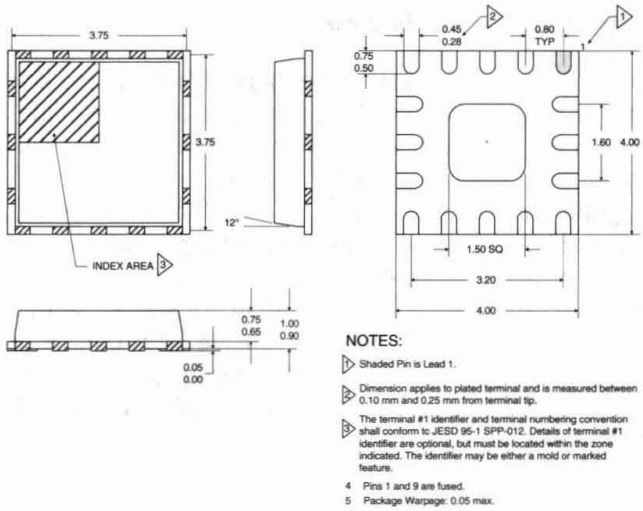
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 3V GSM Cellular Handsets
- 3V Dual-Band/Triple-Band Handsets
- GPRS Compatible
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

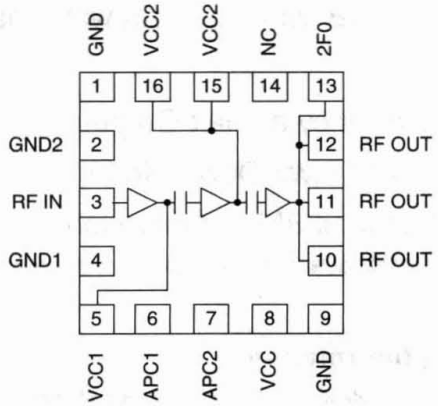
The RF2173 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in GSM hand-held digital cellular equipment and other applications in the 800MHz to 950MHz band. On-board power control provides over 70dB of control range with an analog voltage input, and provides power down with a logic "low" for standby operation. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power and efficiency characteristics. The RF2173 can be used together with the RF2174 for dual-band operation. The device is packaged in an ultra-small plastic package, minimizing the required board space.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2.7V to 4.8V Supply Voltage
- +36dBm Output Power at 3.5V
- 32dB Gain with Analog Gain Control
- 56% Efficiency
- 800MHz to 950MHz Operation
- Supports GSM and E-GSM

Ordering Information

RF2173	3V GSM Power Amplifier
RF2173 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

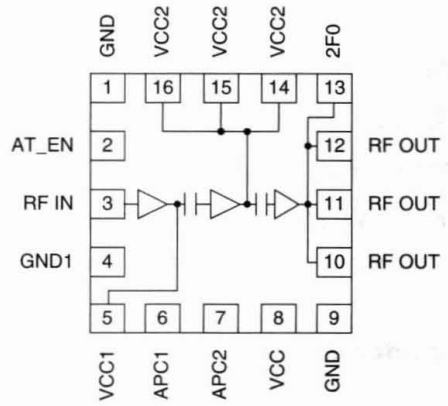
- 3V DCS1800 (PCN) Cellular Handsets
- 3V DCS1900 (PCS) Cellular Handsets
- 3V Dual-Band/Triple-Band Handsets
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- GPRS Compatible

Product Description

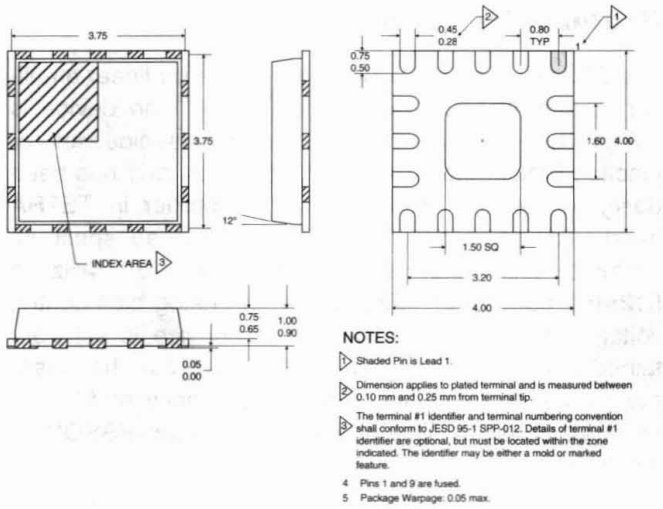
The RF2174 is a high power, high efficiency amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in DCS1800/1900 hand-held digital cellular equipment and other applications in the 1700MHz to 2000MHz band. On-board power control provides over 65dB of control range with an analog voltage input, and provides power down with a logic "low" for standby operation. The device is self-contained with 50Ω input and the output can be easily matched to obtain optimum power and efficiency characteristics. The RF2174 can be used together with the RF2173 for dual-band operation. The device is packaged in an ultra-small plastic package, minimizing the required board space.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: MLF16

Features

- Single 2.7V to 4.8V Supply Voltage
- +33dBm Output Power at 3.5V
- 27dB Gain with Analog Gain Control
- 51% Efficiency
- 1700MHz to 1950MHz Operation
- Supports DCS1800 and PCS1900

Ordering Information

RF2174	3V DCS Power Amplifier
RF2174 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2175

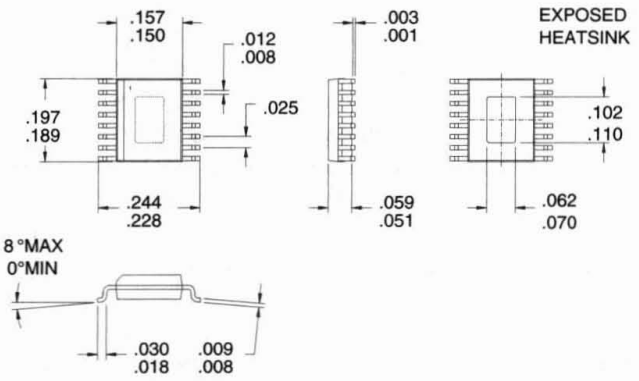
3V 400MHZ LINEAR AMPLIFIER

Typical Applications

- 3V TETRA Cellular Handsets
- 3V CDMA Cellular Handsets
- Portable Battery-Powered Equipment

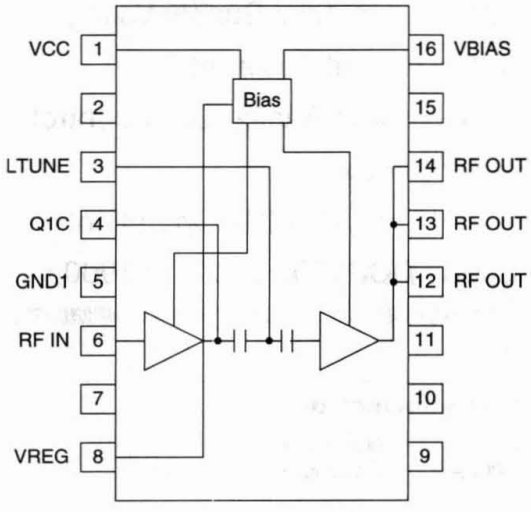
Product Description

The RF2175 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in TETRA hand-held digital cellular equipment, spread spectrum systems, and other applications in the 380MHz to 512MHz band. The RF2175 has an analog bias control voltage to maximize efficiency. The device is self-contained with 50Ω input, and the output can be easily matched to obtain optimum power, efficiency, and linearity characteristics. The package is a small PSSOP-16 plastic with backside ground.



Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Package Style: PSSOP-16

Features

- Single 3V Supply
- 30dBm Linear Output Power
- 34.5dB Linear Gain
- 30% Linear Efficiency
- On-Board Power Down Mode
- 380MHz to 512MHz Operation

Ordering Information

RF2175	3V 400MHz Linear Amplifier
RF2175 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

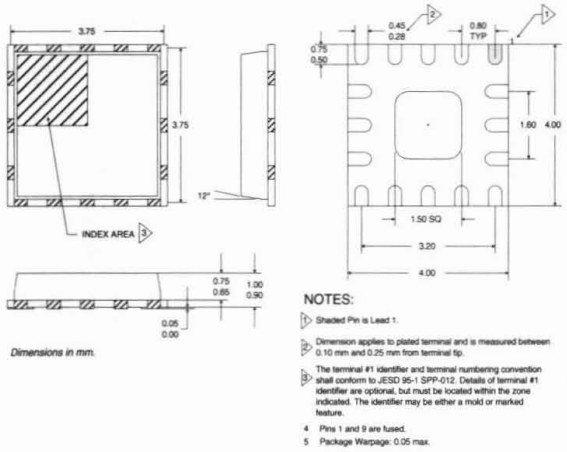
3V, 2.5GHZ LINEAR POWER AMPLIFIER

Typical Applications

- 2.5GHz ISM Band Applications
- PCS Communication Systems
- Wireless LAN Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- Broadband Spread Spectrum Systems

Product Description

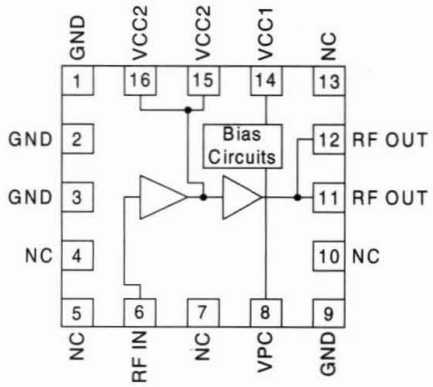
The RF2189 is a linear, medium power, high efficiency amplifier IC designed specifically for low voltage operation. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in 2.5GHz spread spectrum transmitters. The device is provided in a 16-pin MLF16 package with a backside ground and is self-contained with the exception of the output matching network and power supply feed line.



Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MLF16



Functional Block Diagram

Features

- Single 3.3V Power Supply
- +26dBm Saturated Output Power
- 27dB Small Signal Gain
- High Power Added Efficiency
- Power Down Mode
- 1800MHz to 2500MHz Frequency Range

Ordering Information

RF2189	3V, 2.5GHz Linear Power Amplifier
RF2189 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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3 Linear CATV Amplifiers

Part	Description	Frequency (GHz)	Vcc (Volts)	Icc (mA)	Isolation (dB)	Gain (dB)	NF (dB)	P1dB (dBm)	Package	Page
RF2312	Linear General Purpose Amplifier	DC to 2.5	5 to 12	40 to 115	20	15	3.8	+22	SOP-8	3-1
RF2317	Linear CATV Amplifier	DC to 3.0	12to15	100 to 200	20	14.5	4.9	+26	SOP-16 QBW1	3-2
RF2318	Linear Broadband Amplifier	DC to 5.0	9 to 12	50 to 65	15	8	6		SOP-8	3-3
RF2320	Linear General Purpose Amplifier	0.005 to 2.5	6 to 9	75 to 100	20	16	1.6	+22.5	SOP-16BW	3-4
RF2360	Linear General Purpose Amplifier	0.005 to 1.5	6 to 9	100	24	20	1.2	+24	SOP-16BW	3-5

RF2312

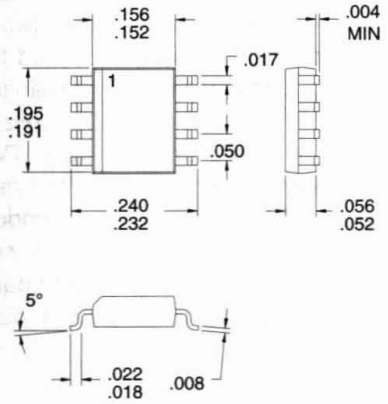
LINEAR GENERAL PURPOSE AMPLIFIER

Typical Applications

- CATV Distribution Amplifiers
- Cable Modems
- Broadband Gain Blocks
- Laser Diode Driver
- Return Channel Amplifier
- Base Stations

Product Description

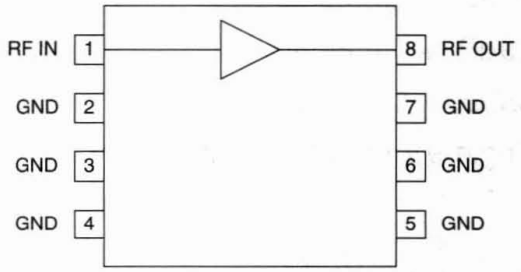
The RF2312 is a general purpose, low cost high linearity RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily cascadable 75Ω gain block. The gain flatness of better than 0.5dB from 5MHz to 1000MHz, and the high linearity, make this part ideal for cable TV applications. Other applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 2500MHz. The device is self-contained with 75Ω input and output impedances, and requires only two external DC biasing elements to operate as specified.



Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to well over 2500MHz Operation
- Internally Matched Input and Output
- 15dB Small Signal Gain
- 3.8dB Noise Figure
- +20dBm Output Power
- Single 5V to 12V Positive Power Supply

Ordering Information

RF2312	Linear General Purpose Amplifier
RF2312 PCBA	Fully Assembled Evaluation Board

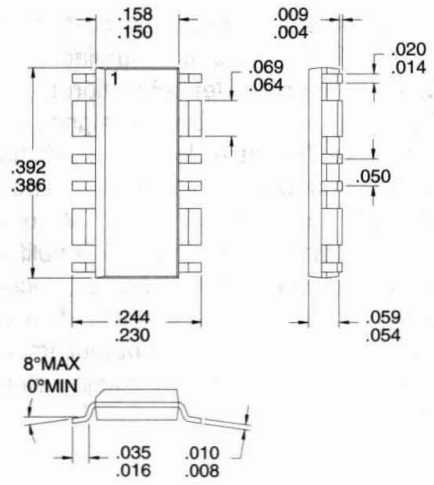
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CATV Distribution Amplifiers
- Cable Modems
- Broadband Gain Blocks
- Laser Diode Driver
- Return Channel Amplifier
- Base Stations

Product Description

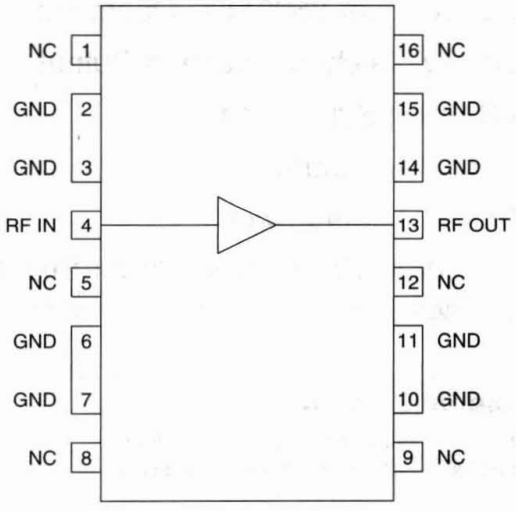
The RF2317 is a general purpose, low cost high linearity RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily cascadable 75Ω gain block. The gain flatness of better than ±0.4dB from 50MHz to 1000MHz, and the high linearity, make this part ideal for cable TV applications. Other applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 3GHz. The device is self-contained with 75Ω input and output impedances and requires only two external DC biasing elements to operate as specified.



Package Style: SOP-16 QBW1

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to 3.0GHz Operation
- Internally Matched Input and Output
- 15dB Small Signal Gain
- 4.9dB Noise Figure
- +26dBm Output Power
- Single 9V to 12V Power Supply

Ordering Information

RF2317	Linear CATV Amplifier
RF2317 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2318

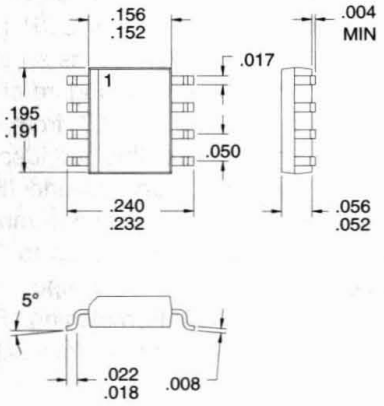
LINEAR BROADBAND AMPLIFIER

Typical Applications

- CATV Amplifiers
- Cable Modems
- Broadband Gain Blocks
- Return Channel Amplifier
- Base Stations

Product Description

The RF2318 is a broadband general purpose, low cost high linearity RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily cascadable 75Ω gain block. The gain flatness of better than 1.0dB from 5MHz to 1000MHz, and the high linearity, make this part ideal for cable TV applications. Other applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 5000MHz. The device is self-contained with 75Ω input and output impedances, and requires only two external DC biasing elements to operate as specified.



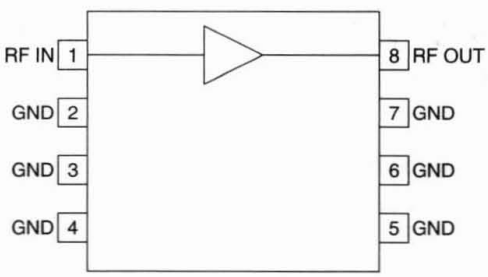
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to over 5000MHz Operation
- Internally Matched Input and Output
- 8dB Small Signal Gain
- 6dB Noise Figure
- +18dBm Output Power
- Single 9V to 12V Positive Power Supply



Functional Block Diagram

Ordering Information

RF2318	Linear Broadband Amplifier
RF2318 PCBA	Fully Assembled Evaluation Board

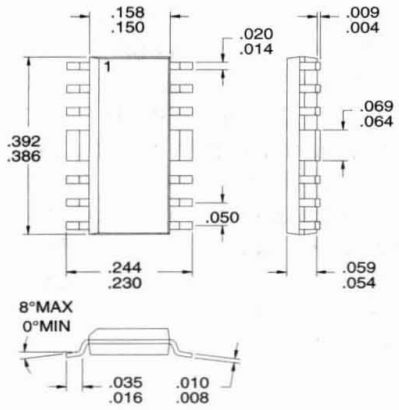
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CATV Distribution Amplifiers
- Cable Modems
- Broadband Gain Blocks
- Laser Diode Driver
- Return Channel Amplifier
- Base Stations

Product Description

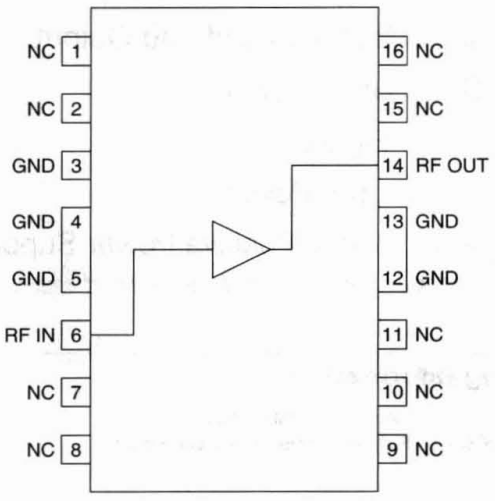
The RF2320 is a general purpose, low-cost, high-linearity RF amplifier IC. The device is manufactured on a Gallium Arsenide process and is featured in an SOP-16 batwing package. It has been designed for use as an easily cascadable 75Ω gain block with a Noise Figure of less than 2dB. Gain flatness better than 0.5dB from 5MHz to 1000MHz, and high linearity make this part ideal for cable TV applications. Other applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 2500MHz. The device is self-contained with 75Ω input and output impedances providing 2:1 VSWR matching. For higher input and output return losses, see the evaluation schematic.



Package Style: SOP-16 BW

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- 5MHz to 2500MHz Operation
- Internally Matched Input and Output
- 16dB Small Signal Gain
- 1.6dB Noise Figure
- +22dBm Output Power
- Single 6V to 9V Positive Power Supply

Ordering Information

RF2320	Linear General Purpose Amplifier
RF2320 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2360

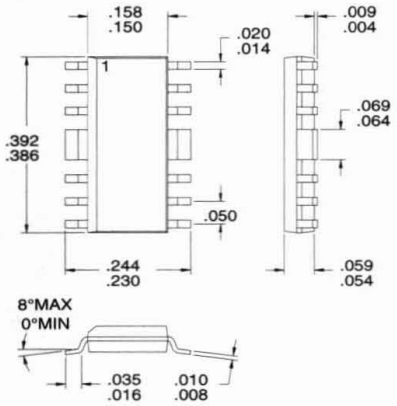
LINEAR GENERAL PURPOSE AMPLIFIER

Typical Applications

- CATV Distribution Amplifiers
- Cable Modems
- Broadband Gain Blocks
- Laser Diode Driver
- Return Channel Amplifier
- Base Stations

Product Description

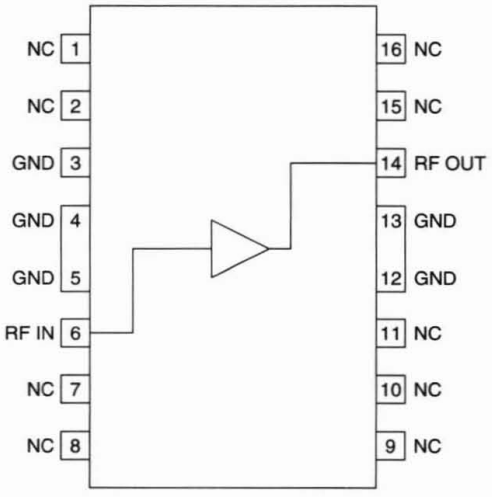
The RF2360 is a general purpose, low-cost, high-linearity RF amplifier IC. The device is manufactured on a Gallium Arsenide process and is featured in an SOP-16 batwing package. It has been designed for use as an easily cascadable 75Ω gain block with a Noise Figure of less than 2dB. Gain flatness better than 0.5dB from 5MHz to 1000MHz, and high linearity make this part ideal for cable TV applications. Other applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 1000MHz. The device is self-contained with 75Ω input and output impedances providing less than 2:1 VSWR matching. For higher input and output return losses, see the evaluation schematic.



Package Style: SOP-16 BW

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☑ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 5MHz to 1500MHz Operation
- Internally Matched Input and Output
- 20dB Small Signal Gain
- 1.2dB Noise Figure
- +24dBm Output Power
- Single 6V to 9V Positive Power Supply

Ordering Information

RF2360	Linear General Purpose Amplifier
RF2360 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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4 General Purpose Amplifiers

Part	Description	Frequency (GHz)	Vcc (Volts)	Icc (mA)	Isolation (dB)	Gain (dB)	NF (dB)	P1dB (dBm)	Package	Page
RF2043	General Purpose Amplifier	DC to 6	5 to 6	70	16.5	11	7.6	+18.5	MicroX-CF	4-1
RF2044	General Purpose Amplifier	DC to 6	4.3 to 5.3	65	22	20	4.1	+18.5	MicroX-CF	4-2
RF2045	General Purpose Amplifier	DC to 6	4.6 to 5.6	65	18	14	5.0	+18	MicroX-CF	4-3
RF2046	General Purpose Amplifier	DC to 3	3 to 4	35	23	22	3.8	+12	MicroX-CF	4-4
RF2047	General Purpose Amplifier	DC to 6	3 to 4	40	19	16	4.2	+12	MicroX-CF	4-5
RF2048	General Purpose Amplifier	DC to 8	3 to 4	40	16.5	12	5.3	+12	MicroX-CF	4-6
RF2301	High Isolation Buffer Amplifier	0.3 to 2.5	2.7 to 6	18	50	21	8.0	+4	SOP-8	4-7
RF2302	Broadband Linear Variable Gain Amplifier	0.1 to 2.0	3.0 to 6.0	35		-11 to 14	4	+14	MSOP-8	4-8
RF2303	Broadband Linear Variable Gain Amplifier	0.1 to 2.0	3.0 to 6.0	25	35	-2 to 23	4	+16	MLF16	4-9
RF2304	General Purpose Low-Noise Amplifier	0.3 to 2.5	2.7 to 6.0	5 to 26	18	8	1.8	+6	SOP-8	4-10
RF2306	General Purpose Amplifier	DC to 2	>3.7	20 to 65	20	20	3.5	+12	SOP-8	4-11
RF2307	General Purpose Amplifier	DC to 3	>3.7	20 to 65	18	15	4.0	+14	SOP-8	4-12
RF2308	General Purpose Amplifier	DC to 4	>3.7	20 to 65	15	12	5.0	+13	SOP-8	4-13
RF2310	Wideband General Purpose Amplifier	DC to 2.5	3.5 to 6.0	20 to 65	20	15	5.0	+19	SOP-8	4-14
RF2311	General Purpose Amplifier	DC to 1.6	2.7 to 6.0	8 to 17	20	14	4.0	+8	SOP-8	4-15
RF2314	General Purpose Low Noise Amplifier	0.15 to 2.5	2.7 to 6.0	5 to 25	20	14	1.4	+8	SOT-23-5	4-16
RF2321	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	8	36	12	3.7	-7	SOT-23-5	4-17
RF2322	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	8	38	19	3.3	-7	SOT-23-5	4-18
RF2323	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	7	33	21	2.3	-7	SOT-23-5	4-19
RF2324	PCS CDMA/TDMA 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	24 to 43	36	22	1.8	+16	MSOP-8	4-20
RF2325	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	27	22	16	5.0	+7	SOT-23-5	4-21
RF2326	3V General Purpose Amplifier	DC to 2.5	2.7 to 3.3	25	18	12	5.7	+7	SOT-23-5	4-22
RF2333	General Purpose Amplifier	DC to 6	5 to 6	70	17	10	8.2	+18.5	SOT-23-5	4-23
RF2334	General Purpose Amplifier	DC to 4	>4.8	65	20	16	5	+18.5	SOT-23-5	4-24
RF2335	General Purpose Amplifier	DC to 6	>5.0	65	17	12	5.6	+17	SOT-23-5	4-25
RF2336	General Purpose Amplifier	DC to 3	>3.5	35	21	20	3.8	+11	SOT-23-5	4-26
RF2337	General Purpose Amplifier	DC to 6	>3.6	40	17	15	4.5	+12	SOT-23-5	4-27
RF2338	General Purpose Amplifier	DC to 6	>3.6	40	16	12		+10.5	SOT-23-5	4-28
RF2347	3V Low Noise Amplifier/ 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	22	26	20.5	1.4	+15.5	MSOP-8	4-29
RF2351	3V PCS CDMA Split Band PA Driver	1.71 to 1.91	3.0 to 6.0	48	30	21	2.5	+16	MLF16	4-30
RF2352	3V CDMA Driver Amplifier	0.8 to 0.9	2.7 to 3.6	15		19.5	2.3		MLF16	4-31
RF2361	3V Low Noise Amplifier/ 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	22	26	20.5	1.4	+15.5	SOT23-5	4-32
RF2362	PCS CDMA/TDMA 3V PA Driver Amplifier	0.15 to 2.5	2.5 to 6.0	38	32	20.1	2.2	+14.5	SOT23-5	4-33
RF2363	Dual-Band 3V Low Noise Amplifier	800 to 1000/ 1800 to 2000	2.5 to 5.0	5/ 7.5	20/ 30	18/ 21.5	1.3/ 1.4	-10/ -12	SOT23-8	4-34
RF2364	3V PCS Low Noise Amplifier	1.8 to 2.5	2.7 to 3.3	17	27	18	1.7	8.5	SOT23-5	4-35
RF2365	3V Low Noise Amplifier	1.5 to 2.5	3.0	5.0 to 8.0	25	18	1.6		SOT23-5	4-36
RF2371	3V Low Noise Amplifier	0.7 to 2.0	2.7 to 3.6	2.9		17	1.6		SOT23-8	4-37
RF2375	3V DCS Low Noise Amplifier	0.7 to 2.0	2.7 to 3.6	5.3		18	2.5		SOT23-8	4-38
RF2442	High-Linearity Low Noise Amplifier	0.50 to 2.5	2.5 to 5.0	16	24	20	1.5	+13	MSOP-8	4-39
RF2445	3V DCS Low Noise Amplifier	1700 to 2200	2.7 to 3.6	5	7	20	2.2	+2	MSOP-8	4-40
RF2451	3V Low Noise Amplifier	0.70 to 2.0	2.7 to 3.6	2.9		12	1.7	-3	MSOP-8	4-41

RF2043

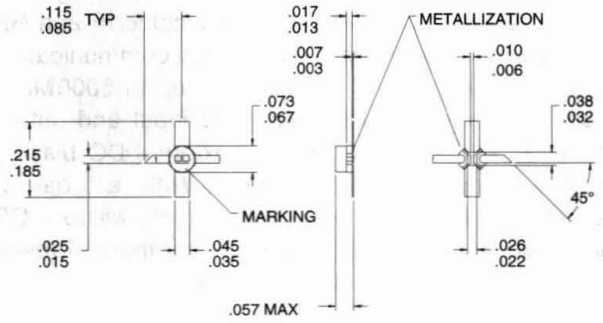
GENERAL PURPOSE AMPLIFIER

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

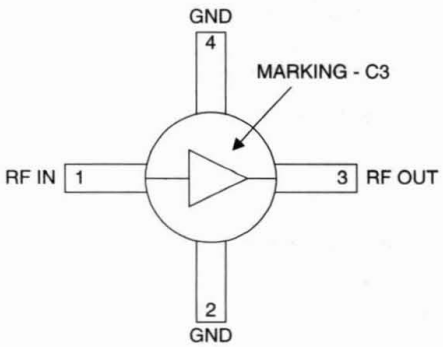
The RF2043 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to >6000MHz Operation
- Internally matched Input and Output
- 11dB Small Signal Gain
- +35dBm Output IP3
- +18.5dBm Output Power
- Extremely Flat Gain Response

Ordering Information

RF2043	General Purpose Amplifier
RF204X PCBA	Fully Assembled Evaluation Board

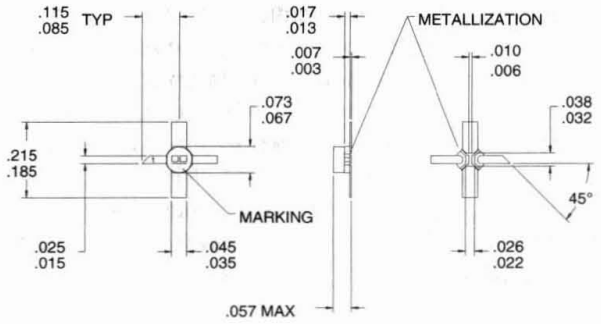
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

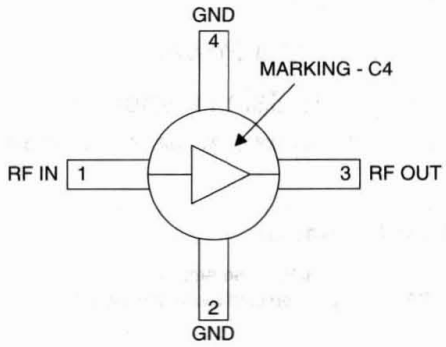
The RF2044 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to >6000MHz Operation
- Internally matched Input and Output
- 20dB Small Signal Gain
- 4.0dB Noise Figure
- 50mW Linear Output Power
- Single Positive Power Supply

Ordering Information

RF2044	General Purpose Amplifier
RF204X PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2045

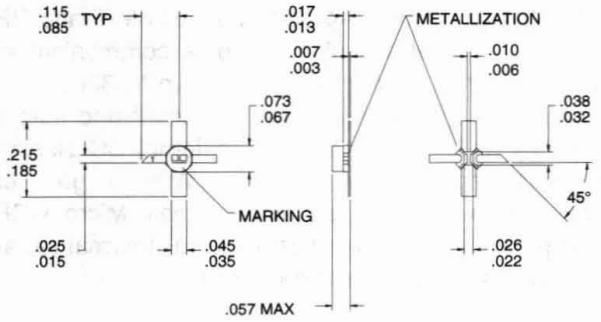
GENERAL PURPOSE AMPLIFIER

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

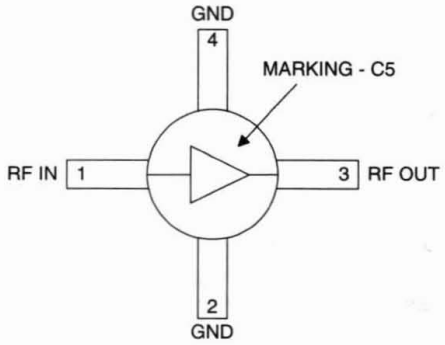
The RF2045 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 13dB Small Signal Gain
- +32dBm Output IP3
- +18dBm Output Power
- Excellent Gain Flatness

Ordering Information

RF2045	General Purpose Amplifier
RF2045 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

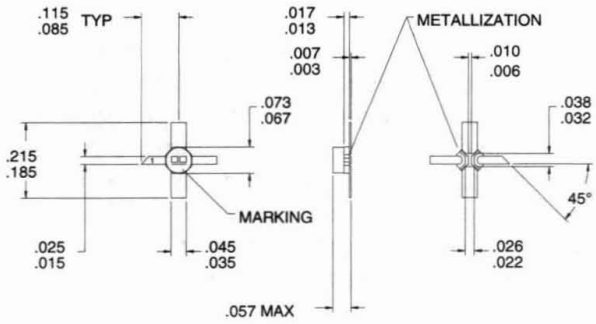
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

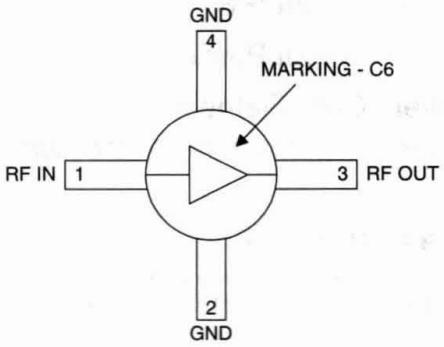
The RF2046 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 3000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to 3000MHz Operation
- Internally matched Input and Output
- 22dB Small Signal Gain
- 3.8dB Noise Figure
- 10mW Linear Output Power
- Single Positive Power Supply

Ordering Information

RF2046	General Purpose Amplifier
RF2046 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

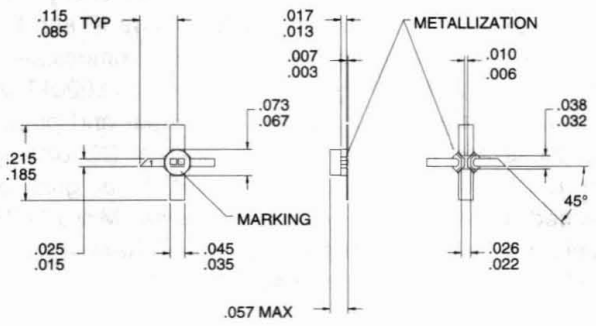
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

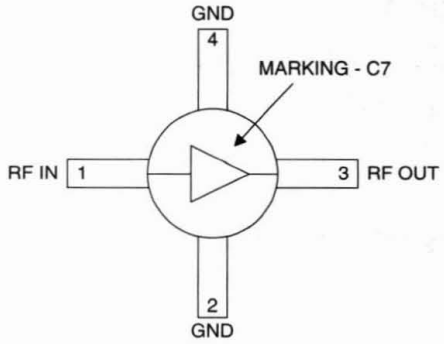
The RF2047 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 16dB Small Signal Gain
- +26dBm Output IP3
- +12dBm Output Power
- Excellent Gain Flatness

Ordering Information

RF2047	General Purpose Amplifier
RF2047 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

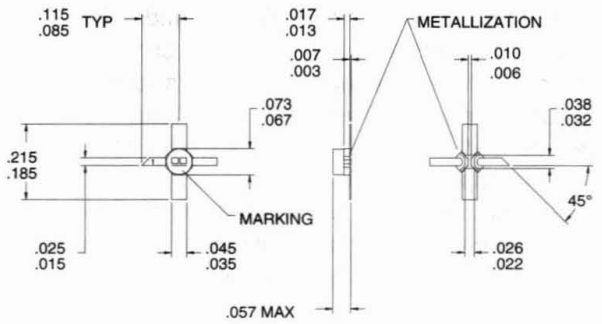
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- High Reliability Applications
- Broadband Test Equipment

Product Description

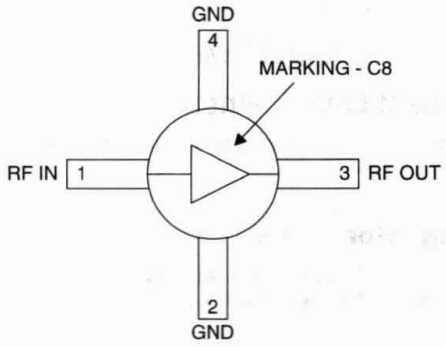
The RF2048 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 8000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. With a goal of enhanced reliability, the extremely small Micro-X-CF ceramic package offers significantly lower thermal resistance than similar size plastic packages.



Package Style: Micro-X-CF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- DC to 8000MHz Operation
- Internally matched Input and Output
- 12dB Small Signal Gain
- +26dBm Output IP3
- +12dBm Output Power
- Single Positive Power Supply

Ordering Information

RF2048	General Purpose Amplifier
RF2048 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2301

HIGH ISOLATION BUFFER AMPLIFIER

Typical Applications

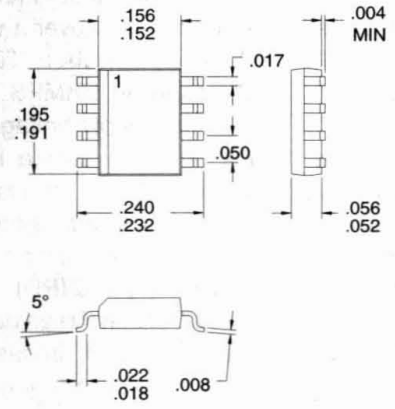
- Local Oscillator Buffer Amplifiers
- FDD and TDD Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- Wireless LAN
- ISM Band Applications

Product Description

The RF2301 is a high reverse isolation buffer amplifier. The device is manufactured on a low-cost Gallium Arsenide MESFET process, and has been designed for use as a general purpose buffer in high-end communication systems operating at frequencies from less than 300MHz to higher than 2500MHz. With +5dBm output power, it may also be used as a driver in transmitter applications. The device is packaged in an 8-lead plastic package. The product is self-contained, requiring just a resistor and blocking capacitors to operate. The output power, combined with 50dB reverse isolation at 900MHz allows excellent buffering of LO sources to impedance changes. The device can be used in 3V battery applications. The unit has a total gain of 17dB with only 14mA current from a 3V supply.

Optimum Technology Matching® Applied

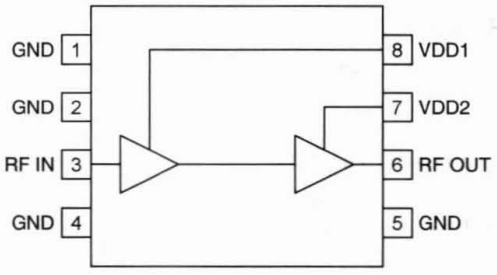
- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Package Style: SOP-8

Features

- Single 2.7V to 6.0V Supply
- +4dBm Output Power
- 21dB Small Signal Gain
- 50dB Reverse Isolation at 900MHz
- Low DC Current Consumption of 14mA
- 300MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2301	High Isolation Buffer Amplifier
RF2301 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

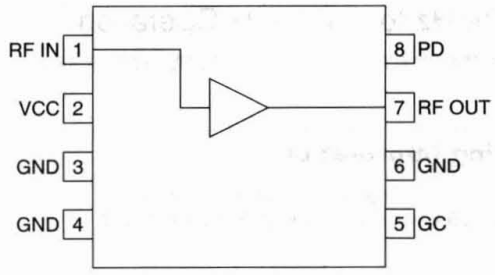
- CDMA Cellular/PCS and JCDMA Systems
- TDMA Cellular/PCS Systems
- GSM Systems
- Wireless Local Loop Systems
- Wideband CDMA Systems
- PDC Systems (950MHz and 1450MHz)

Product Description

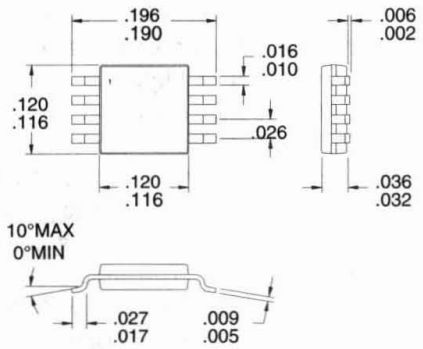
The RF2302 is a broadband linear variable gain amplifier that was designed specifically for digital communications systems that require linear amplification over a wide gain control range. It is suitable for use in CDMA or TDMA systems in the cellular or PCS band, in DAMPS systems, and in PDC systems. Operating supply voltage ranges from 3V to 6V. The device operates over a large frequency band, from 100MHz to 2000MHz, and is tuned to a specific frequency band with an output bias feed inductor and blocking capacitor. Bias optimization may be achieved by adjusting the voltage to pin 8 (PD). The IC is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (GaAs HBT) process and is featured in a new standard miniature 8-lead plastic MSOP package.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: MSOP-8

Features

- 25dB Linear Gain Control range
- +14dBm OP1dB at 3.5V (836MHz)
- Single 3V to 6V Supply
- 14dB Max Gain at 836MHz
- 10dB Max Gain at 1900MHz
- 4dB Noise Figure at 836MHz

Ordering Information

RF2302	Broadband Linear Variable Gain Amplifier
RF2302 PCBA-L	Fully Assembled Evaluation Board 836MHz
RF2302 PCBA-H	Fully Assembled Evaluation Board 1.88GHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2303

BROADBAND LINEAR VARIABLE GAIN AMPLIFIER

Typical Applications

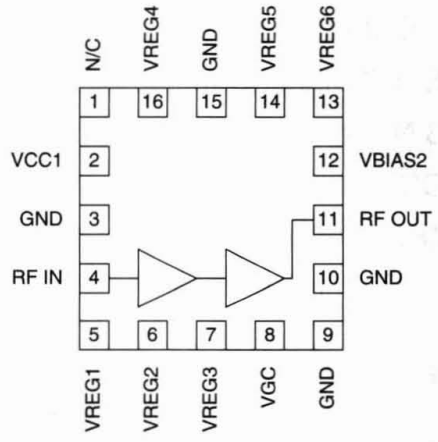
- CDMA Cellular/PCS and JCDMA Systems
- TDMA Cellular/PCS Systems
- Wideband CDMA Systems
- Wireless Local Loop Systems
- GSM Systems
- PDC Systems (950MHz and 1450MHz)

Product Description

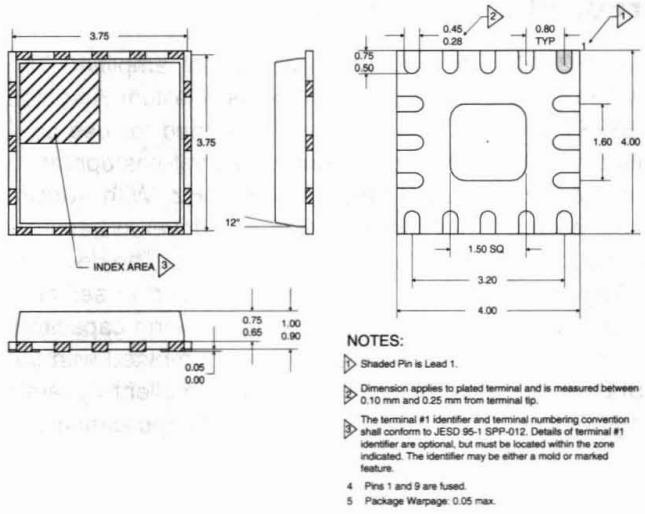
The RF2303 is a broadband linear variable gain amplifier that was designed specifically for digital communications systems that require linear amplification over a wide gain control range. It is suitable for use in WCDMA, as well as CDMA or TDMA systems in the cellular or PCS band, in DAMPS systems, and in PDC systems. Operating supply voltage ranges from 3V to 6V. The device operates over a large frequency band, from 100MHz to 2000MHz, and is tuned to a specific frequency band with an output bias feed inductor and blocking capacitor. Bias optimization may be achieved by adjusting the voltage to pin 8 (PD). The IC is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (GaAs HBT) process and is featured in a 4mmx4mm leadless plastic MLF16 package.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: MLF16

Features

- 58dB Linear Gain Control range
- Single 3V to 6V Supply
- 25dB Max Gain at 1900MHz
- 4dB Min Noise Figure at 1900MHz

Ordering Information

RF2303	Broadband Linear Variable Gain Amplifier
RF2303 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2304

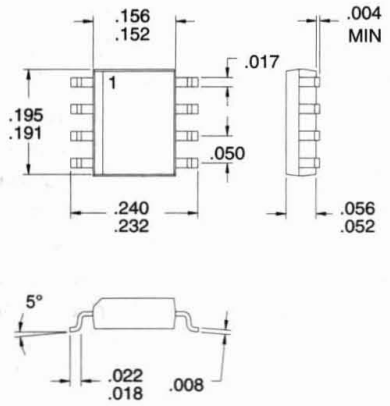
GENERAL PURPOSE LOW-NOISE AMPLIFIER

Typical Applications

- Receive or Transmit Low-Noise Amplifiers
- FDD and TDD Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- Wireless LAN
- ISM Band Applications

Product Description

The RF2304 is a low-noise small-signal amplifier. The device is manufactured on a low-cost Gallium Arsenide MESFET process, and has been designed for use as a gain block in high-end communication systems operating from less than 300MHz to above 2.5GHz. With +6dBm output power, it may also be used as a driver in transmitter applications, or in highly linear receivers. The device is packaged in an 8-lead plastic package and is self-contained, requiring just an inductor and blocking capacitors to operate. The +6dBm output power, combined with the 1.8dB noise figure at 900MHz allows excellent dynamic range for a variety of receive and transmit applications.



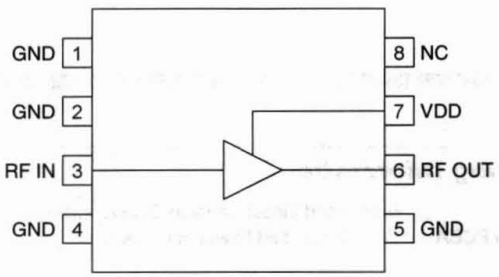
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS

Features

- Single 2.7V to 6.0V Supply
- 6dBm Output Power
- 8dB Small Signal Gain at 900MHz
- 1.8dB Noise Figure at 900MHz
- Low DC Current Consumption of 5mA
- 300MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2304	General Purpose Low-Noise Amplifier
RF2304 PCBA	Fully Assembled Evaluation Board

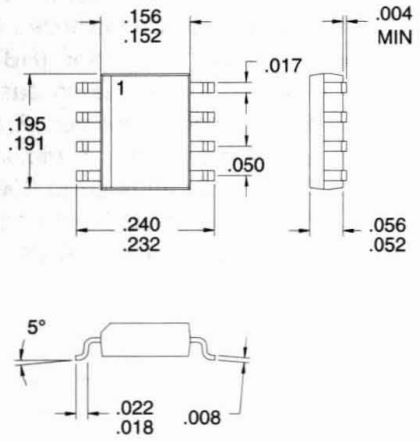
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Portable Battery Powered Equipment
- Broadband Test Equipment

Product Description

The RF2306 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 2000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified.



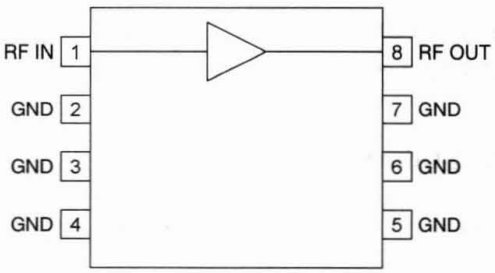
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 2000MHz Operation
- Internally matched Input and Output
- 20dB Small Signal Gain
- 3.5dB Noise Figure
- 10mW Linear Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2306	General Purpose Amplifier
RF2306 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

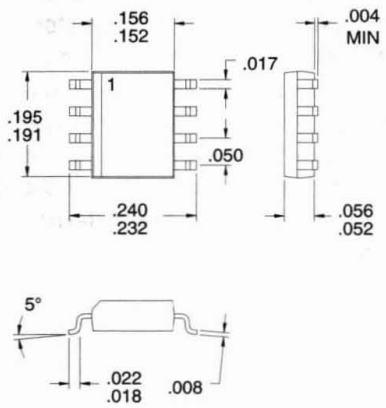
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Portable Battery Powered Equipment
- Broadband Test Equipment

Product Description

The RF2307 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 3000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified.



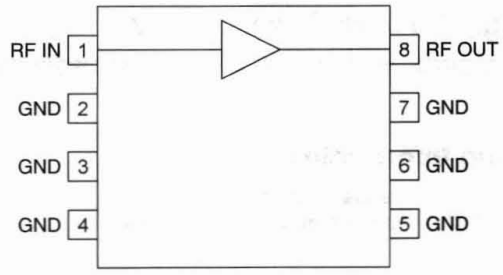
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 3000MHz Operation
- Internally matched Input and Output
- 15dB Small Signal Gain
- 4dB Noise Figure
- 25mW Linear Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2307	General Purpose Amplifier
RF2307 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

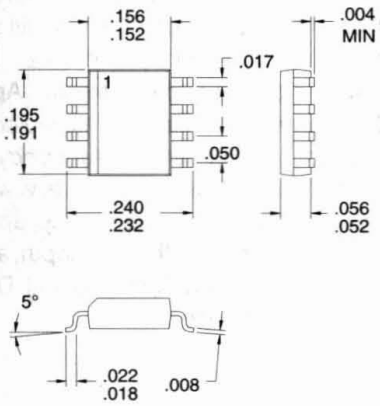
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- General Purpose Broadband Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Portable Battery Powered Equipment
- Broadband Test Equipment

Product Description

The RF2308 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 4000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified.



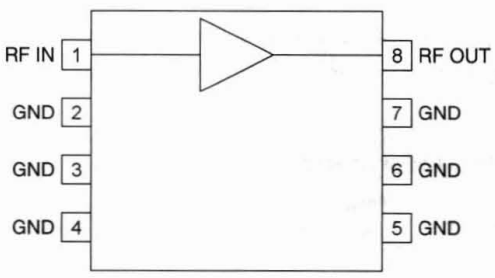
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 4000MHz Operation
- Internally matched Input and Output
- 12dB Small Signal Gain
- 5dB Noise Figure
- 20mW Linear Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2308	General Purpose Amplifier
RF2308 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

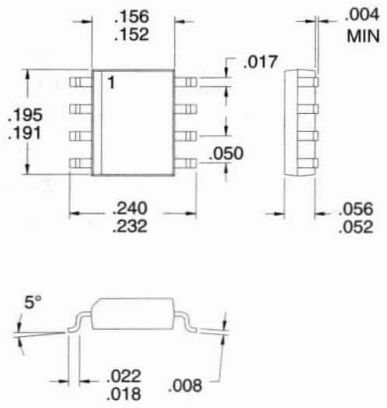
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- General Purpose High Bandwidth Gain Blocks
- IF or RF Buffer Amplifiers
- Broadband Test Equipment
- Final PA for Medium Power Applications
- Driver Stage for Power Amplifiers

Product Description

The RF2310 is a general purpose, low-cost, high linearity RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 2500MHz. The gain flatness over a very wide bandwidth makes the device suitable for many applications. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified.



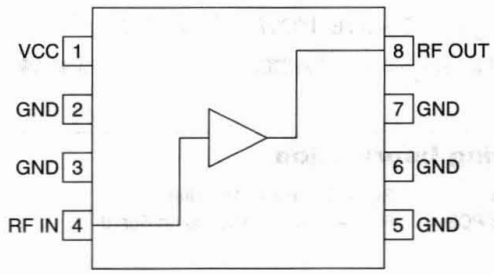
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to well over 2500MHz Operation
- Internally Matched Input and Output
- 15dB Small Signal Gain
- 5dB Noise Figure
- +19dBm Output Power
- Single 3.5V to 6V Positive Power Supply



Functional Block Diagram

Ordering Information

RF2310	Wideband General Purpose Amplifier
RF2310 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

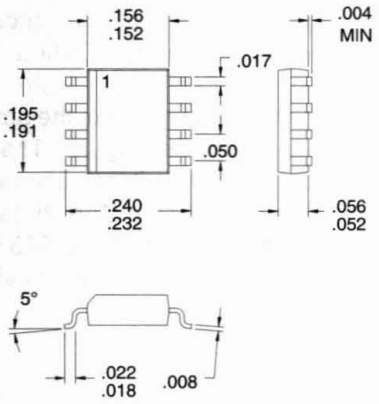
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- General Purpose High Bandwidth Gain Blocks
- IF or RF Buffer Amplifiers
- Broadband Test Equipment
- Final PA for Medium Power Applications
- Driver Stage for Power Amplifiers

Product Description

The RF2311 is a general purpose, low cost low power RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 1600MHz. The gain flatness and high bandwidth make the device suitable for many other applications as well. The device is self-contained with 50Ω input and output impedances, and no external DC biasing elements are required to operate as specified.



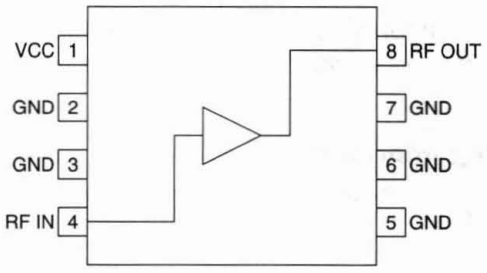
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to well over 1600MHz Operation
- Internally Matched Input and Output
- 14dB Small Signal Gain
- 4.2dB Noise Figure
- +9dBm Output Power
- Single 2.7V to 6V Positive Power Supply



Functional Block Diagram

Ordering Information

RF2311	General Purpose Amplifier
RF2311 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

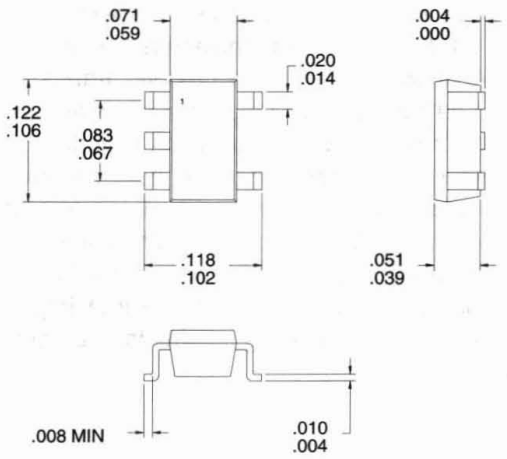
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2314 is a general purpose, low-cost, high performance amplifier designed for operation from a 2.7V to 6V supply with low current consumption. The circuit configuration with resistive feedback allows for broadband cascadable amplification. Feedback with capacitive compensation extends the bandwidth of the amplifier, and is designed for optimized noise figure. The device is unconditionally stable and internally matched to 50Ω. **No external components** are required. The RF2314 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



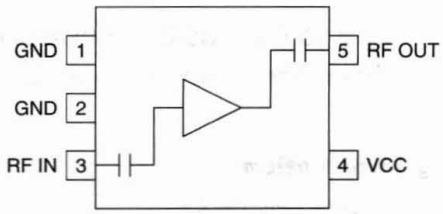
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- 150MHz to 2500MHz Operation
- 2.7V to 6.0V Single Supply
- +18dBm Output IP_3 at 5V
- 14dB Gain at 900MHz
- 8.6dB Gain at 1900MHz
- Low Current Consumption of 5mA at 3V



Functional Block Diagram

Ordering Information

RF2314	General Purpose Low Noise Amplifier
RF2314 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

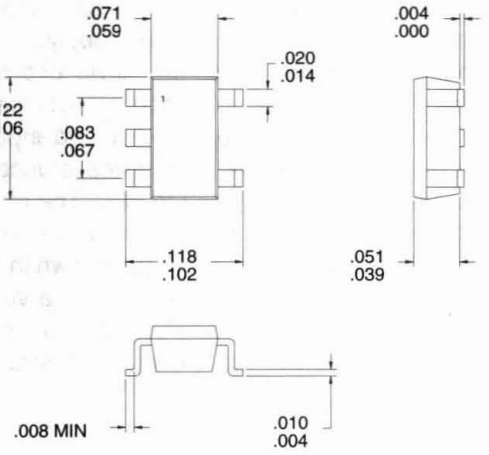
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2321 is a general purpose, low-cost silicon amplifier designed for operation from a 3V supply. The circuit configuration with resistive feedback allows for broadband cascadable amplification. Capacitive compensation extends the bandwidth of the amplifier and input stage design optimizes noise figure. The device is unconditionally stable and internally matched to 50Ω. The only external components required for specified performance are bypass and DC blocking capacitors (as shown in application schematic). The RF2321 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



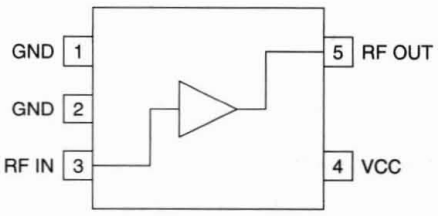
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to >2000MHz Operation
- 2.7V to 3.3V Single Supply
- +3dBm Output IP3
- 12dB Gain at 900MHz
- 12dB Gain at 1900MHz
- High Isolation (37dB at 900MHz)



Functional Block Diagram

Ordering Information

RF2321	3V General Purpose Amplifier
RF2321 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

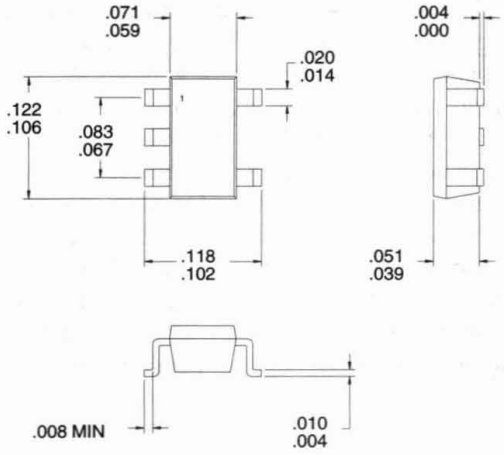
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2322 is a general purpose, low-cost silicon amplifier designed for operation from a 3V supply. The circuit configuration with resistive feedback allows for broadband cascadable amplification. Capacitive compensation extends the bandwidth of the amplifier and input stage design optimizes noise figure. The device is unconditionally stable and internally matched to 50Ω. The only external components required for specified performance are bypass and DC blocking capacitors (as shown in application schematic). The RF2322 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



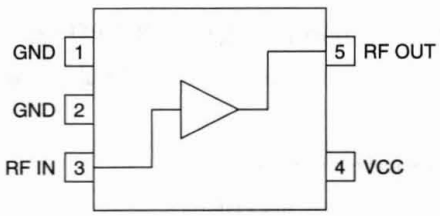
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] GaAs HBT
- [ ] GaAs MESFET
- [ ] Si Bi-CMOS
- [ ] SiGe HBT
- [ ] Si CMOS

Features

- DC to >2000MHz Operation
- 2.7V to 3.3V Single Supply
- +3dBm Output IP3
- 19dB Gain at 900MHz
- 12dB Gain at 1900MHz
- High Isolation (38dB at 900MHz)



Functional Block Diagram

Ordering Information

RF2322	3V General Purpose Amplifier
RF2322 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

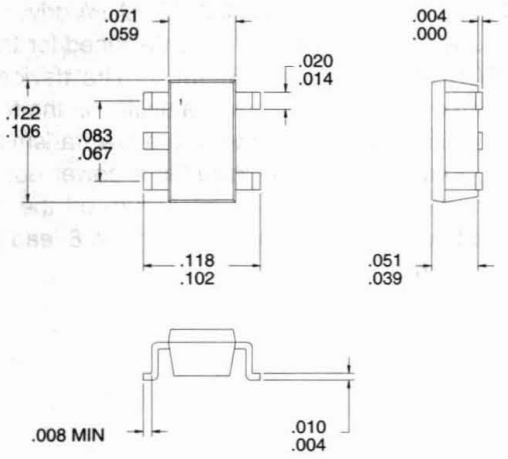
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband Gain Blocks
- Low Noise Amplifiers
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers
- Receiver Front-Ends

Product Description

The RF2323 is a general purpose, low-cost silicon amplifier designed for operation from a 3V supply. The circuit configuration with resistive feedback allows for broadband cascadable amplification. Capacitive compensation extends the bandwidth of the amplifier and input stage design optimizes noise figure. The device is unconditionally stable and internally matched to 50Ω. The only external components required for specified performance are bypass and DC blocking capacitors (as shown in application schematic). The RF2323 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



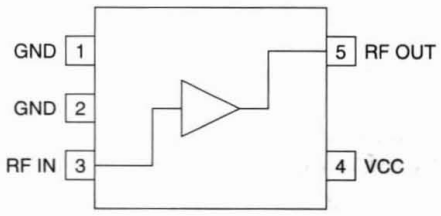
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to >2000MHz Operation
- 2.7V to 3.3V Single Supply
- 2.3dB Noise Figure
- 21dB Gain at 900MHz
- 12dB Gain at 1900MHz
- High Isolation (33dB at 900MHz)



Functional Block Diagram

Ordering Information

RF2323	3V General Purpose Amplifier
RF2323 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2324

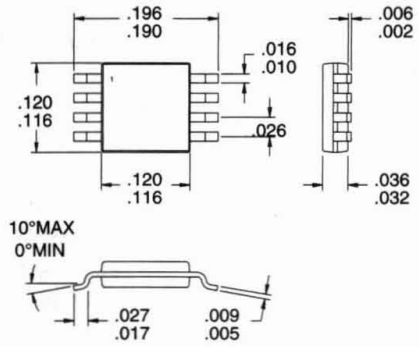
PCS CDMA/TDMA 3V PA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM PCS Tx Amplifier
- Low Noise Transmit Driver Amplifier
- 2.4GHz WLAN Systems
- ISM Band LNA/Driver
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

The RF2324 is a low noise CDMA/TDMA PA driver amplifier with a very high dynamic range designed for transmit digital PCS applications at 1880MHz. The device functions as an outstanding PA driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. The IC includes a power down feature that can be used to completely turn off the device. The IC is featured in a standard miniature 8-lead plastic MSOP package.



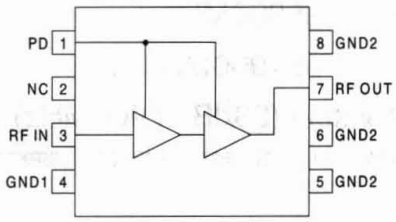
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Low Noise and High Intercept Point
- Power Down Control
- Single 2.5V to 6.0V Power Supply
- 150MHz to 2500MHz Operation
- Extremely Small MSOP-8 Package



Functional Block Diagram

Ordering Information

RF2324	PCS CDMA/TDMA 3V PA Driver Amplifier
RF2324 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

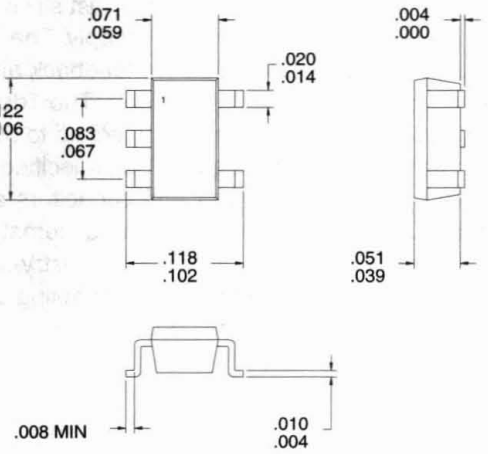
3V GENERAL PURPOSE AMPLIFIER

Typical Applications

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2325 is a general purpose, low-cost silicon amplifier designed for operation from a 3V supply. The Darlington circuit configuration with resistive feedback allows for broadband cascadable amplification. The device is unconditionally stable and internally matched to 50Ω. The only external components required for specified performance are bypass and DC blocking capacitors and two bias elements (as shown in application schematic). The RF2325 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



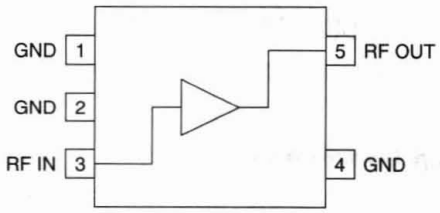
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to >2000MHz Operation
- 2.7V to 3.3V Single Supply
- +17dBm Output IP3
- 16dB Gain at 900MHz
- 12dB Gain at 1900MHz
- Internally 50Ω Matched Input and Output



Functional Block Diagram

Ordering Information

RF2325	3V General Purpose Amplifier
RF2325 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

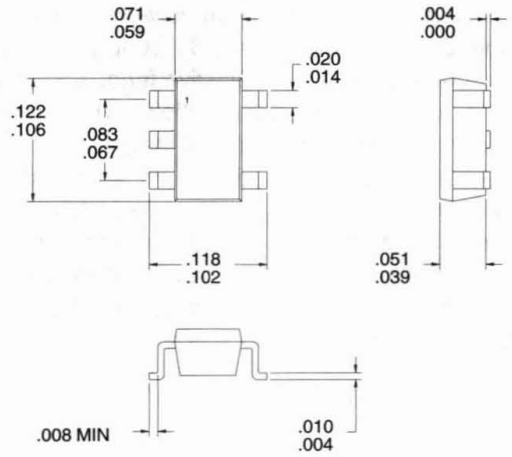
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2326 is a general purpose, low-cost silicon amplifier designed for operation from a 3V supply. The Darlington circuit configuration with resistive feedback allows for broadband cascadable amplification. The device is unconditionally stable and internally matched to 50Ω. The only external components required for specified performance are bypass and DC blocking capacitors and two bias elements (as shown in application schematic). The RF2326 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



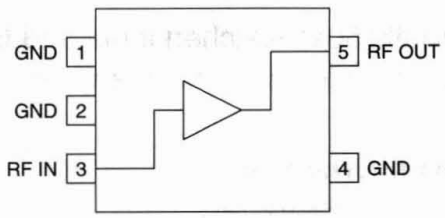
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to >2000MHz Operation
- 2.7V to 3.3V Single Supply
- +18dBm Output IP3
- 12dB Gain at 900MHz
- 10dB Gain at 1900MHz
- Internally 50Ω Matched Input and Output



Functional Block Diagram

Ordering Information

RF2326	3V General Purpose Amplifier
RF2326 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2333

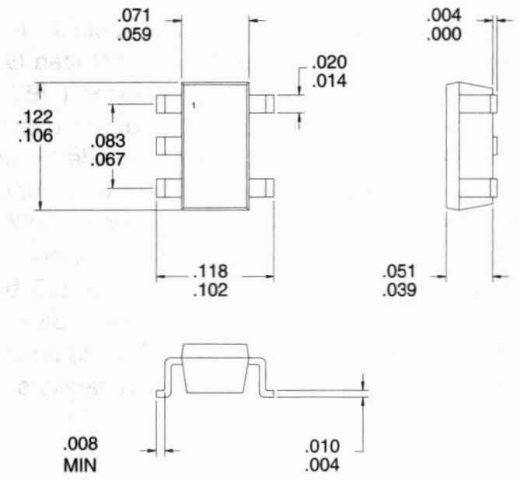
GENERAL PURPOSE AMPLIFIER

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2333 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2333 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



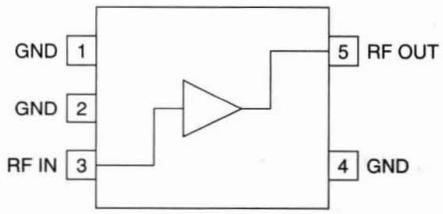
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 10dB Small Signal Gain
- +34dBm Output IP3
- +18.5dBm Output Power
- Good Gain Flatness



Functional Block Diagram

Ordering Information

RF2333	General Purpose Amplifier
RF2333 PCBA	Fully Assembled Evaluation Board

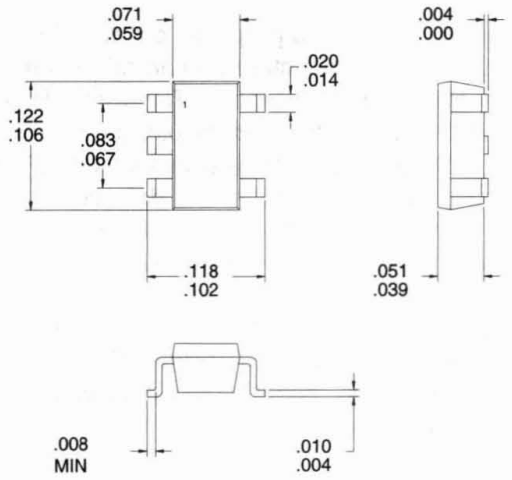
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2334 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 4000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2334 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



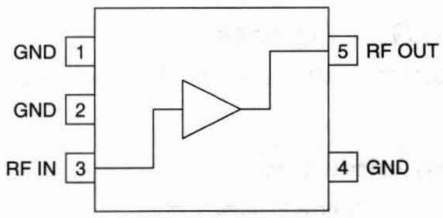
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 4000MHz Operation
- Internally matched Input and Output
- 16dB Small Signal Gain
- 5dB Noise Figure
- 50mW Linear Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2334	General Purpose Amplifier
RF2334 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

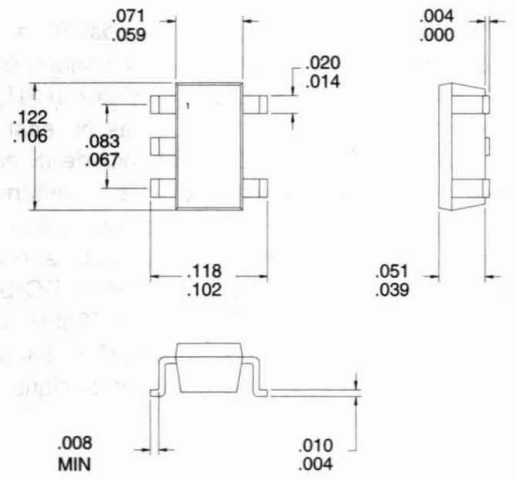
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2335 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2335 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



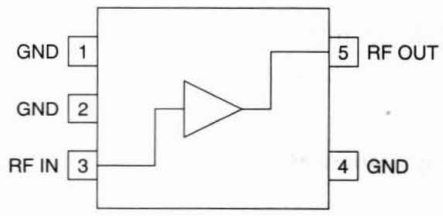
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 12dB Small Signal Gain
- +33dBm Output IP3
- +17dBm Output Power
- Good Gain Flatness



Functional Block Diagram

Ordering Information

RF2335	General Purpose Amplifier
RF2335 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

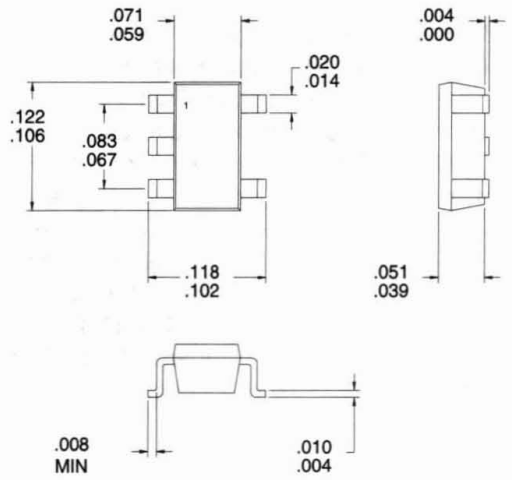
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2336 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 3000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2336 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



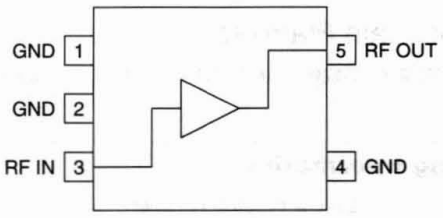
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 3000MHz Operation
- Internally matched Input and Output
- 20dB Small Signal Gain
- 3.8dB Noise Figure
- 10mW Linear Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2336	General Purpose Amplifier
RF2336 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

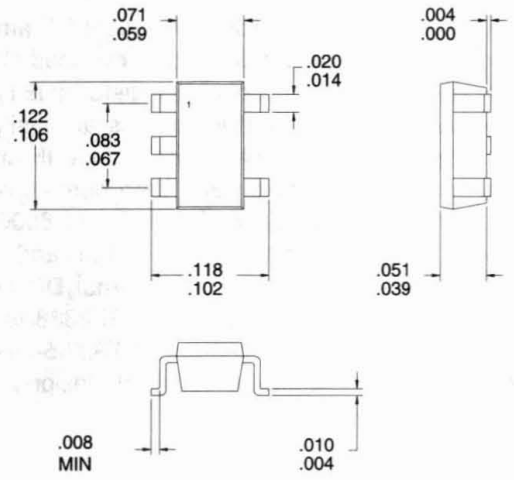
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2337 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2337 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



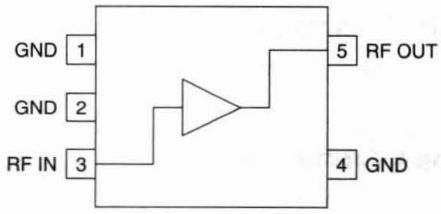
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 15dB Small Signal Gain
- +25dBm Output IP3
- +12dBm Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2337	General Purpose Amplifier
RF2337 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

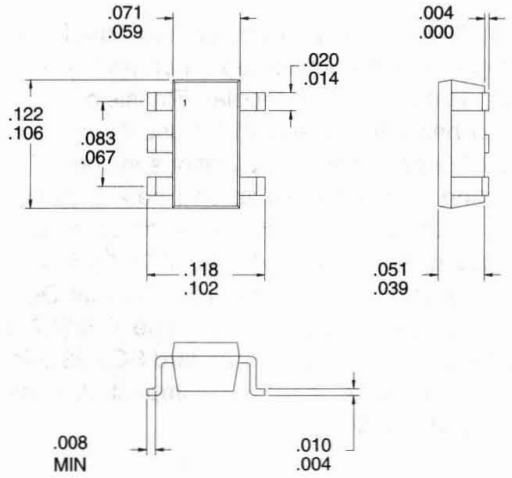
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

Product Description

The RF2338 is a general purpose, low cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2338 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



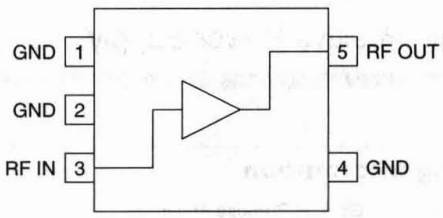
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 12dB Small Signal Gain
- +24dBm Output IP3
- +11dBm Output Power
- Single Positive Power Supply



Functional Block Diagram

Ordering Information

RF2338	General Purpose Amplifier
RF2338 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

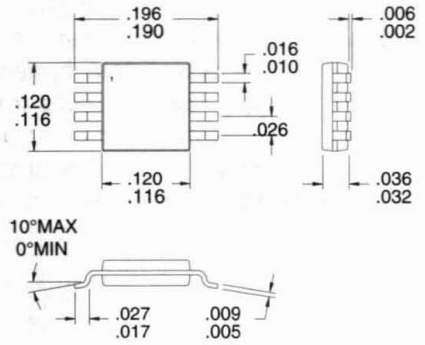
3V LOW NOISE AMPLIFIER/ 3V PA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM Cellular LNA
- Low Noise Transmit Driver Amplifier
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

The RF2347 is a low noise amplifier with a very high dynamic range designed for digital cellular applications at 900MHz. The device functions as an outstanding front end low noise amplifier or power amplifier driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. When used as an LNA, the bias current can be set externally. When used as a PA driver, the IC can operate directly from a single cell Li-ion battery and includes a power down feature that can be used to completely turn off the device. The IC is featured in a standard miniature 8-lead plastic MSOP package.



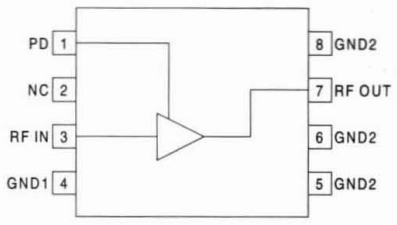
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Low Noise and High Intercept Point
- Power Down Control
- Single 2.5V to 6.0V Power Supply
- 150MHz to 2500MHz Operation
- Extremely Small MSOP-8 Package



Functional Block Diagram

Ordering Information

RF2347	3V Low Noise Amplifier/ 3V PA Driver Amplifier
RF2347 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

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RF2351

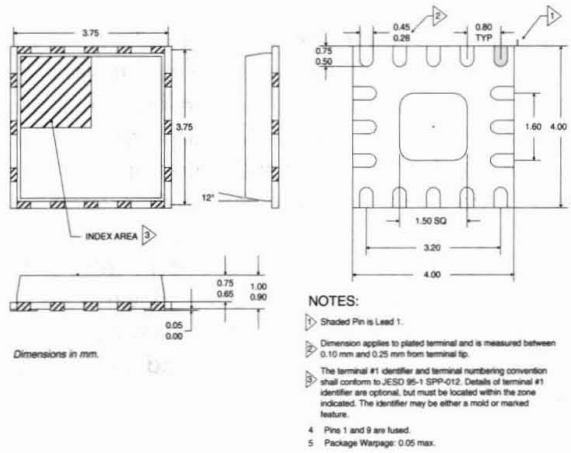
3V PCS CDMA SPLIT BAND PA DRIVER

Typical Applications

- CDMA PCS Systems
- TDMA PCS Systems
- GSM Systems
- Wireless Local Loop Systems
- Wideband CDMA Systems

Product Description

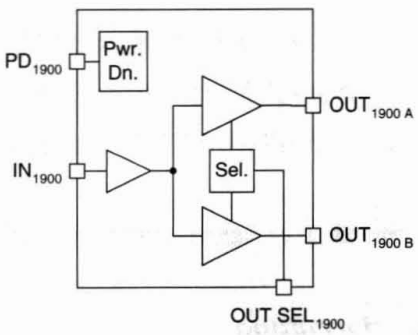
The RF2351 is a broadband linear gain amplifier that was designed specifically for digital communications systems. It is suitable for use in CDMA or TDMA systems in the PCS band. Operating supply voltage ranges from 3V to 6V. Bias optimization may be achieved by adjusting the power down voltage. The IC is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (GaAs HBT) process and is featured in an MLF16 package.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- +16dBm OP1dB at 3.5V
- Single 3V to 6V Supply
- 21dB Gain
- 2.5dB Noise Figure
- Band Selection

Ordering Information

RF2351	3V PCS CDMA Split Band PA Driver
RF2351 PCBA	Fully Assembled Evaluation Board

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RF2352

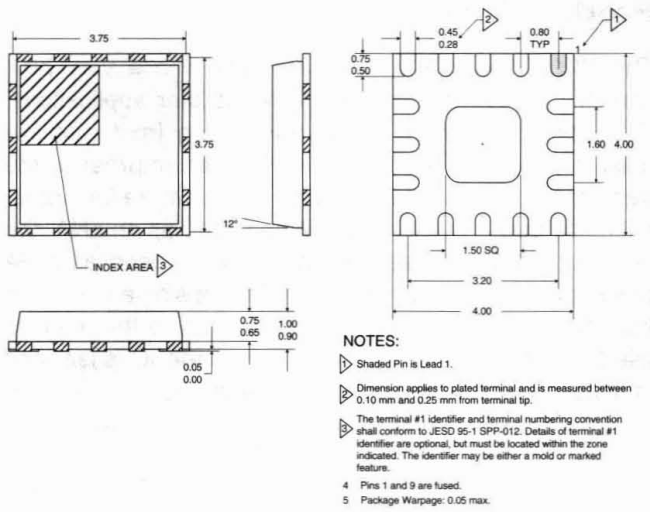
3V CDMA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM Driver Amplifier
- Low Noise Transmit Driver Amplifier
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

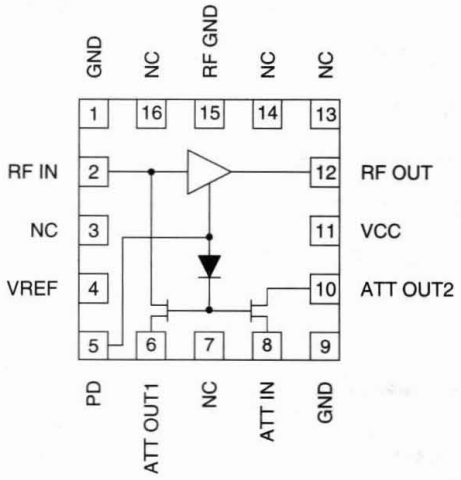
The RF2352 is a low noise driver amplifier for 900MHz CDMA/AMPS applications. The device is designed for operation from 2.7V to 3.6V, and features selectable high and low gain modes. In high gain mode, the device will provide about 19dB of gain, and the linearity and current drain are set with an external resistor, allowing the designer to select the optimum performance for a given application. In the low gain, or "bypass" mode, the gain is controlled by an external attenuator network, and the device draws essentially no current. The part is fabricated using a high performance silicon BiCMOS process, and is packaged in a 4mmx4mm leadless plastic package.



Package Style: MLF16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Low Noise and High Intercept Point
- Power Down Control
- Gain Control
- Single 2.7V to 3.6V Power Supply
- Extremely Small MLF16 Package

Ordering Information

RF2352	3V CDMA Driver Amplifier
RF2352 PCBA	Fully Assembled Evaluation Board

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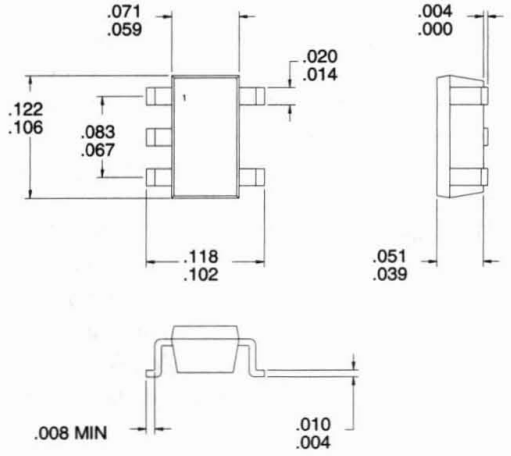
3V LOW NOISE AMPLIFIER/ 3V PA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM Cellular PCS LNA
- Low Noise Transmit Driver Amplifier
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

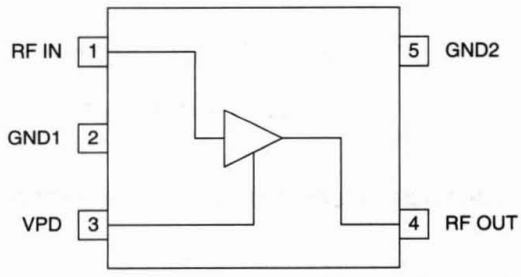
The RF2361 is a low noise amplifier with a very high dynamic range designed for digital cellular applications. The device functions as an outstanding front end low noise amplifier or power amplifier driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. When used as an LNA, the bias current can be set externally. When used as a PA driver, the IC can operate directly from a single cell Li-ion battery and includes a power down feature that can be used to completely turn off the device. The IC is featured in a standard SOT23-5 plastic package.



Package Style: SOT23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Low Noise and High Intercept Point
- Adjustable Bias Current
- Power Down Control
- Single 2.5V to 6.0V Power Supply
- 150MHz to 2500MHz Operation
- Extremely Small SOT23-5 Package

Ordering Information

RF2361	3V Low Noise Amplifier/ 3V PA Driver Amplifier
RF2361 PCBA-D	Fully Assembled Evaluation Board (Driver)
RF2361 PCBA-L	Fully Assembled Evaluation Board (LNA)

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RF2362

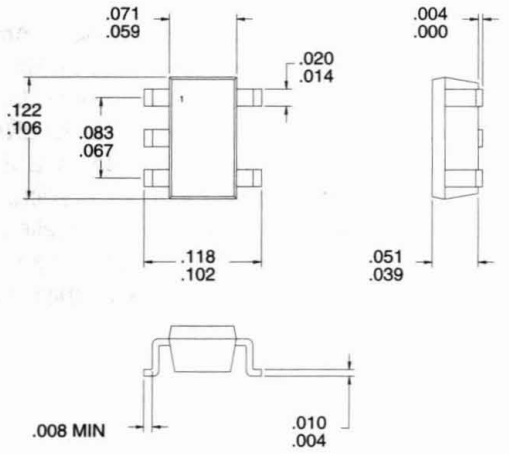
PCS CDMA/TDMA 3V PA DRIVER AMPLIFIER

Typical Applications

- TDMA/CDMA/FM PCS Tx Amplifier
- Low Noise Transmit Driver Amplifier
- 2.4 GHz WLAN Systems
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

The RF2362 is a low noise CDMA/TDMA PA driver amplifier with a very high dynamic range designed for transmit digital PCS applications at 1880MHz. The device functions as an outstanding PA driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. The IC includes a power down feature that can be used to completely turn off the device. The IC is featured in a standard SOT23-5 plastic package.



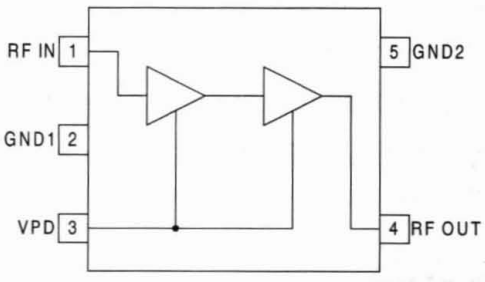
Package Style: SOT23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Low Noise and High Intercept Point
- Adjustable Bias Current
- Power Down Control
- Single 2.5V to 6.0V Power Supply
- 150MHz to 2500MHz Operation
- Extremely Small SOT23-5 Package



Functional Block Diagram

Ordering Information

RF2362	PCS CDMA/TDMA 3V PA Driver Amplifier
RF2362 PCBA	Fully Assembled Evaluation Board

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RF2363

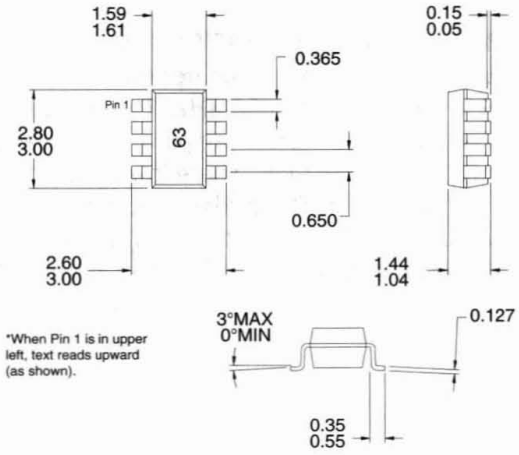
DUAL-BAND 3V LOW NOISE AMPLIFIER

Typical Applications

- GSM/DCS Dual-Band Handsets
- Cellular/PCS Dual-Band Handsets
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

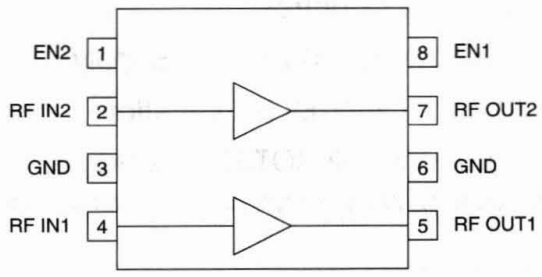
The RF2363 is a dual-band Low Noise Amplifier designed for use as a front-end for 950MHz GSM/1850MHz DCS applications and may be used for dual-band cellular/PCS applications. The 900MHz LNA is a single-stage amplifier; the 1900MHz LNA is a 2-stage amplifier. The part may also be tuned for applications in other frequency bands. The device has an excellent combination of low noise figure and high linearity at a very low supply current. It is packaged in a very small industry standard SOT23 8-lead plastic package.



Package Style: SOT23-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Low Noise and High Intercept Point
- 18dB Gain at 900MHz
- 21dB Gain at 1900MHz
- Low Supply Current
- Single 2.5V to 5.0V Power Supply
- Very Small SOT23-8 Plastic Package

Ordering Information

RF2363	Dual-Band 3V Low Noise Amplifier
RF2363 PCBA	Fully Assembled Evaluation Board

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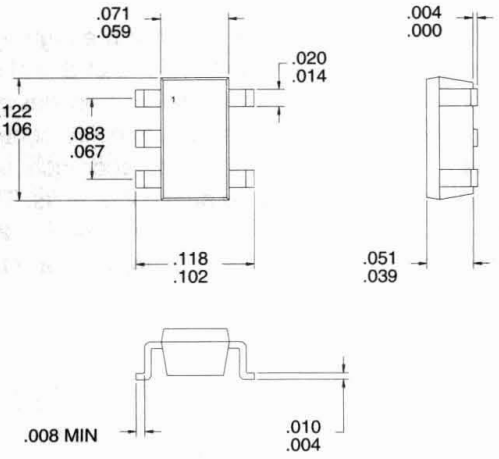
Typical Applications

- CDMA PCS LNA
- TDMA PCS LNA
- WCDMA/CDMA2000 LNA
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

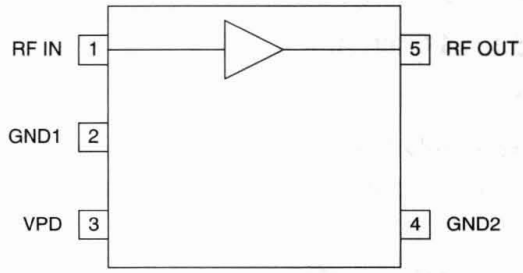
The RF2364 is a low noise amplifier with a high dynamic range designed for CDMA and TDMA PCS, as well as WCDMA/CDMA2000 applications. The device functions as an outstanding front end low noise amplifier and the bias current can be set externally. Includes a power down feature that can be used to completely turn-off the device. The IC is featured in a standard SOT23-5 plastic package.



Package Style: SOT23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Low Noise and High Intercept Point
- 19dB Gain
- Power Down Control
- Single 3.0V Power Supply
- PCS and WCDMA Band Operation
- Extremely Small SOT23-5 Package

Ordering Information

RF2364	3V PCS Low Noise Amplifier
RF2364 PCBA	Fully Assembled Evaluation Board

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RF2365

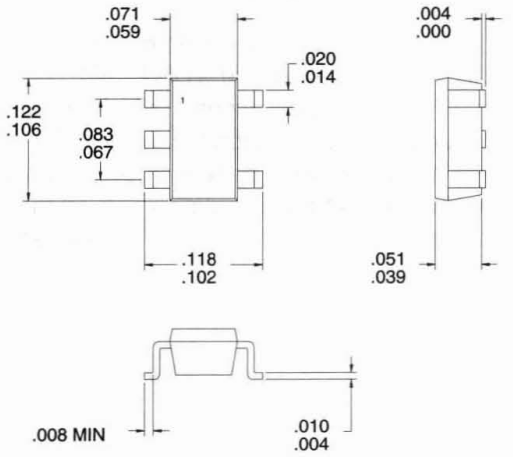
3V LOW NOISE AMPLIFIER

Typical Applications

- DCS GSM
- PCS CDMA
- PCS TDMA
- 2.4GHz Systems
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

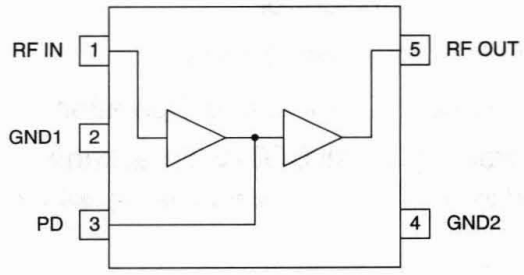
The RF2365 is a low noise amplifier with a high dynamic range designed for the receive front end of digital cellular applications at PCS/DCS frequencies. It is designed to amplify low level signals with minimum noise contribution while operating in the harsh, interference-rich environments of newly deployed digital subscriber units. The part provides excellent performance as a LNA for 2.4GHz radio applications. The IC is featured in a standard SOT23-5 plastic package.



Package Style: SOT23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 1.6dB Noise Figure @ 1850MHz
- 1.75dB Noise Figure @ 2450MHz
- 18.0dB Gain at PCS/DCS
- 15.5dB Gain at 2.45GHz
- External Bias Control
- Extremely Small SOT23-5 Package

Ordering Information

RF2365	3V Low Noise Amplifier
RF2365 PCBA	Fully Assembled Evaluation Board

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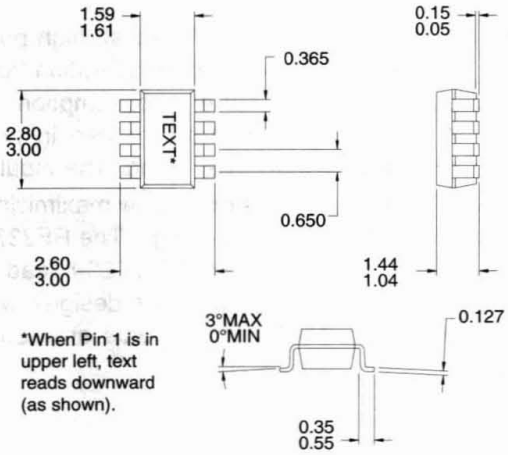
Typical Applications

- GSM Handsets
- CDMA Handsets
- TDMA Handsets
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2371 is a general purpose, low-cost, high performance low noise amplifier designed for operation from a 2.7V to 4V supply with low current consumption. The attenuation of the device is controlled when in power down mode, providing a known gain step. The RF2371 is available in a small industry-standard SOT23-8 surface mount package, enabling compact designs which conserve board space. The design features a highly accurate PTAT (Proportional To Absolute Temperature) biasing scheme using bandgap cells.



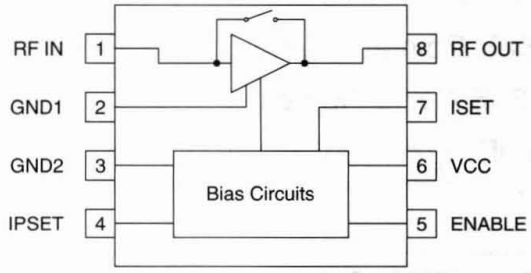
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: SOT23-8

Features

- 700MHz to 2000MHz Operation
- 2.7V to 3.6V Single Supply
- +5dBm Input IP_3 at 3.0mA
- 12dB Gain at 1950MHz
- 1.8dB Noise Figure at 1950MHz
- 17dB Gain Step



Functional Block Diagram

Ordering Information

RF2371	3V Low Noise Amplifier
RF2371 PCBA	Fully Assembled Evaluation Board

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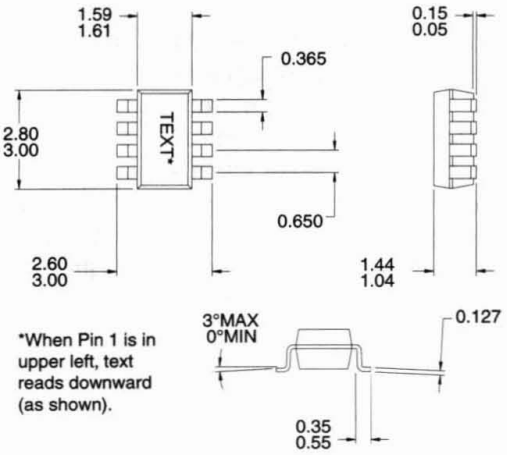
Typical Applications

- LNA for DCS 1800/1900 Handsets
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

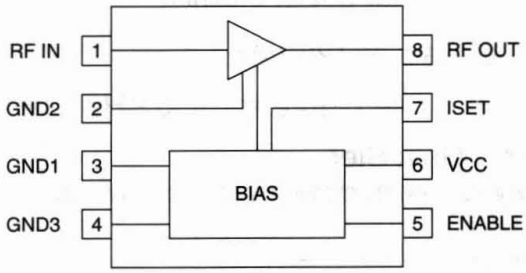
The RF2375 is a general purpose, low-cost, high performance, low noise amplifier designed for operation from a 2.7V to 4V supply with low current consumption. The attenuation of the device is controlled when in power down mode, providing a known gain step. The input IP_3 can be set with an external resistor to allow maximizing of the dynamic range of the receiver design. The RF2375 is available in a small industry-standard SOT-23-8 lead surface mount package, enabling compact designs which conserve board space. PTAT bias currents are used to bias the LNA.



Package Style: SOT-23-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 700MHz to 2000MHz Operation
- 2.7V to 3.6V Single Supply
- -5dBm Input IP_3 at 5.3mA
- 18dB Gain at 1950MHz
- 2.5dB Noise Figure
- 25dB Gain Step

Ordering Information

RF2375	3V DCS Low Noise Amplifier
RF2375 PCBA	Fully Assembled Evaluation Board

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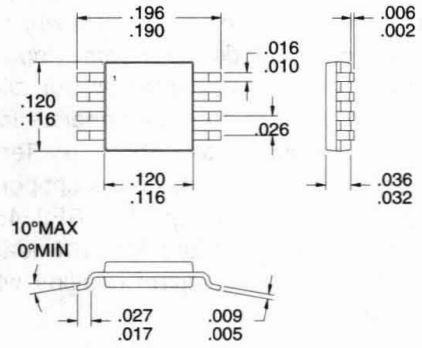
Typical Applications

- TDMA/CDMA/FM Cellular Rx LNA
- TDMA/CDMA PCS Rx LNA
- Low Noise Transmit Driver Amplifier
- ISM Band LNA/Driver
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

The RF2442 is a low noise amplifier with a very high dynamic range designed for the receive front end of digital cellular applications at 900MHz, 1900MHz, and 2400MHz. It is designed to amplify low level signals with minimum noise contribution while operating in the harsh, interference-rich environments of newly deployed digital subscriber units. The device also functions as an outstanding PA driver amplifier in the transmit chain of digital subscriber units where low transmit noise power is a concern. The device supports trade-offs between linearity and current drain. The designer has control of these trade-offs with the choice of an external bias resistor. The IC is featured in a standard miniature 8-lead plastic MSOP package.



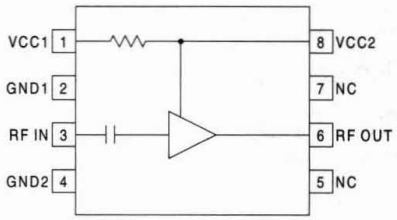
Package Style: MSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Low Noise and High Intercept Point
- External Bias Control
- Single 2.5V to 5.0V Power Supply
- 500MHz to 2500MHz Operation
- Extremely Small MSOP-8 Package



Functional Block Diagram

Ordering Information

RF2442	High-Linearity Low Noise Amplifier
RF2442 PCBA-L	Fully Assembled Evaluation Board (~900MHz)
RF2442 PCBA-M	Fully Assembled Evaluation Board (~1900MHz)
RF2442 PCBA-H	Fully Assembled Evaluation Board (~2400MHz)

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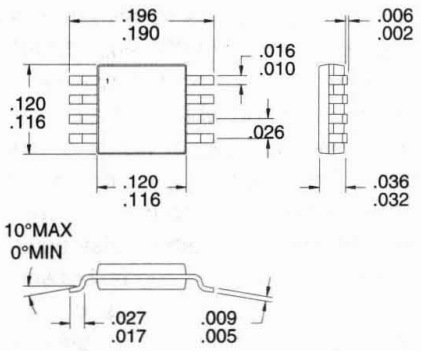
Typical Applications

- LNA for DCS 1800/1900 Handsets
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

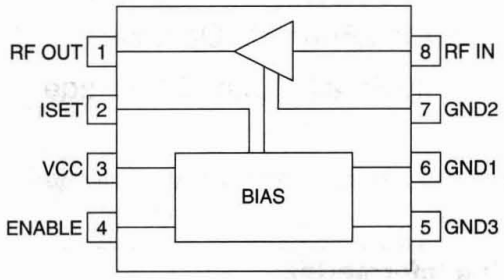
The RF2445 is a general purpose, low-cost, high-performance, low-noise amplifier designed for operation from a 2.7V to 3.6V supply with low current consumption. The device features a power-down mode with controlled attenuation, which can be used to save current while providing a controlled gain step. The device linearity (Input IP3) and current drain are set with an external resistor, allowing the designer to select the optimum performance for a given application. "Proportional to Absolute Temperature (PTAT)" biasing is used to provide consistent performance across a wide temperature range. The RF2445 is available in a small industry-standard MSOP-8 lead surface mount package, enabling compact designs which conserve board space.



Package Style: MSOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 700MHz to 2000MHz Operation
- 2.7V to 3.6V Single Supply
- -5dBm Input IP_3 at 5.3mA
- 19dB Gain at 1950MHz
- 2.2dB Noise Figure
- 27dB Gain Step

Ordering Information

RF2445	3V DCS Low Noise Amplifier
RF2445 PCBA	Fully Assembled Evaluation Board

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RF2451

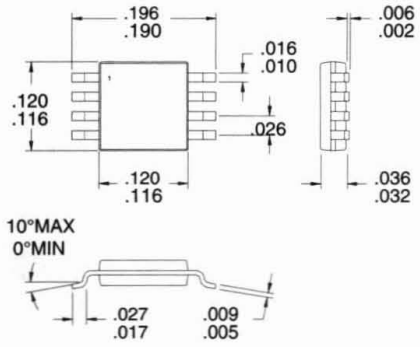
3V LOW NOISE AMPLIFIER

Typical Applications

- GSM Handsets
- CDMA Handsets
- TDMA Handsets
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

Product Description

The RF2451 is a general purpose, low-cost, high performance low noise amplifier designed for operation from a 2.7V to 4V supply with low current consumption. The attenuation of the device is controlled when in power down mode, providing a known gain step. The RF2451 is available in a small industry-standard MSOP-8 surface mount package, enabling compact designs which conserve board space. The design features accurate PTAT (Proportional To Absolute Temperature) biasing scheme using band gap cells.



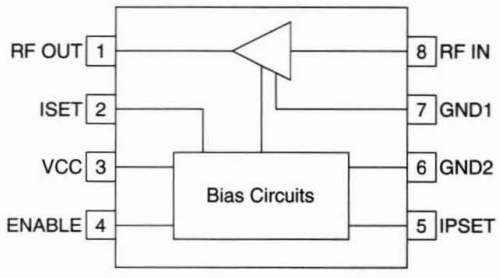
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- 700MHz to 2000MHz Operation
- 2.7V to 3.6V Single Supply
- +5dBm Input IP_3 at 3.0mA
- 12dB Gain at 1950MHz
- 1.8dB Noise Figure at 1950MHz
- 17dB Gain Step



Functional Block Diagram

Ordering Information

RF2451	3V Low Noise Amplifier
RF2451 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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5 Modulators And Upconverters

Part	Description	Frequency (MHz)	Vcc (Volts)	Conversion Method	Icc (mA)	Gain Control (dB)	Mod BW (MHz)	Package	Page
RF2402	UHF Quadrature Modulator	600 to 1000	3 to 5.5	Direct	28	n/a	100	SOP-14	5-1
RF2412	Broadband Dual-Conversion Quadrature Modulator	100 to 1000	3 to 6.5	Dual	31	n/a	50	SOP-20	5-2
RF2413	Gain Controlled Dual-Conversion Quadrature Modulator	200 to 1000	3 to 6.5	Dual	35	60	25	SOP-20	5-3
RF2422	2.5GHz Direct Quadrature Modulator	800 to 2500	4.5 to 6.0	Direct	45	n/a	250	SOP-16	5-4
RF2423	100mW Spread-Spectrum Transmitter IC	800 to 1000	4.5 to 6.0	Direct	110	25	100	SOP-16	5-5
RF2424	UHF Quadrature Modulator	700 to 1000	2.7 to 5.5	Direct	45	n/a	TBD	SOP-16	5-6
RF2454	VHF Quadrature Modulator	200 to 600	3 to 5.5	Direct	28	n/a	100	SOP-14	5-7
RF2464	VHF Quadrature Modulator	200 to 600	4.5 to 5.5	Direct	28	n/a	100	SOP-14	5-8
RF2658	Transmit Modulator, IF AGC, and Upconverter	900 to 1000	2.7 to 3.3	Dual	43 to 63	88	50	SSOP-28	5-9
RF2668	CDMA/FM Transmit Modulator, IF AGC, and Upconverter with Integrated PLL	700 to 2000	2.7 to 3.3	Dual	40 to 69	95	20	LQFP-48	5-10
RF2713	Quadrature Modulator/Demodulator	0.1 to 250	2.7 to 6	Direct	10	n/a	50	SOP-14	5-11
RF2909	3V 915MHz Spread-Spectrum Transmitter IC	100 to 1100	2.7 to 5.0	Direct	30 to 175	20	10	SSOP-24	11-8
RF9958	CDMA/FM Transmit Modulator, IF AGC, and Upconverter	900 to 1000	2.7 to 3.3	Dual	43 to 63	88	50	SSOP-28	5-12

RF MICRO·DEVICES

RF2402

UHF QUADRATURE MODULATOR

Typical Applications

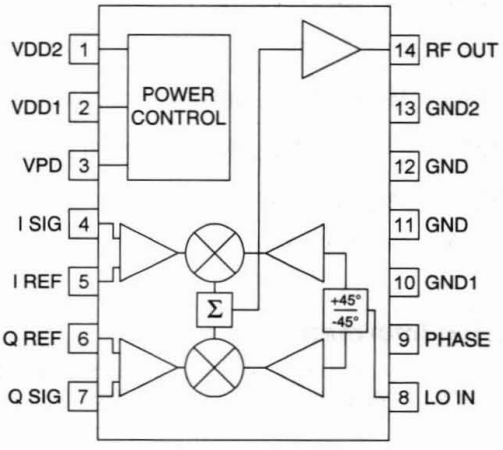
- Digital and Spread Spectrum Systems
- GMSK, QPSK, DQPSK, QAM Modulation
- GSM and D-AMPS Cellular Systems
- AM, SSB, DSB Modulation
- Image-Reject Upconverters

Product Description

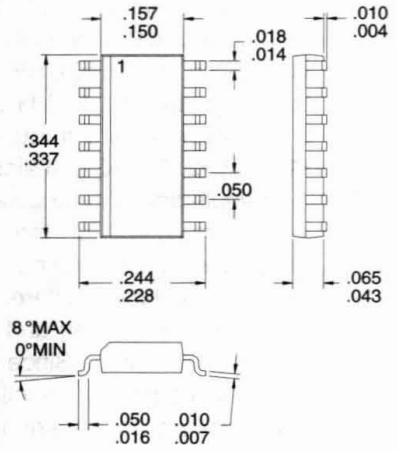
The RF2402 is a monolithic integrated universal modulation system capable of generating modulated AM, PM, or compound carriers in the UHF frequency range. The IC contains all of the required components to implement the modulation function including differential amplifiers for the baseband inputs, a 90° hybrid phase splitter, limiting LO amplifiers, two balanced mixers, a combining amplifier, and an output RF amplifier which will drive a 50Ω load. Component matching, which can only be accomplished with monolithic construction, is used to full advantage to obtain excellent amplitude balance and high phase accuracy. The unit features low power consumption, single power supply operation, and adjustment free operation with no external parts required to operate the part as specified.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- Single 3V to 5V Power Supply
- Low Power and Small Size
- CMOS Compatible Power Down Control
- Excellent Amplitude and Phase Balance
- Low Broadband Noise Floor
- 600MHz to 1000MHz Operation

Ordering Information

RF2402	UHF Quadrature Modulator
RF2402 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2412

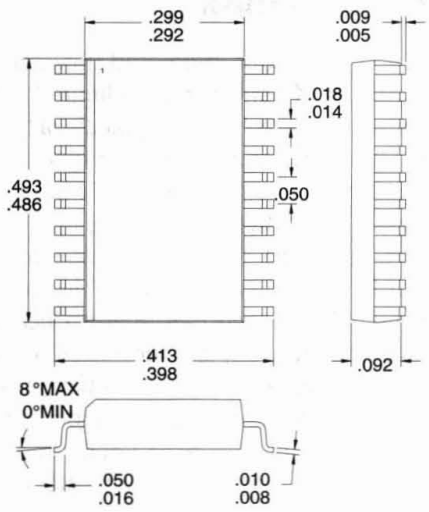
BROADBAND DUAL-CONVERSION QUADRATURE MODULATOR

Typical Applications

- Digital and Spread Spectrum Systems
- Analog Communication Systems
- UHF Digital and Analog Transmitters
- GMSK, QPSK, DQPSK, QAM
- Portable Battery Powered Equipment
- Commercial and Consumer Systems

Product Description

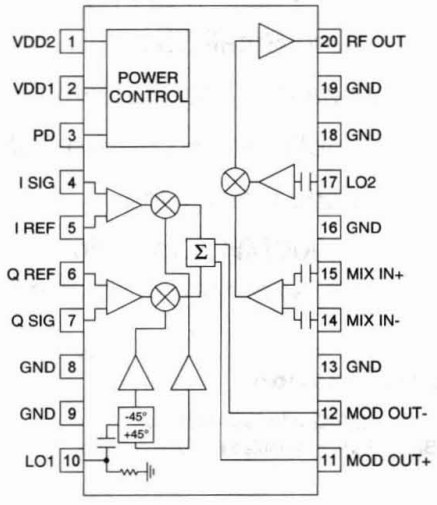
The RF2412 is a monolithic integrated transmitter universal modulation IC capable of generating modulated AM, PM, or compound carriers in the VHF/UHF frequency range. The modulation is performed at VHF, then the resulting spectrum is upconverted to a frequency range between 100MHz to 1000MHz. The IC contains all of the required components to implement the modulation function including differential amplifiers for the baseband inputs, a LO 90° hybrid phase splitter, limiting LO amplifiers, two balanced mixers, a combining differential amplifier, a second upconvert balanced mixer, and an output RF amplifier which will drive a 50Ω load. Since the modulation is performed at a low frequency, excellent amplitude balance and phase accuracy are obtained.



Package Style: SOP-20

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 6V Power Supply
- Digitally-Controlled Power Down Mode
- Dual Conversion
- DC to 50MHz Modulation Frequency
- 50MHz to 150MHz IF Frequency
- 100MHz to 1000MHz RF Frequency

Ordering Information

RF2412	Broadband Dual-Conversion Quadrature Modulator
RF2412 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2413

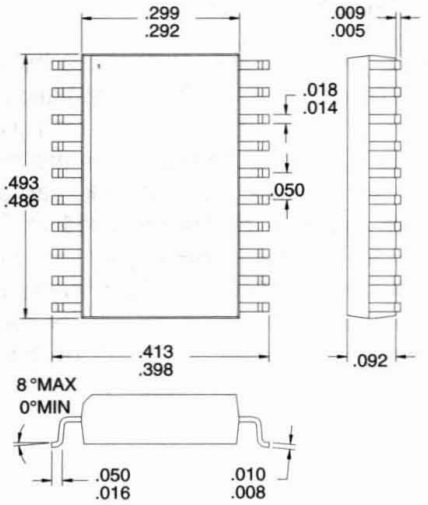
GAIN CONTROLLED DUAL-CONVERSION QUADRATURE MODULATOR

Typical Applications

- Digital and Spread Spectrum Systems
- Analog Communication Systems
- GSM Systems
- CDMA Systems
- General Purpose Frequency Conversion
- Portable Battery Powered Equipment

Product Description

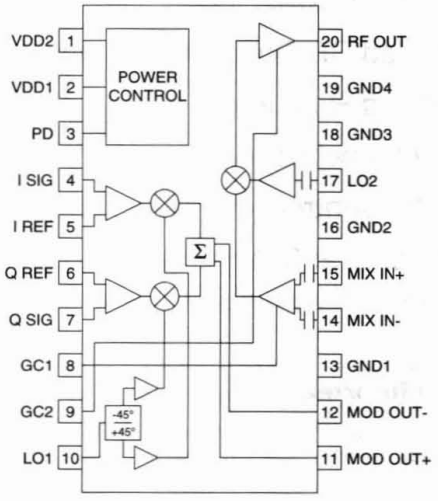
The RF2413 is a monolithic integrated transmitter universal modulation IC capable of generating modulated AM, PM, or compound carriers in the VHF/UHF frequency range. The modulation is performed at VHF, then the resulting spectrum is upconverted to a frequency range between 100MHz and 1000MHz. Up to 60dB of power control is possible through the use of two gain control pins. The IC contains all of the required components to implement the modulation function including differential amplifiers for the baseband inputs, a 90° hybrid phase splitter, limiting LO amplifiers, two balanced mixers, a combining, gain-controlled differential amplifier, a second balanced mixer, and an output gain-controlled RF amplifier which will drive a 50Ω load.



Package Style: SOP-20

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 6.5V Power Supply
- Low Broadband Noise Floor
- Excellent Amplitude & Phase Balance
- Digitally Controlled Power Down
- 30MHz to 100MHz IF Frequency
- 200MHz to 1000MHz RF Frequency

Ordering Information

RF2413	Gain Controlled Dual-Conversion Quadrature Modulator
RF2413 PCBA	Fully Assembled Evaluation Board

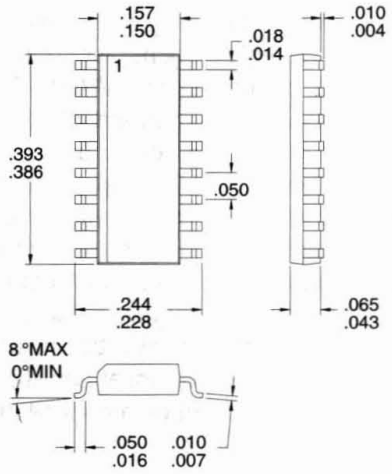
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Digital Communications Systems
- Spread Spectrum Communication Systems
- GMSK, QPSK, DQPSK, QAM Modulation
- GSM, DCS 1800, JDC, D-AMPS Systems
- Commercial and Consumer Systems

Product Description

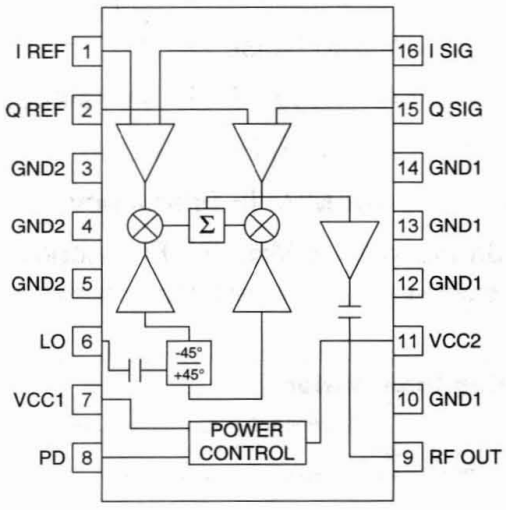
The RF2422 is a monolithic integrated quadrature modulator IC capable of universal direct modulation for high-frequency AM, PM, or compound carriers. This low-cost IC implements differential amplifiers for the modulation inputs, 90° carrier phase shift network, carrier limiting amplifiers, two matched double-balanced mixers, summing amplifier, and an output RF amplifier which will drive 50Ω from 800MHz to 2500MHz. Component matching, which can only be accomplished with monolithic construction, is used to full advantage to obtain excellent amplitude balance and phase accuracy.



Package Style: SOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 5V Power Supply
- Integrated RF Quadrature Network
- No Tuning Required
- Low LO Input Level
- Digitally Controlled Power Down Mode
- 800MHz to 2500MHz Operation

Ordering Information

RF2422	2.5GHz Direct Quadrature Modulator
RF2422 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

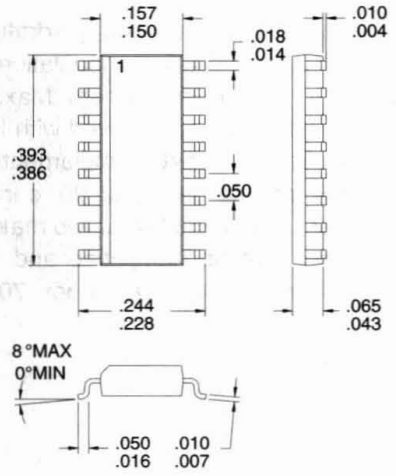
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Digital and Analog Communication Systems
- Spread Spectrum Communication Systems
- Portable Battery Powered Equipment
- GMSK, QPSK, DQPSK, QAM Modulation
- AM, SSB, DSB Modulation

Product Description

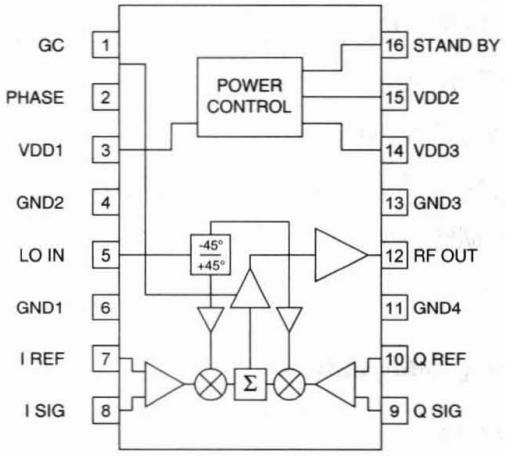
The RF2423 is a monolithic integrated transmitter IC capable of universal direct modulation for UHF AM, PM, or compound carriers. The transmitter may be used stand-alone for applications requiring not more than 100mW output power, or may be used to drive a final power amplifier. The maximum output level is 100mW, and is adjustable over a 25dB range by a single positive voltage. This low-cost IC implements differential amplifiers for the modulation inputs, 90 degree carrier phase shift network, carrier limiting amplifiers, two matched doubly-balanced mixers, variable gain summing amplifier for level control, and 100mW linear (class AB) output amplifier.



Package Style: SOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 5V Power Supply
- 100mW Output Power Into 50Ω
- 25dB Gain Control Range
- Excellent Phase & Amplitude Balance
- Digitally Controlled Stand-By Mode
- 800MHz to 1000MHz Operation

Ordering Information

RF2423	100mW Spread-Spectrum Transmitter IC
RF2423 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

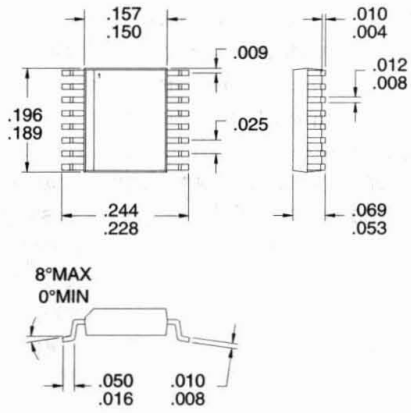
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Digital Communications Systems
- Spread Spectrum Communication Systems
- GMSK, QPSK, DQPSK, QAM Modulation
- GSM and D-AMPS Systems
- AM, SSB, DSB Modulation
- Image-Reject Upconverters

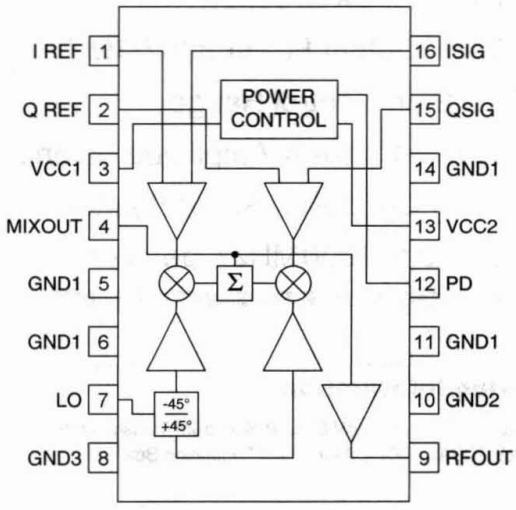
Product Description

The RF2424 is a monolithic integrated quadrature modulator IC capable of universal direct modulation for high-frequency AM, PM, or compound carriers. Maximum output power is +7.5dBm, which is achieved with low input I and Q signal levels. This low-cost IC implements differential amplifiers for the modulation inputs, 90° carrier phase shift network, carrier limiting amplifiers, two matched double-balanced mixers, summing amplifier, and an output RF amplifier which will drive 50Ω from 700MHz to 1000MHz.



Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Package Style: SSOP-16

Features

- Single 2.7V to 5.5V Power Supply
- +7.5dBm Output Power
- No Tuning Required
- Low LO Input Level
- Digitally Controlled Power Down Mode
- 700MHz to 1000MHz Operation

Ordering Information

RF2424	UHF Quadrature Modulator
RF2424 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2454

VHF QUADRATURE MODULATOR

Typical Applications

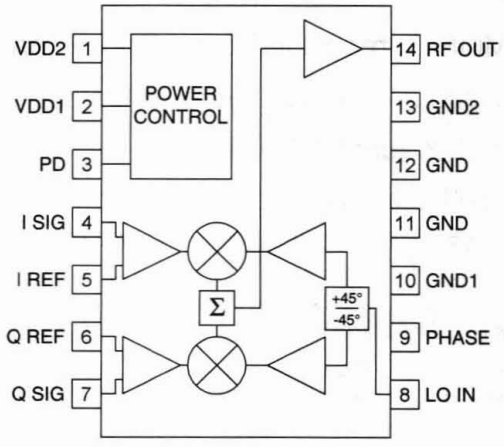
- Digital and Spread Spectrum Systems
- GMSK, QPSK, DQPSK, QAM Modulation
- Private Mobile Radio Systems
- AM, SSB, DSB Modulation
- Image-Reject Upconverters

Product Description

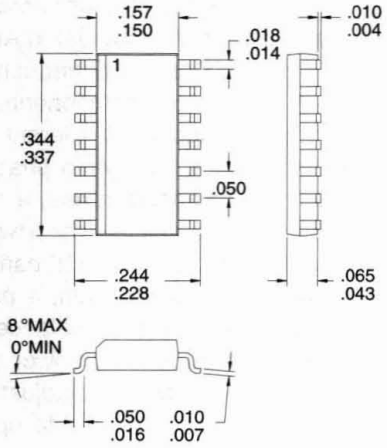
The RF2454 is a monolithic integrated universal modulation system capable of generating modulated AM, PM, or compound carriers in the VHF and UHF frequency range. The IC contains all of the required components to implement the modulation function including differential amplifiers for the baseband inputs, a 90° hybrid phase splitter, limiting LO amplifiers, two balanced mixers, a combining amplifier, and an output RF amplifier which will drive a 50Ω load. Component matching, which can only be accomplished with monolithic construction, is used to full advantage to obtain excellent amplitude balance and high phase accuracy. The unit features low power consumption, single power supply operation and adjustment free operation with no external parts required to operate the part as specified.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- Single 3V to 5V Power Supply
- Low Power and Small Size
- CMOS Compatible Power Down Control
- Excellent Amplitude and Phase Balance
- Low Broadband Noise Floor
- 200MHz to 600MHz Operation

Ordering Information

RF2454	VHF Quadrature Modulator
RF2454 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

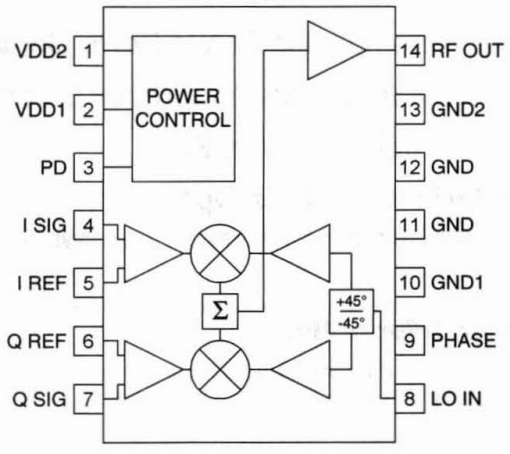
- Digital and Spread Spectrum Systems
- GMSK, QPSK, DQPSK, QAM Modulation
- Private Mobile Radio and TETRA systems
- AM, SSB, DSB Modulation
- Image-Reject Upconverters

Product Description

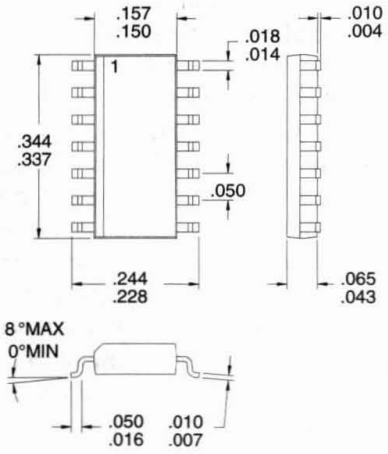
The RF2464 is a monolithic integrated universal modulation system capable of generating modulated AM, PM, or compound carriers in the VHF and UHF frequency range. The IC contains all of the required components to implement the modulation function including differential amplifiers for the baseband inputs, a 90° hybrid phase splitter, limiting LO amplifiers, two balanced mixers, a combining amplifier, and an output RF amplifier which will drive a 50Ω load. Component matching, which can only be accomplished with monolithic construction, is used to full advantage to obtain excellent amplitude balance and high phase accuracy. The unit features low power consumption, single power supply operation and adjustment free operation with no external parts required to operate the part as specified.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- Single 3V to 5V Power Supply
- Low Power and Small Size
- CMOS Compatible Power Down Control
- Excellent Amplitude and Phase Balance
- Low Broadband Noise Floor
- 200MHz to 600MHz Operation

Ordering Information

RF2464	VHF Quadrature Modulator
RF2464 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2658

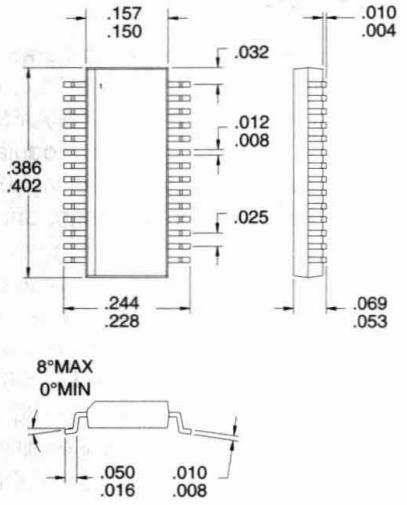
TRANSMIT MODULATOR, IF AGC, AND UPCONVERTER

Typical Applications

- CDMA/FM Cellular Systems
- CDMA PCS Systems
- GSM/DCS Systems
- TDMA Systems
- Spread Spectrum Cordless Phones
- Wireless Local Loop Systems

Product Description

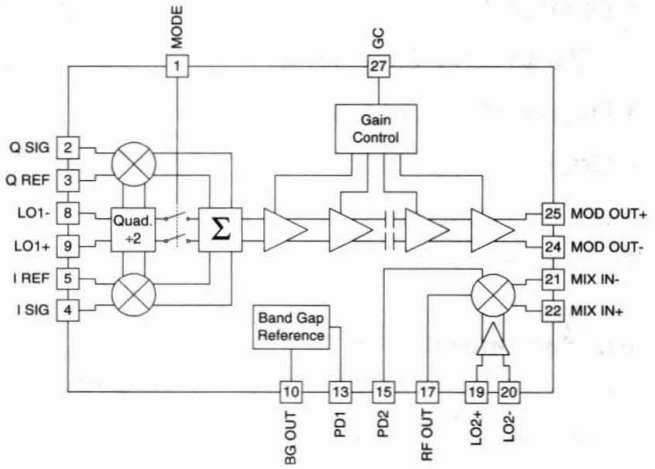
The RF2658 is an integrated complete Quadrature Modulator, IF AGC amplifier, and Upconverter developed for the transmit section of dual-mode CDMA/FM cellular and PCS applications and for GSM/DCS and TDMA systems. It is designed to modulate baseband I and Q signals, amplify the resulting IF signals while providing 95dB of gain control range, and perform the final upconversion to UHF. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-98 Interim Standard for CDMA cellular communications. This circuit is part of RFMD's line of complete solutions for digital radio applications. The IC is manufactured on an advanced 15GHz F_T Silicon Bipolar process, and is supplied in a 28-lead plastic SSOP package.



Package Style: SSOP-28

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Similar to RF9958 with increased IF range
- Supports Dual Mode Operation
- Digitally Controlled Power Down Modes
- 2.7V to 3.3V Operation
- Double-Balanced UHF Upconvert Mixer
- IF AGC Amp with 95 dB Gain Control

Ordering Information

RF2658	Transmit Modulator, IF AGC, and Upconverter
RF2658 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2668

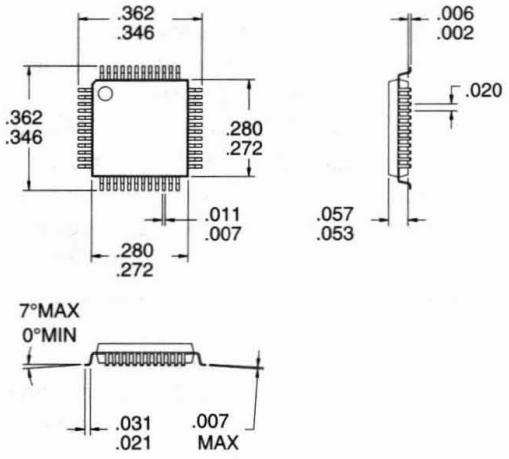
CDMA/FM TRANSMIT MODULATOR, IF AGC, AND UPCONVERTER WITH INTEGRATED PLL

Typical Applications

- CDMA/FM Cellular Systems
- CDMA PCS Systems
- W- CDMA Systems
- Wireless Local Loop Systems
- Spread Spectrum Cordless Phones
- High Speed Data Modems

Product Description

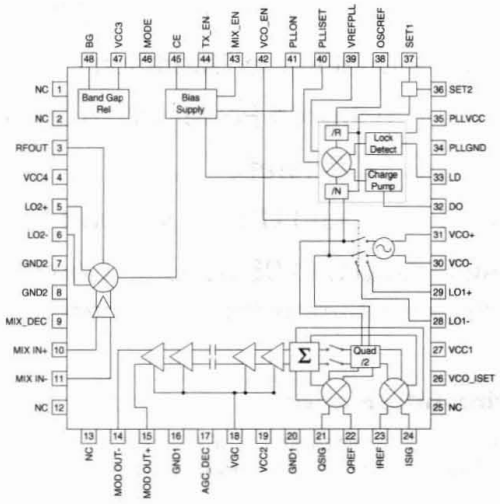
The RF2668 is an integrated complete Quadrature Modulator, IF AGC amplifier, Upconverter, and PLL, designed for the transmit section of dual-mode CDMA/FM cellular and PCS applications. It is designed to modulate baseband I and Q signals, amplify the resulting IF signals while providing 95dB of gain control range, and perform the final upconversion to UHF. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-98 Interim Standard for CDMA cellular communications. This circuit is designed as part of RFMD's newest CDMA Chip Set, which also includes the RF2667 CDMA/FM Receive IF AGC and Demodulator. The IC is manufactured on an advanced 18GHz F_T Silicon Bipolar process, and is supplied in a 48-lead plastic LQFP pack-



Package Style: LQFP-48

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- Digitally Controlled Power Down Modes
- 2.7V to 3.3V Operation
- Digital First LO Quadrature Divider
- Double-Balanced UHF Upconvert Mixer
- IF AGC Amp with 95dB Gain Control

Ordering Information

RF2668	CDMA/FM Transmit Modulator, IF AGC, and Upconverter with Integrated PLL
RF2668 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

Preliminary

RF2713

QUADRATURE MODULATOR/DEMODULATOR

Typical Applications

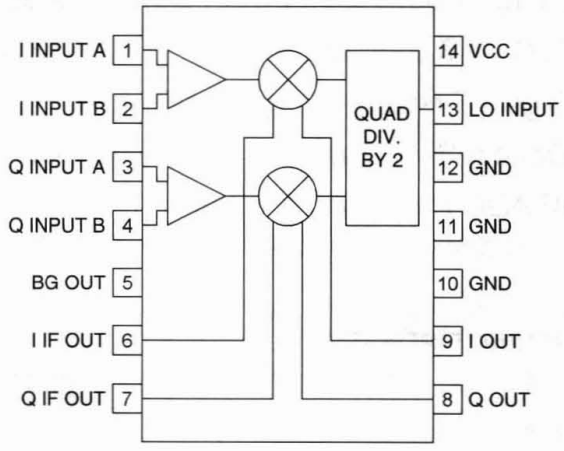
- Digital and Analog Receivers and Transmitters
- High Data Rate Digital Communications
- Spread Spectrum Communication Systems
- Interactive Cable Systems
- Portable Battery Powered Equipment

Product Description

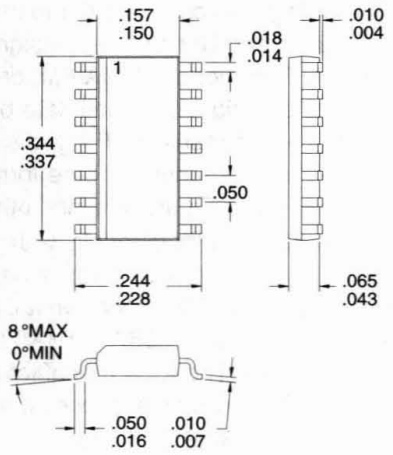
The RF2713 is a monolithic integrated quadrature modulator/demodulator. The demodulator is used to recover the I and Q baseband signals from the amplified and filtered IF. Likewise, the inputs and outputs can be reconfigured to modulate I/Q signals onto an RF carrier. The RF2703 is intended for IF systems where the IF frequency ranges from 100kHz to 250MHz, and the LO frequency is two times the IF. The IC contains all of the required components to implement the modulation/demodulation function and contains a digital divider type 90° phase shifter, two double balanced mixers, and baseband amplifiers designed to interface with Analog to Digital Converters. The unit operates from a single 3V to 6V power supply.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- 3V to 6V Operation
- Modulation or Demodulation
- IF From 100kHz to 250MHz
- Baseband From DC to 50MHz
- Digital LO Quadrature Divider
- Low Power and Small Size

Ordering Information

RF2713	Quadrature Modulator/Demodulator
RF2713 PCBA-D	Fully Assembled Evaluation Board (Demodulator)
RF2713 PCBA-M	Fully Assembled Evaluation Board (Modulator)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

CDMA/FM TRANSMIT MODULATOR, IF AGC, AND UPCONVERTER

Typical Applications

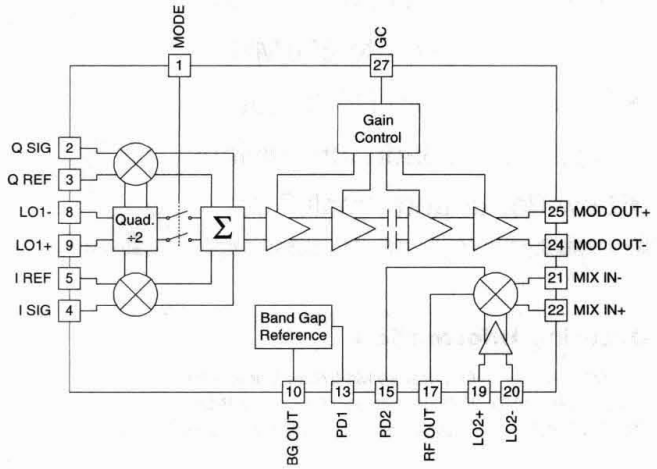
- CDMA/FM Cellular Systems
- CDMA PCS Systems
- Wireless Local Loop Systems
- Spread Spectrum Cordless Phones
- High Speed Data Modems
- General Purpose Digital Transmitters

Product Description

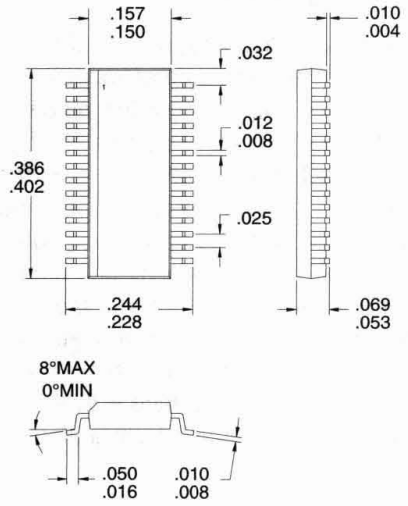
The RF9958 is an integrated complete Quadrature Modulator, IF AGC amplifier, and Upconverter designed for the transmit section of dual-mode CDMA/FM cellular and PCS applications. It is designed to modulate baseband I and Q signals, amplify the resulting IF signals while providing 95dB of gain control range, and perform the final upconversion to UHF. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-98 Interim Standard for CDMA cellular communications. This circuit is designed as part of RFMD's newest CDMA Chip Set, which also includes the RF9957 CDMA/FM Receive IF AGC and Demodulator. The IC is manufactured on an advanced 15GHz F_T Silicon Bipolar process, and is supplied in a 28-lead plastic SSOP package.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-28

Features

- Supports Dual Mode Operation
- Digitally Controlled Power Down Modes
- 2.7V to 3.3V Operation
- Digital First LO Quadrature Divider
- Double-Balanced UHF Upconvert Mixer
- IF AGC Amp with 95 dB Gain Control

Ordering Information

RF9958	CDMA/FM Transmit Modulator, IF AGC, and Upconverter
RF9958 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

6 Mixers

Part	Description	Frequency (MHz)	IF (MHz)	Vcc (Volts)	Icc (mA)	Package	Page
RF2456	CDMA/FM Downconverter	500 to 1100	250	2.7 to 4.0	18	SSOP-16	6-1
RF2466	3V CDMA/FM Mixer	500 to 1100	0.1 to 250	2.7 to 4.0	18	MLF16	6-2
RF2608	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	2.7 to 5.0	22	SOP-8	6-3
RF2628	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	2.7 to 5.0	22	MSOP-8	6-4
RF2638	CDMA Upconverter/BPSK Modulator	500 to 2500	300	2.7 to 3.3	25	MSOP-8	6-5
RF2639	Upconverter/BPSK Modulator	500 to 2500	300	2.7 to 3.3	7	MSOP-8	6-6
RF2640	3V 900MHz Upconverter/ Driver Amplifier	824 to 849	180	2.7 to 3.3	45	MSOP-10	6-7
RF2641	CDMA Upconverter/BPSK Modulator	500 to 2500	DC to 300	2.7 to 3.3	13	MSOP-8	6-8
RF2642	3V 900MHz Upconverter/ Driver Amplifier with Bypass Mode	824 to 849	130	2.7 to 3.3	15	MLF16	6-9
RF9908	CDMA/FM Upconverter/BPSK Modulator	500 to 1500	200	3.6	18	SOP-8	6-10
RF9938	PCS Upconverter/BPSK Modulator	1200 to 2500	200	3.6	27	SOP-8	6-11

RF2456

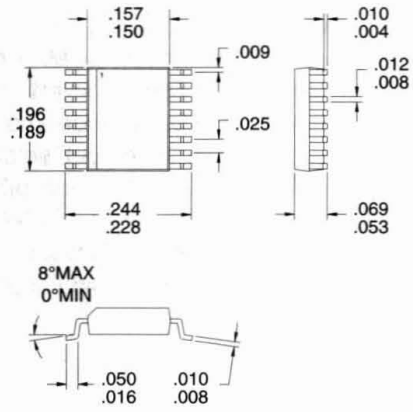
CDMA/FM DOWNCONVERTER

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Down Converter
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

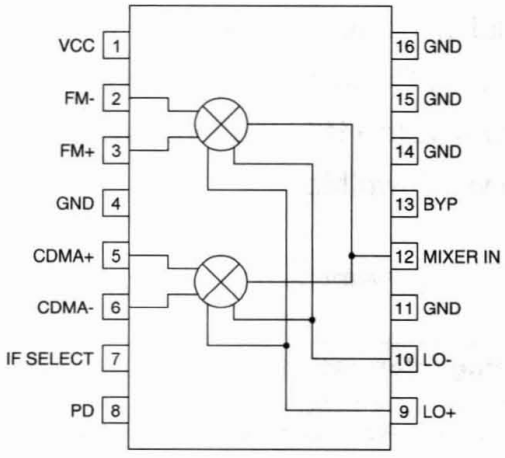
The RF2456 is a receiver dual downconverter designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to down-convert RF signals while providing 13dB gain in CDMA mode, and 7dB gain in FM mode. It also features digital control of IF output selection and power down mode. Noise Figure, IP3, and other specs are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. The IC is manufactured on an advanced Silicon Bipolar process and packaged in an SSOP-16.



Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: SSOP-16



Functional Block Diagram

Features

- Dual Mode CDMA/AMPS
- Dual Mode JCDMA/TACS
- Digitally Selectable IF Outputs
- 500MHz to 1100MHz Operation
- Power Down Mode

Ordering Information

RF2456	CDMA/FM Downconverter
RF2456 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
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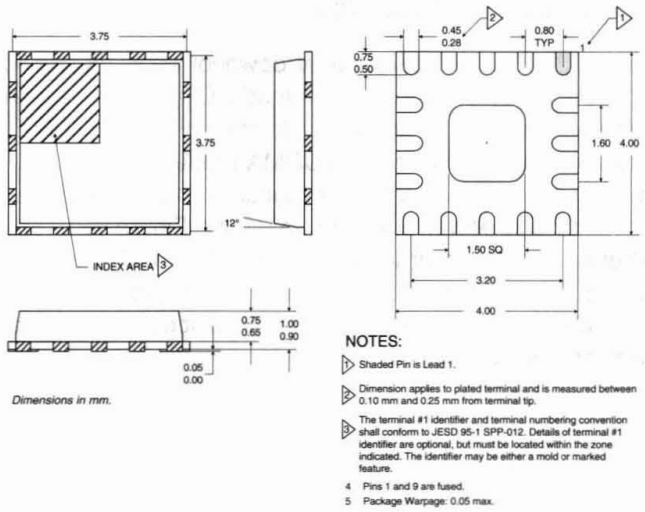
http://www.rfmd.com

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Down Converter
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2466 is a receiver dual downconverter designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to down-convert RF signals while providing 14dB gain in CDMA mode and 7dB gain in FM mode. Also, it features IF output selection and power down mode. Noise Figure, IP3, and other specs are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. The IC is manufactured on an advanced Silicon Bipolar process.



Dimensions in mm.

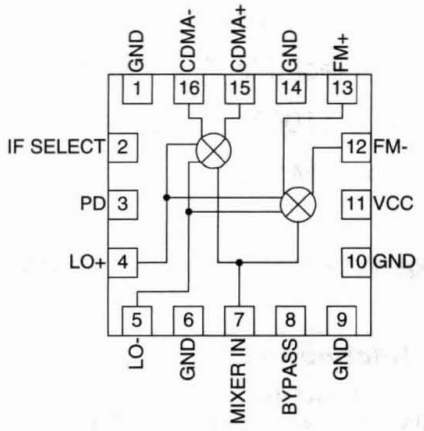
NOTES:

1. Shaded Pin is Lead 1.
2. Dimension applies to plated terminal and is measured between 0.10 mm and 0.25 mm from terminal tip.
3. The terminal #1 identifier and terminal numbering convention shall conform to JESD 95-1 SPP-012. Details of terminal #1 identifier are optional, but must be located within the zone indicated. The identifier may be either a mold or marked feature.
4. Pins 1 and 9 are fused.
5. Package Warpage: 0.05 max.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MLF16



Functional Block Diagram

Features

- Dual Mode CDMA/AMPS
- Dual Mode JCDMA/TACS
- Digitally Selectable IF Outputs
- 500MHz to 1100MHz Operation
- Power Down Mode

Ordering Information

RF2466	3V CDMA/FM Mixer
RF2466 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2608

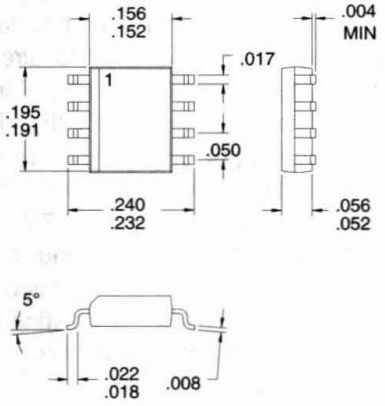
CDMA/FM UPCONVERTER/BPSK MODULATOR

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- Commercial and Consumer Systems
- Battery Operated Systems

Product Description

The RF2608 is a complete upconverter designed for CDMA/FM cellular applications. The IC contains a double-balanced mixer stage and an output buffer amplifier stage. This device may also be used to directly BPSK modulate a carrier. The mixer is a Gilbert cell with emitter degeneration resistors to provide high IP_3. The output stage is a class-B, push-pull configuration to reduce the overall current and still provide a good 50Ω output match. The unit operates at a supply voltage of 2.7V to 5.0V and does not require any external matching components other than coupling capacitors. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



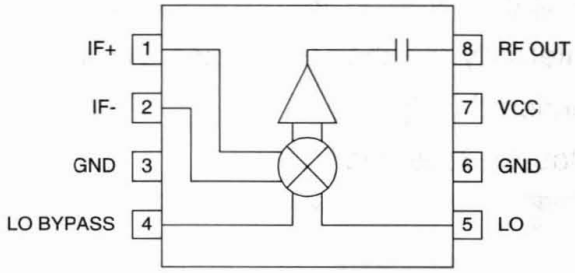
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS

Features

- Supports Dual Mode Operation
- +7dBm Output Intercept Point
- Single 2.7V to 5.0V Power Supply
- Internally Matched Inputs and Outputs
- Buffered Output
- Double-Balanced Mixer



Functional Block Diagram

Ordering Information

RF2608	CDMA/FM Upconverter/BPSK Modulator
RF2608 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
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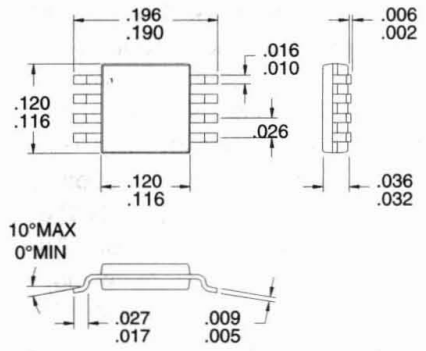
http://www.rfmd.com

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- Commercial and Consumer Systems
- Battery Operated Systems

Product Description

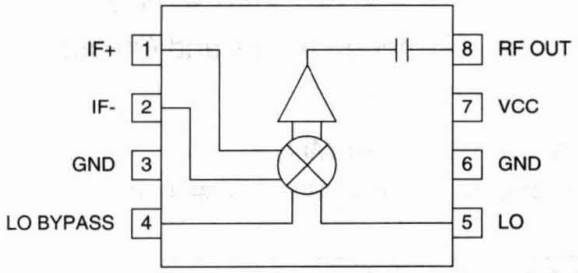
The RF2628 is a complete upconverter designed for CDMA/FM cellular applications. The IC contains a double-balanced mixer stage and an output buffer amplifier stage. This device may also be used to directly BPSK modulate a carrier. The mixer is a Gilbert cell with emitter degeneration resistors to provide high IP_3. The output stage is a class-B, push-pull configuration to reduce the overall current and still provide a good 50Ω output match. The unit operates at a supply voltage of 2.7V to 5.0V and does not require any external matching components other than coupling capacitors. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



Package Style: MSOP-8

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- +9dBm Output Intercept Point
- Single 2.7V to 5.0V Power Supply
- Internally Matched Inputs and Outputs
- Buffered Output
- Double-Balanced Mixer

Ordering Information

RF2628	CDMA/FM Upconverter/BPSK Modulator
RF2628 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
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http://www.rfmd.com

RF MICRO·DEVICES

RF2638

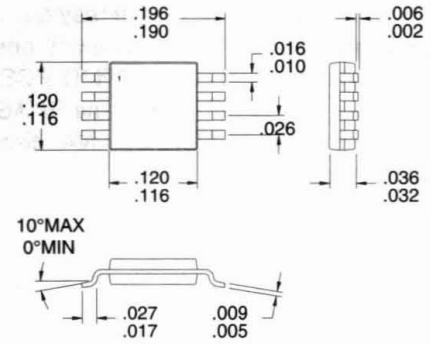
CDMA UPCONVERTER/BPSK MODULATOR

Typical Applications

- PCS/Cellular CDMA Systems
- PHS 1500/ WLAN 2400 Systems
- General Purpose Upconverter
- BPSK Modulation
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2638 is a complete upconverter designed for cellular and PCS applications. This device may also be used to directly BPSK modulate a carrier. The unit operates at 3.0V and is designed as part of the RFMD PCS/Cellular CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



6 MIXERS

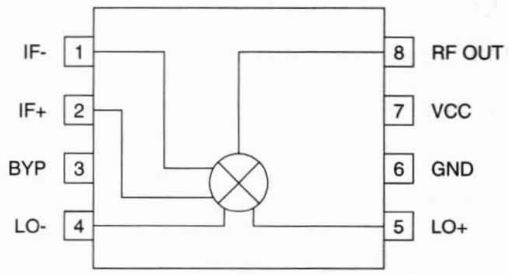
Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Supports Dual Mode Operation
- +13dBm Output IP3 (830MHz)
- Single 3.0V Power Supply
- Miniature 8 Pin Package
- Double-Balanced Mixer



Functional Block Diagram

Ordering Information

RF2638	CDMA Upconverter/BPSK Modulator
RF2638 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

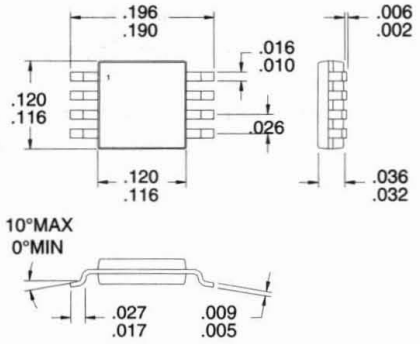
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- PCS/Cellular Systems
- PHS 1500/ WLAN 2400 Systems
- General Purpose Upconverter
- BPSK Modulation
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2639 is a complete upconverter designed for cellular and PCS applications. This device may also be used to directly BPSK modulate a carrier. The unit operates at 3.0V and is designed as part of the RFMD PCS/Cellular CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



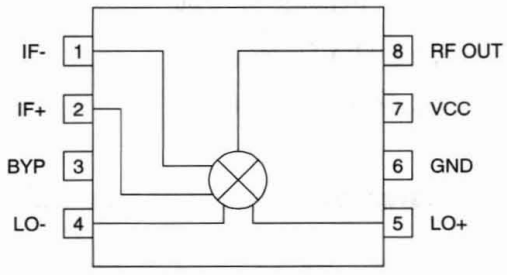
Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Supports Dual Mode Operation
- +2dBm Output Intercept Point
- Single 3.0V Power Supply
- Miniature 8 Pin Package
- Double-Balanced Mixer



Functional Block Diagram

Ordering Information

RF2639	Upconverter/BPSK Modulator
RF2639 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
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http://www.rfmd.com

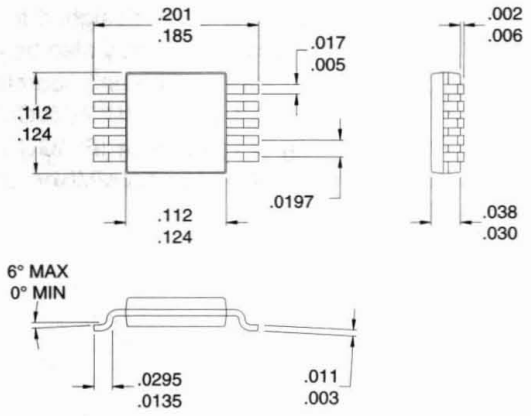
3V 900MHZ UPCONVERTER/ DRIVER AMPLIFIER

Typical Applications

- TDMA/AMPS Cellular Systems
- CDMA/AMPS Cellular Systems
- Portable Battery Powered Equipment

Product Description

The RF2640 is a complete upconverter and power amplifier driver designed for TDMA and CDMA applications. The device features balanced IF inputs, single-ended LO input and RF output for ease of interface. Packaged in an industry standard MSOP-10 package, the device provides a low-cost solution while easing board space limitations.



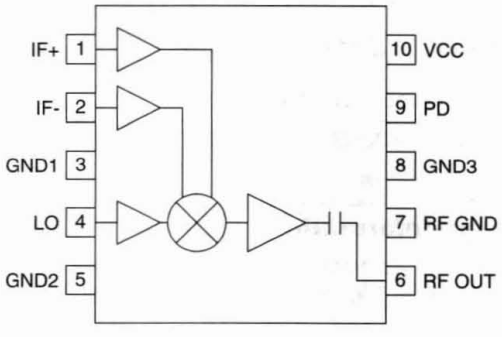
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-10

Features

- Single Supply 3.0V Operation
- +8.5dBm Output P1dB
- +19dBm Output IP3
- Power Down Control
- 23dB Conversion Gain



Functional Block Diagram

Ordering Information

RF2640	3V 900MHz Upconverter/ Driver Amplifier
RF2640 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

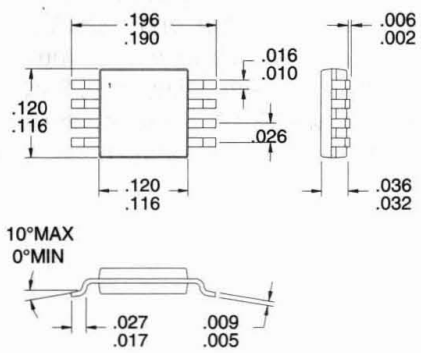
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- PCS/Cellular CDMA Systems
- PHS 1500/ WLAN 2400 Systems
- General Purpose Upconverter
- BPSK Modulation
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2641 is a complete upconverter designed for cellular and PCS applications. This device may also be used to directly BPSK modulate a carrier. The unit operates at 3.0V and is designed as part of the RFMD PCS/Cellular CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



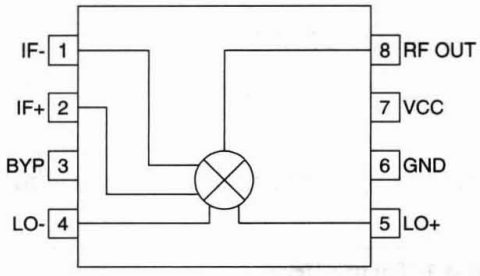
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Supports Dual Mode Operation
- +5.5dBm Output Intercept Point
- 7dB Conversion Gain (836MHz)
- Single 3.0V Power Supply
- Miniature 8 Pin Package
- Double-Balanced Mixer



Functional Block Diagram

Ordering Information

RF2641	CDMA Upconverter/BPSK Modulator
RF2641 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2642

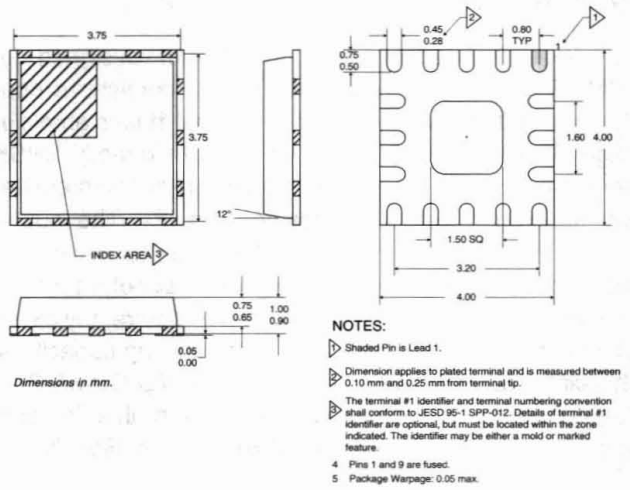
3V 900MHZ UPCONVERTER/ DRIVER AMPLIFIER WITH BYPASS MODE

Typical Applications

- CDMA/AMPS Cellular Systems
- TDMA/AMPS Cellular Systems
- General Purpose Upconverter/Driver
- Portable Battery Powered Equipment

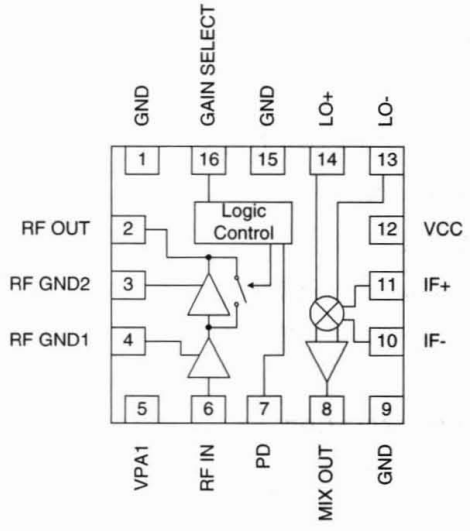
Product Description

The RF2642 is a complete upconverter and power amplifier driver designed for CDMA applications. The design features driver amplifier high and low gain states. In the low gain state, the gain is adjustable and the device draws less current. The upconverter is always on. The power down mode turns off the driver amplifier. The device features balanced IF inputs, single-ended LO input and RF output for ease of interface. Packaged in an industry standard MLF16 package, the device provides a low-cost solution while easing board space limitations.



Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Package Style: MLF16

Features

- Single Supply 3.0V Operation
- Step Gain Control
- Power Down Control
- ACPR1=56dBc @ 885kHz with P_{OUT}=+5dBm
- Small Leadless MLF16 Package

Ordering Information

RF2642	3V 900MHz Upconverter/ Driver Amplifier with Bypass Mode
RF2642 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

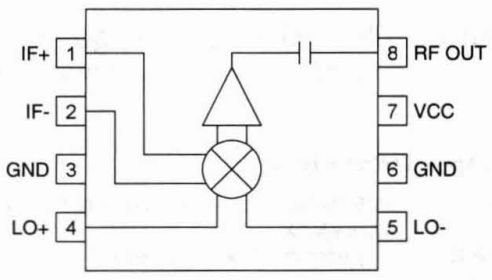
- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- Commercial and Consumer Systems
- 3-Cell Battery Operated Systems

Product Description

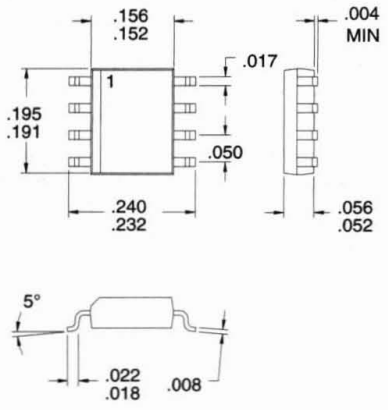
The RF9908 is a complete upconverter designed for CDMA/FM cellular applications. The IC contains a double-balanced mixer stage and an output buffer amplifier stage. This device may also be used to directly BPSK modulate a carrier. The mixer is a Gilbert cell with emitter degeneration resistors to provide high IP_3. The output stage is a class-B, push-pull configuration to reduce the overall current and still provide a good 50Ω output match. The unit operates at 3.6V and does not require any external matching components other than coupling capacitors. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.

Optimum Technology Matching® Applied

☐ Si BJT ☑ GaAs HBT ☐ GaAs MESFET
☐ Si Bi-CMOS ☐ SiGe HBT ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-8

Features

- Supports Dual Mode Operation
- +8dBm Input/Output Intercept Point
- Single 3.6V Power Supply
- Internally Matched Inputs and Outputs
- Buffered Output
- Double-Balanced Mixer

Ordering Information

RF9908	CDMA/FM Upconverter/BPSK Modulator
RF9908 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF9938

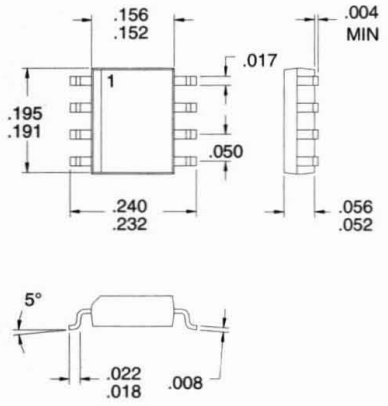
PCS UPCONVERTER/BPSK MODULATOR

Typical Applications

- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/ WLAN 2400 Systems
- General Purpose Upconverter
- BPSK Modulation
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF9938 is a complete upconverter designed for PCS applications. The IC contains a double-balanced mixer stage and an output buffer amplifier stage. This device may also be used to directly BPSK modulate a carrier. The mixer is a Gilbert cell with emitter degeneration resistors to provide high IP_3. The output stage is a class-B, push-pull configuration to reduce the overall current and still provide a good 50Ω output match. The unit operates at 3.6V and is designed as part of the RFMD PCS CDMA Chip Set, consisting of a Transmit IF AGC Amp, this Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp.



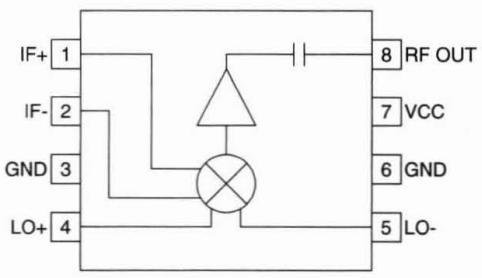
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Features

- Supports Dual Mode Operation
- +8dBm Output Intercept Point
- Single 3.6V Power Supply
- Internally Matched Inputs and Outputs
- Buffered Output
- Double-Balanced Mixer



Functional Block Diagram

Ordering Information

RF9938	PCS Upconverter/BPSK Modulator
RF9938 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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7 Quadrature Demodulators

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	LO Freq	Amp Phase Bal	Demod Gain (dB)	Package	Page
RF2667	Receive AGC and Demodulator	50 to 300	2.7 to 3.3	20	2xIF	0.1dB, ±1°	-55 to +50	SSOP-24	7-1
RF2711	Quadrature Demodulator	0.1 to 250	4.5 to 5.5	4.5	2xIF	0.1dB, ±1°	14	SOP-14	7-2
RF2713	Quadrature Modulator/Demodulator	0.1 to 250	2.7 to 6	8	2xIF	0.1dB, ±1°	20	SOP-14	7-3
RF9957	CDMA/FM Receive AGC and Demodulator	50 to 250	2.7 to 3.3	14	2xIF	0.1dB, ±1°	-55 to +50	SSOP-24	7-4

RF2667

RECEIVE AGC AND DEMODULATOR

Typical Applications

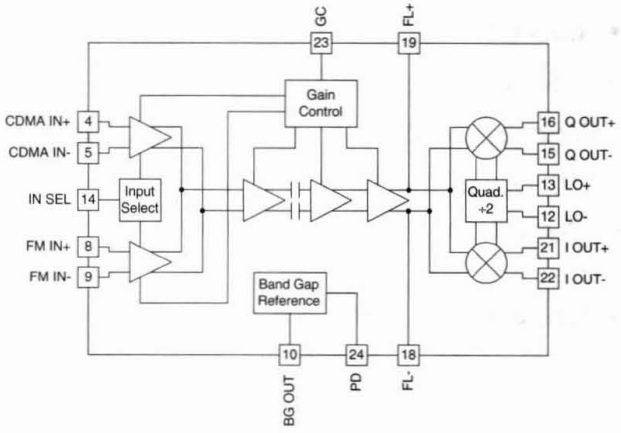
- CDMA/FM Cellular Systems
- CDMA PCS Systems
- GSM/DCS Systems
- TDMA Systems
- Spread Spectrum Cordless Phones
- Wireless Local Loop Systems

Product Description

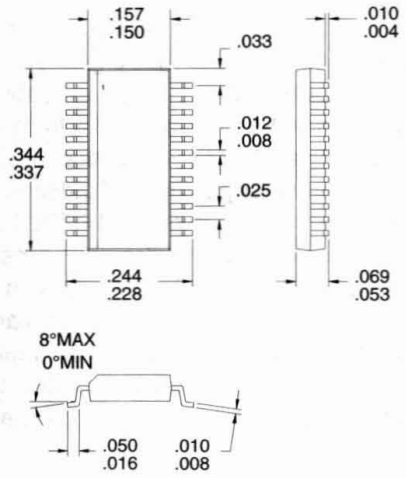
The RF2667 is an integrated complete IF AGC amplifier and Quadrature Demodulator developed for the receive section of dual-mode CDMA/FM cellular and PCS applications and for GSM/DCS and TDMA systems. It is designed to amplify received IF signals, while providing 100dB of gain control range, and demodulate to baseband I and Q signals. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-98, and J-STD-018 Interim Standard for CDMA cellular communications. This circuit is part of the RFMD's line of complete solutions for digital radio applications. The IC is manufactured on an advanced 15GHz F_T Silicon Bipolar process, and is packaged in a standard miniature 24-lead plastic SSOP package.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-24

Features

- Similar to RF9957with increased IF freq. range and higher I/Q output voltage
- Supports Dual Mode Operation
- Digitally Controlled Power Down Mode
- 2.7V to 3.3V Operation
- IF AGC Amp with 100dB Gain Control

Ordering Information

RF2667	Receive AGC and Demodulator
RF2667 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2711

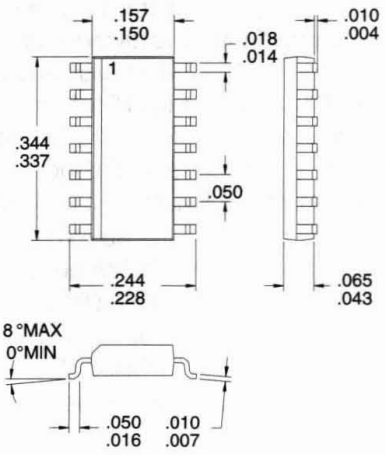
QUADRATURE DEMODULATOR

Typical Applications

- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- General Purpose Frequency Conversion

Product Description

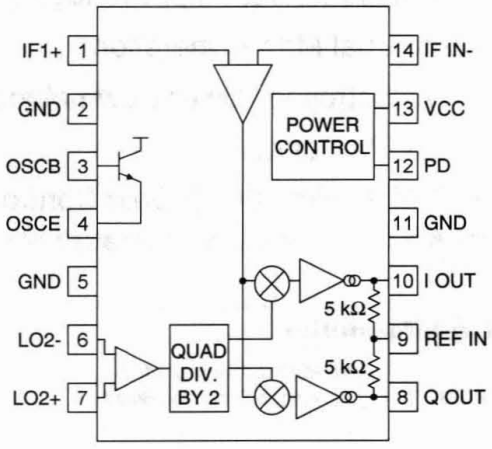
The RF2711 is a monolithic integrated quadrature demodulator intended for use in digital mobile radio receivers. In this application it is used to recover the In-phase and Quadrature baseband signals from the amplified and filtered IF. The RF2711 is intended for IF systems where the IF frequency ranges from 100kHz to 250MHz, and the LO frequency is two times the IF. The IC contains all of the required components to implement the demodulation function of the receiver and contains a digital divider type 90° phase shifter, two double balanced mixers, and baseband amplifiers designed to interface with Analog to Digital Converters. The output DC offset may be slaved to the reference of the ADCs to maintain DC accuracy.



Package Style: SOP-14

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 5V Power Supply
- On-Chip Active Device for Oscillator
- ADC Compatible Outputs
- Low LO Power Requirement
- Digitally Controlled Power Down Mode
- 100kHz to 250MHz IF Operation

Ordering Information

RF2711	Quadrature Demodulator
RF2711 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Rev B1 960209

Typical Applications

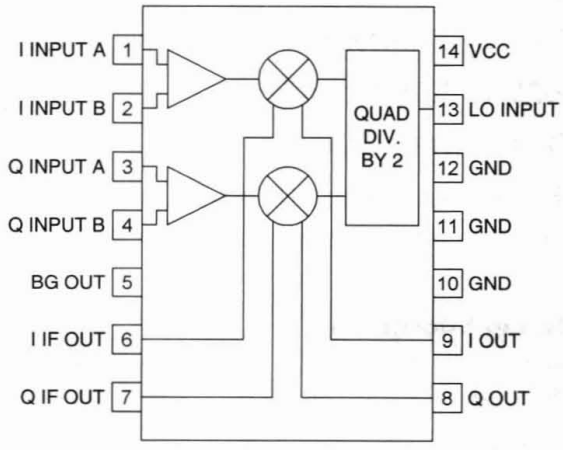
- Digital and Analog Receivers and Transmitters
- High Data Rate Digital Communications
- Spread Spectrum Communication Systems
- Interactive Cable Systems
- Portable Battery Powered Equipment

Product Description

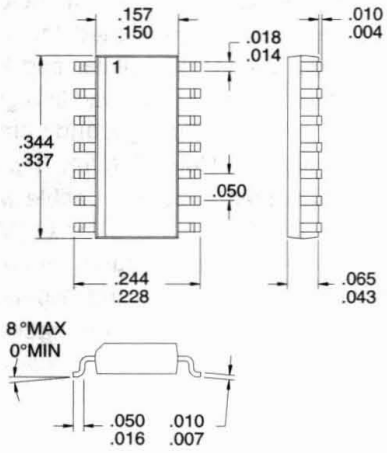
The RF2713 is a monolithic integrated quadrature modulator/demodulator. The demodulator is used to recover the I and Q baseband signals from the amplified and filtered IF. Likewise, the inputs and outputs can be reconfigured to modulate I/Q signals onto an RF carrier. The RF2703 is intended for IF systems where the IF frequency ranges from 100kHz to 250MHz, and the LO frequency is two times the IF. The IC contains all of the required components to implement the modulation/demodulation function and contains a digital divider type 90° phase shifter, two double balanced mixers, and baseband amplifiers designed to interface with Analog to Digital Converters. The unit operates from a single 3V to 6V power supply.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- 3V to 6V Operation
- Modulation or Demodulation
- IF From 100kHz to 250MHz
- Baseband From DC to 50MHz
- Digital LO Quadrature Divider
- Low Power and Small Size

Ordering Information

RF2713	Quadrature Modulator/Demodulator
RF2713 PCBA-D	Fully Assembled Evaluation Board (Demodulator)
RF2713 PCBA-M	Fully Assembled Evaluation Board (Modulator)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

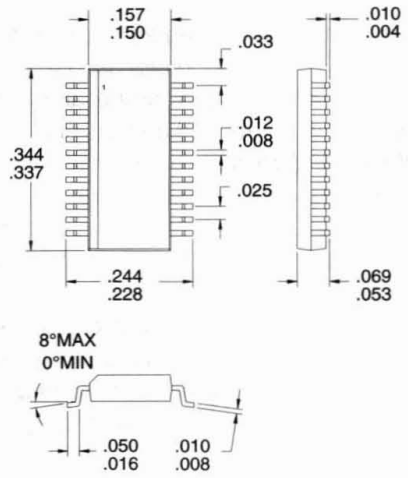
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CDMA/FM Cellular Systems
- CDMA PCS Systems
- Wireless Local Loop Systems
- Spread Spectrum Cordless Phones
- High Speed Data Modems
- General Purpose Digital Receivers

Product Description

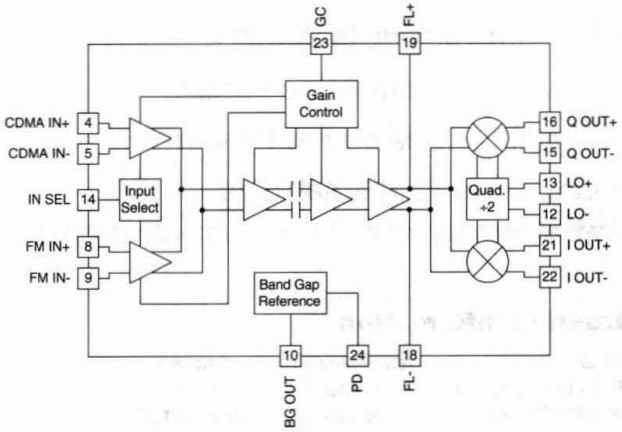
The RF9957 is an integrated complete IF AGC amplifier and Quadrature Demodulator designed for the receive section of dual-mode CDMA/FM cellular and PCS applications. It is designed to amplify received IF signals, while providing 100dB of gain control range, and demodulate to baseband I and Q signals. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-98 and J-STD-018 Interim Standard for CDMA cellular communications. The IC is manufactured on an advanced 15GHz F_T Silicon Bipolar process, and is packaged in a standard miniature 24-lead plastic SSOP package.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation (CDMA and FM)
- Digitally Controlled Power Down Mode
- 2.7V to 3.3V Operation
- Quadrature LO Divider
- IF AGC Amp with 100dB Gain Control

Ordering Information

RF9957	CDMA/FM Receive AGC and Demodulator
RF9957 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

8 Front-Ends

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Casc. Gain (dB)	Gain Control (dB)	Casc. IIP_3 (dBm)	Casc. NF (dB)	Package	Page
RF2401	Low Noise Amplifier/Mixer	300 to 1100	5	20	24	21	-17	4.3	SOP-14	8-1
RF2406	CDMA/FM Low Noise Amplifier/Mixer	500 to 1100	2.7 to 4	23	27	19.5	-4	4.3	SSOP-28	8-2
RF2411	Low Noise Amplifier/Mixer	500 to 1900	3 to 6.5	20	27	n/a	-8	2.4	SOP-14	8-3
RF2418	Low Current LNA/Mixer	400 to 1100	3 to 6.5	4.5	19	n/a	-13	3.9	SOP-14	8-4
RF2431	High Frequency LNA/Mixer	1500 to 2500	3 to 6.5	13	23	n/a	-14	3.5	SOP-16	8-5
RF2442	High-Linearity Low Noise Amplifier	500 to 2500	3	12	19	n/a	+3	1.8	MSOP-8	4-39
RF2444	High Frequency LNA/Mixer	2400 to 2500	2.7 to 3.6	20	28	16	-23 to -8	4.5 to 18	SSOP-16 EPP	8-6
RF2448	PCS CDMA Low Noise Amplifier/Mixer 1500MHz to 2200MHZ Downconverter	1500 to 2200	2.65 to 3.9	8	-4 to +25	29	-11 to +17.5	3 to 23	SSOP-16 EDF	8-7
RF2449	CDMA/FM Low Noise Amplifier/Mixer 900MHz Downconverter	869 to 894	2.75	20	28	21			SSOP-24	8-8
RF2457	900MHz 3V Low Current LNA/Mixer	902 to 928	2.7 to 3.3	5	8.5	13	-3	2.5	MSOP-10	8-9
RF2458	3V PCS Downconverter	1500 to 2500	2.7 to 3.6	38	14	n/a	+3	10	MSOP-10	8-10
RF2459	3V PCS Downconverter	1500 to 2500	2.7 to 3.6	20	10	n/a	+7	14	MSOP-8	8-11
RF2486	PCS Low Noise Amplifier/Mixer	1500 to 2500	2.7 to 5.0	52	26	n/a	-15	4.0	SSOP-24	8-12
RF9906	CDMA/FM Low Noise Amplifier/Mixer	500 to 1500	3.6	30	30	9	-13	2.6	SSOP-24	8-13
RF9936	PCS Low Noise Amplifier/Mixer	1500 to 2500	3.6	5 to 46	28	10	-9 to -14	2.5 to 5.1	SSOP-24	8-14
RF9986	PCS Low Noise Amplifier/Mixer	1500 to 2500	3.6	5 to 48	26	n/a	-11	2.5	SSOP-24	8-15

RF MICRO·DEVICES

RF2401

LOW NOISE AMPLIFIER/MIXER

Typical Applications

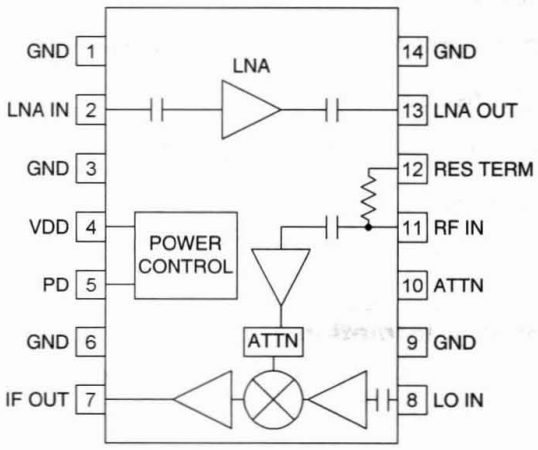
- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- General Purpose Frequency Conversion

Product Description

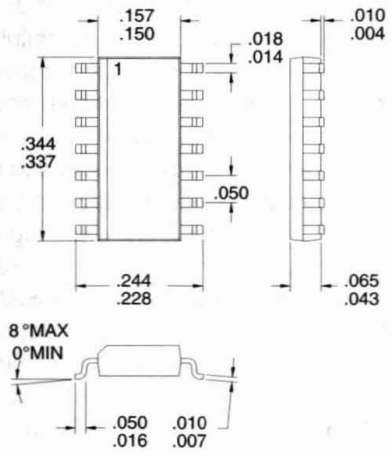
The RF2401 is a monolithic integrated UHF receiver front-end. The IC contains all of the required components to implement the front-end functions of the receiver except for the passive filtering and LO generation. It contains a high dynamic range LNA (low-noise amplifier), an attenuator to reduce signal level in the presence of large received signals, a second RF amplifier, a double balanced mixer, an LO buffer amplifier, and an IF output amplifier which will drive a 50Ω load. The output of the LNA is made available as an output to permit the insertion of a bandpass filter between the LNA and the attenuator. The mixer input is buffered to provide high isolation from the LO to the input port. Blocking capacitors are contained on the chip (except for the IF Output).

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- Power Down Capability
- High Dynamic Range
- Low Current Drain
- High LO Isolation
- RF Attenuator for Large Signals
- 300MHz to 1100MHz Operation

Ordering Information

RF2401	Low Noise Amplifier/Mixer
RF2401 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

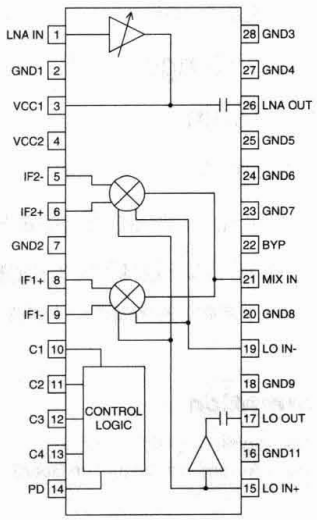
- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Down Converter
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

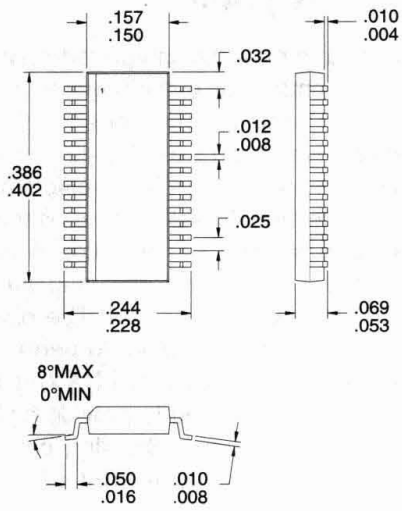
The RF2406 is a receiver front-end designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to amplify and down-convert RF signals while providing 30dB of stepped gain control range and features digital control of LNA gain, IF output selection, LO buffer enable, power down mode, and low current "lazy" mode. The digitally selected "lazy" mode reduces current drain by approximately 10mA, putting the IC in a lower current drain, noise and IP3 state. This gives the receiver designer added flexibility to dynamically optimize these downconverter parameters. Noise Figure, IP3, and other specs are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. The IC is manufactured on an advanced Silicon Bipolar process and packaged in an SSOP-28.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-28

Features

- Complete Receiver Front-End
- Stepped LNA Gain Control
- Low Current-Drain "Lazy" Mode
- Buffered LO Output
- Digitally Selectable IF Outputs
- 500MHz to 1100MHz Operation

Ordering Information

RF2406	CDMA/FM Low Noise Amplifier/Mixer
RF2406 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

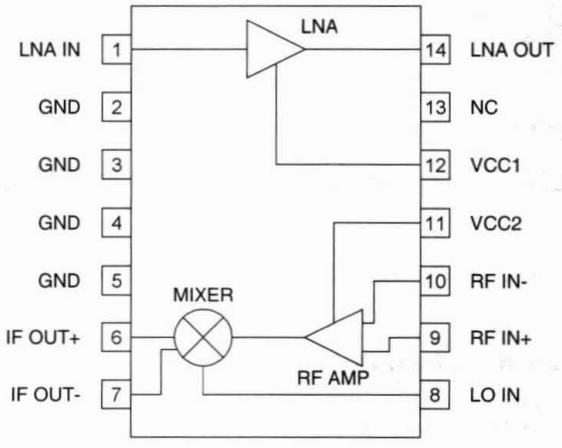
- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- General Purpose Frequency Conversion

Product Description

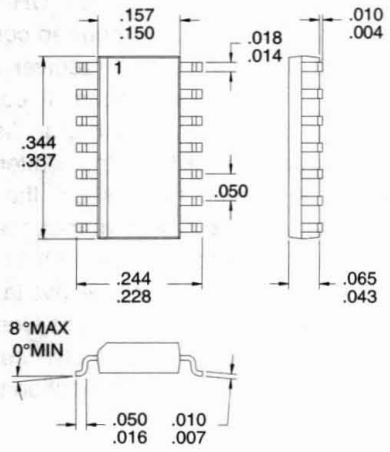
The RF2411 is a monolithic integrated UHF receiver front-end. The IC contains all of the required components to implement the RF functions of the receiver except for the passive filtering and LO generation. It contains an LNA (low-noise amplifier), a second RF amplifier, and a balanced mixer which can drive a single-ended or balanced load. The output of the LNA is made available as a pin to permit the insertion of a bandpass filter between the LNA and the RF/Mixer section. The LNA output is buffered to permit a wide range of choices for the interstage filter without altering the VSWR or noise figure at the LNA input and to provide high isolation from the LO to the input port. The LNA section may be disabled to conserve power.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-14

Features

- Single 3V to 6.5V Power Supply
- 500MHz to 1900MHz Operation
- 25dB Small Signal Gain
- 2.5dB Cascaded Noise Figure
- 8.5mA DC Current Consumption
- -8dBm Input IP_3

Ordering Information

RF2411	Low Noise Amplifier/Mixer
RF2411 PCBA-L	Fully Assembled Evaluation Board (850MHz)
RF2411 PCBA-H	Fully Assembled Evaluation Board (1800MHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

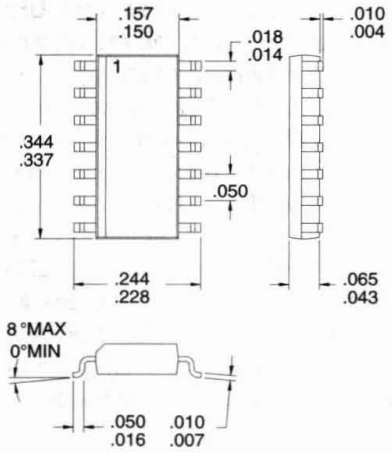
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- 433MHz and 915MHz ISM Band Receivers
- General Purpose Frequency Conversion

Product Description

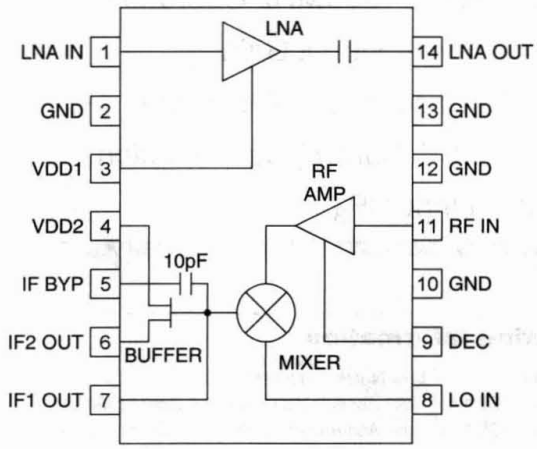
The RF2418 is a monolithic integrated UHF receiver front-end. The IC contains all of the required components to implement the RF functions of the receiver except for the passive filtering and LO generation. It contains an LNA (low-noise amplifier), a second RF amplifier, a dual-gate GaAs FET mixer, and an IF output buffer amplifier which will drive a 50Ω load. In addition, the IF buffer amplifier may be disabled and a high impedance output is provided for easy matching to IF filters with high impedances. The output of the LNA is made available as an output to permit the insertion of a bandpass filter between the LNA and the RF/Mixer section. The LNA section may be disabled by removing the VDD1 connection to the IC.



Package Style: SOP-14

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 6.5V Power Supply
- High Dynamic Range
- Low Current Drain
- High LO Isolation
- LNA Power Down Mode for Large Signals

Ordering Information

RF2418	Low Current LNA/Mixer
RF2418 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

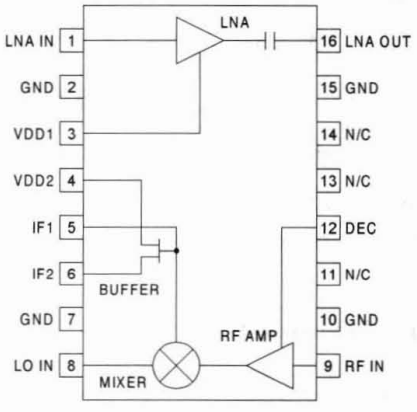
- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- Portable Battery Powered Equipment
- General Purpose Frequency Conversion

Product Description

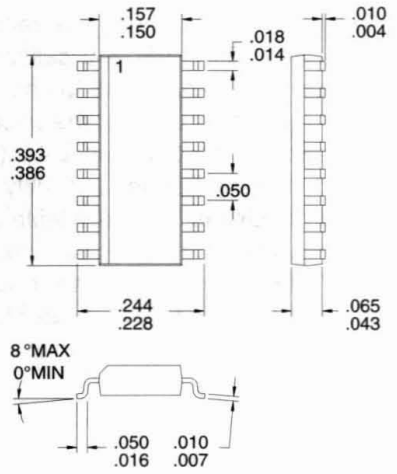
The RF2431 is a monolithic integrated UHF receiver front-end. The IC contains all of the required components to implement the RF functions of the receiver except for the passive filtering and LO generation. It contains an LNA (low-noise amplifier), a second RF amplifier, a dual-gate GaAs FET mixer, and an IF output buffer amplifier which will drive a 50Ω load. Alternatively, the IF output may be matched to a higher impedance at significantly reduced current. The output of the LNA is made available as an output to permit the insertion of a bandpass filter between the LNA and the RF/Mixer section. The LNA output is buffered to permit a wide range of choices for the interstage filter without altering the VSWR or noise figure at the LNA input and to provide high isolation from the LO to the input port.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram



Package Style: SOP-16

Features

- Single 3V to 6.5V Power Supply
- 1500MHz to 2500MHz Operation
- 23dB Small Signal Gain
- 3.5dB Cascaded Noise Figure
- 13mA DC Current Consumption
- -14dBm Input IP_3

Ordering Information

RF2431	High Frequency LNA/Mixer
RF2431 PCBA-L	Fully Assembled Evaluation Board (1.8GHz)
RF2431 PCBA-H	Fully Assembled Evaluation Board (2.5GHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

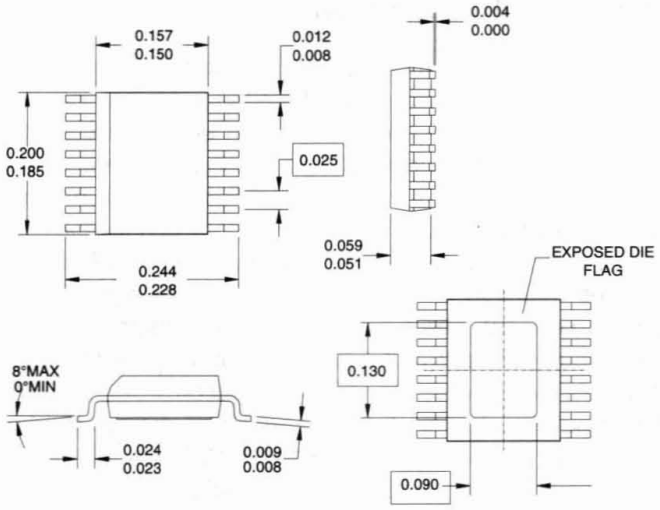
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- WLAN or Wireless Local Loop
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Part of 2.4GHz Chip Set
- Portable Battery Powered Equipment
- UHF Digital and Analog Receivers

Product Description

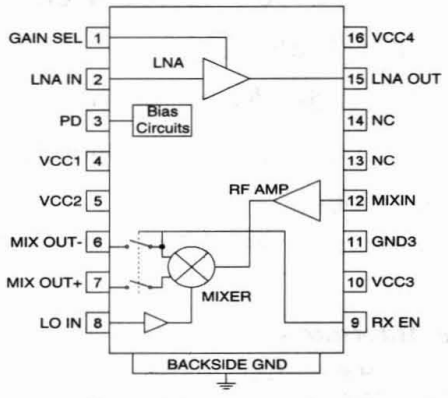
The RF2444 is a monolithic integrated UHF receiver front end suitable for 2.4GHz ISM band applications. The IC contains all of the required components to implement the RF functions of the receiver except for the passive filtering and LO generation. It contains an LNA (low-noise amplifier), a second RF amplifier and a doubly balanced mixer. The output of the LNA is made available as an output to permit the insertion of a bandpass filter between the LNA and the RF/Mixer section. The mixer outputs can be selectively disabled to allow for the IF filter to be used in the transmit mode.



Package Style: SSOP-16 EPP

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 2.7V to 3.6V Power Supply
- 2400MHz to 2500MHz Operation
- Two Gain Settings: 28dB or 12dB
- 4.5dB Cascaded NF, High Gain Mode
- 20mA DC Current Consumption
- Input IP_3: -23dBm or -8dBm

Ordering Information

RF2444	High Frequency LNA/Mixer
RF2444 PCBA-H	Fully Assembled Evaluation Board (2.5GHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

Preliminary

RF2448

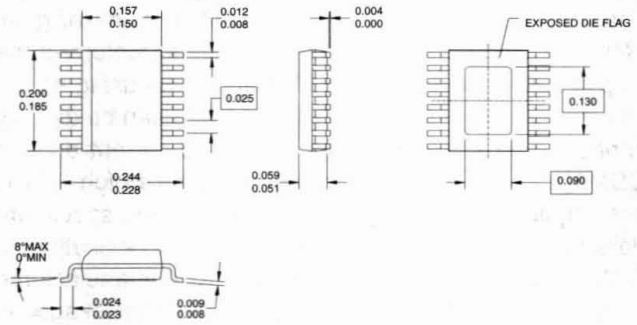
PCS CDMA LOW NOISE AMPLIFIER/MIXER 1500MHZ TO 2200MHZ DOWNCONVERTER

Typical Applications

- CDMA PCS Handsets
- TDMA PCS Handsets
- GSM PCS Handsets
- General Purpose Receiver Front-End
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

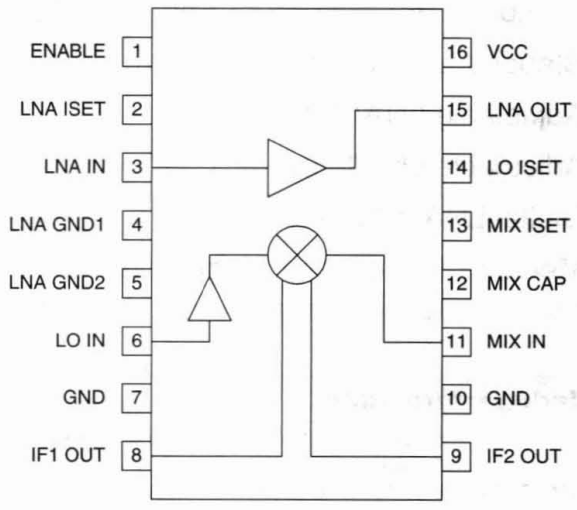
The RF2448 is a receiver front-end designed for the receive section of PCS CDMA, TDMA and GSM applications. It is designed to amplify and downconvert RF signals. A further feature of the chip is adjustable IIP3 of the LNA and mixer using an off-chip current setting resistor. The LNA IIP3 can be digitally controlled between two levels to reduce current draw in standby and other conditions where high IIP3 is not required. Noise Figure, IP3, and other specs are designed to be compatible with the CDMA, TDMA and GSM PCS communications. The IC is manufactured on an advanced Silicon Bipolar process and packaged in an SSOP-16 with an exposed die flag.



Package Style: SSOP-16EDF

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Complete Receiver Front-End
- Adjustable LNA/Mixer Bias Current
- Adjustable LNA/Mixer IIP3
- Digital LNA IIP3 Control

Ordering Information

RF2448	PCS CDMA Low Noise Amplifier/Mixer 1500MHz to 2200MHZ Downconverter
RF2448 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2449

CDMA/FM LOW NOISE AMPLIFIER/MIXER 900MHZ DOWNCONVERTER

Typical Applications

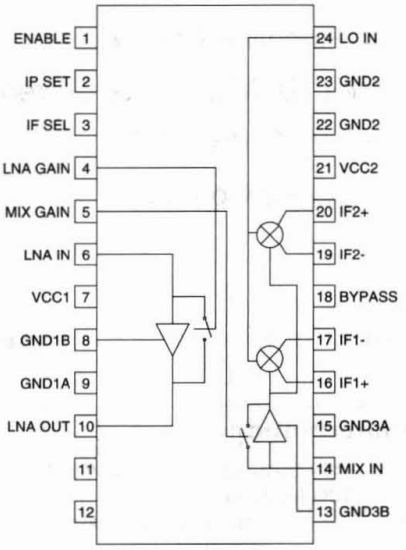
- CDMA/FM Cellular Systems
- Supports Dual-Mode CDMA/AMPS
- Supports Dual-Mode CDMA/TACS
- General Purpose Downconverter
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

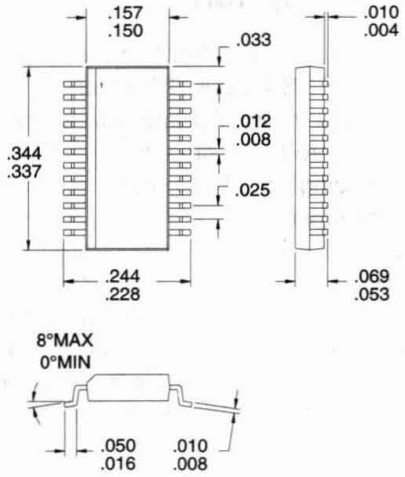
The RF2449 is a receiver front-end designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to amplify and down-convert RF signals, while providing 30dB of stepped gain control range. Features include digital control of LNA gain, mixer gain, LNA IIP3, and power down mode. Another feature of the chip is adjustable IIP3 of the LNA and mixer using an off-chip current setting resistor. The LNA IIP3 can be digitally controlled between two levels to reduce current draw in CDMA standby and other conditions where high IIP3 is not required. Noise Figure, IP3, and other specs are designed to be compatible with the IS-98 specification for CDMA cellular communications. The IC is manufactured on an advanced Silicon Bipolar process and packaged in an SSOP-24.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-24

Features

- Complete Receiver Front-End
- Stepped LNA/Mixer Gain Control
- Adjustable LNA/Mixer Bias Current
- Adjustable LNA/Mixer IIP3
- Digital LNA IIP3 Control
- Meets IS-98 IMD and Single Tone

Ordering Information

RF2449	CDMA/FM Low Noise Amplifier/Mixer 900MHz Downconverter
RF2449 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

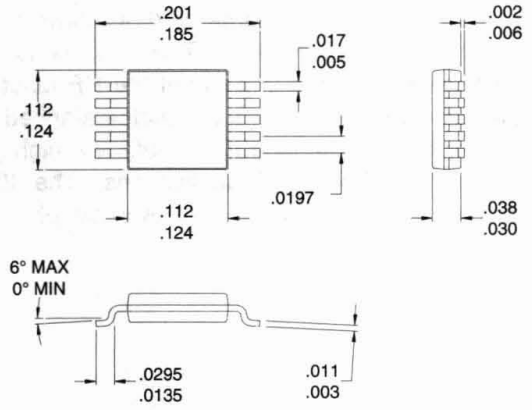
900MHZ 3V LOW CURRENT LNA/MIXER

Typical Applications

- UHF Digital and Analog Receivers
- Digital Communication Systems
- Spread Spectrum Communication Systems
- Commercial and Consumer Systems
- Portable Battery-Powered Equipment
- General Purpose Frequency Conversion

Product Description

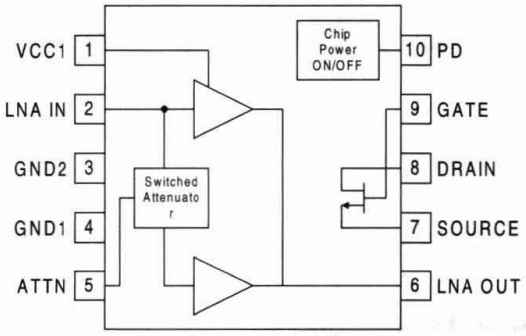
The RF2457 is a front-end receiver IC chip developed for the handset/portable battery-powered equipment markets. The chip contains an RF 15dB attenuator, an LNA and a passive mixer. By using a state-of-the-art Si Bi-CMOS process, the LNA has high dynamic range under very low DC operating conditions and the passive mixer requires no DC bias at all. Packaged in the industry-standard MSOP-10 package, the device is well-suited for limited board space applications.



Package Style: MSOP-10

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single Supply 3V Operation
- 2.2dB LNA NF
- -3.0dBm IIP3
- Small MSOP-10 Package
- Very Low Current Drain (5mA maximum)
- Very Low Cost

Ordering Information

RF2457	900MHz 3V Low Current LNA/Mixer
RF2457 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

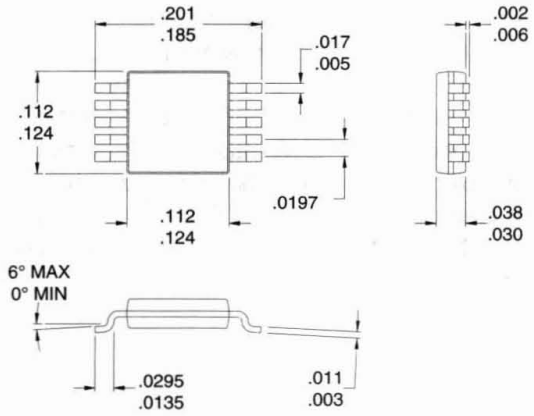
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/WLAN 2400 Systems
- General Purpose Downconverter
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2458 is a monolithic integrated downconverter for PCS, PHS, and WLAN applications. The IC contains all of the required components to implement the RF functions of the downconverter. It contains a double-balanced Gilbert cell mixer and a balanced IF output. The high gain makes it ideal for front end applications. The IC is designed to operate from a single 3V power supply.



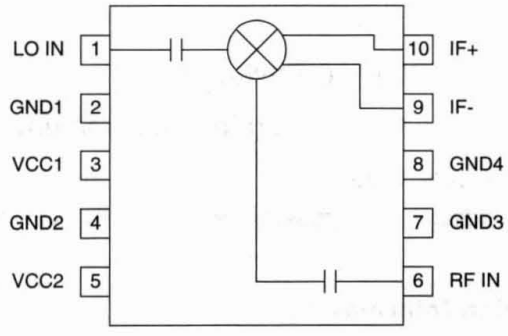
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-10

Features

- Extremely High Dynamic Range
- Single 3V Power Supply
- 1500MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2458	3V PCS Downconverter
RF2458 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

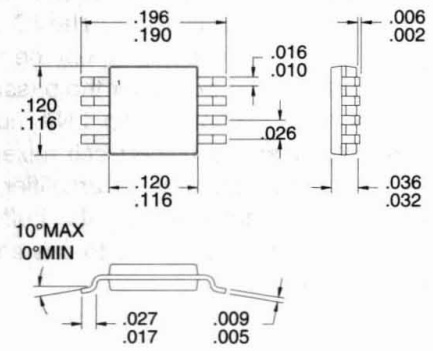
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/WLAN 2400 Systems
- General Purpose Downconverter
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

The RF2459 is a monolithic integrated downconverter for PCS, PHS, and WLAN applications. The IC contains all of the required components to implement the RF functions of the downconverter. It contains a double-balanced Gilbert cell mixer and a balanced IF output. The mixer's high third-order intercept point makes it ideal for digital cellular applications. The IC is designed to operate from a single 3V power supply.



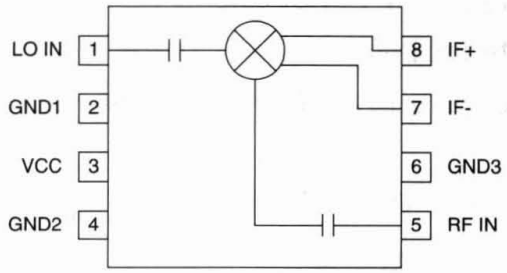
Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Extremely High Dynamic Range
- Single 3V Power Supply
- 1500MHz to 2500MHz Operation



Functional Block Diagram

Ordering Information

RF2459	3V PCS Downconverter
RF2459 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

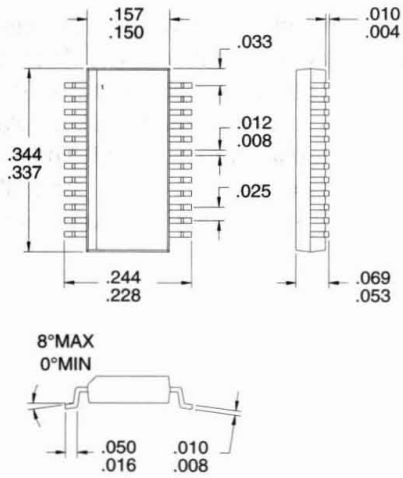
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/WLAN 2400 Systems
- General Purpose Down Converter
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

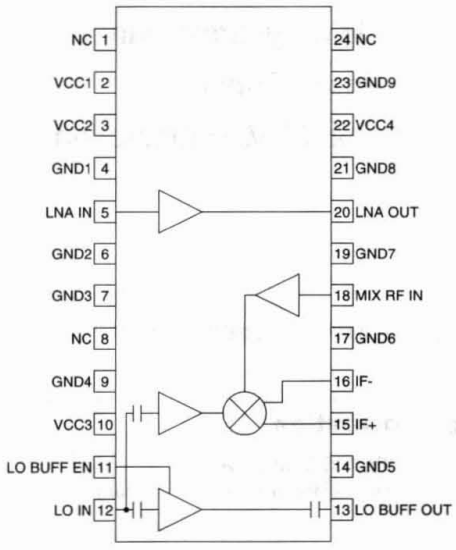
The RF2486 is a monolithic integrated receiver front-end for PCS, PHS, and WLAN applications. The IC contains all of the required components to implement the RF functions of the receiver front-end except for the passive filtering and LO generation. It contains an LNA (low-noise amplifiers), a double-balanced Gilbert cell mixer, a balanced IF output, an LO isolation buffer amplifier, and an LO output buffer amplifier for providing the buffered LO signal as an output. The IC is designed to operate from a single 3.6V power supply.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Complete Receiver Front-End
- High Dynamic Range
- Single 3.6V Power Supply
- External LNA IP3 Adjustment
- 1500MHz to 2500MHz Operation

Ordering Information

RF2486	PCS Low Noise Amplifier/Mixer
RF2486 PCBA-L	Fully Assembled Evaluation Board 1.96GHz
RF2486 PCBA-H	Fully Assembled Evaluation Board 2.4GHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF9906

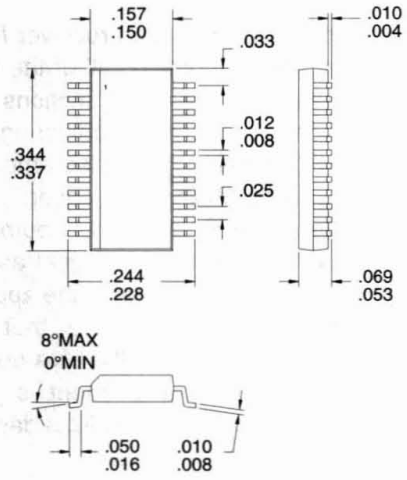
CDMA/FM LOW NOISE AMPLIFIER/MIXER

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Down Converter
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

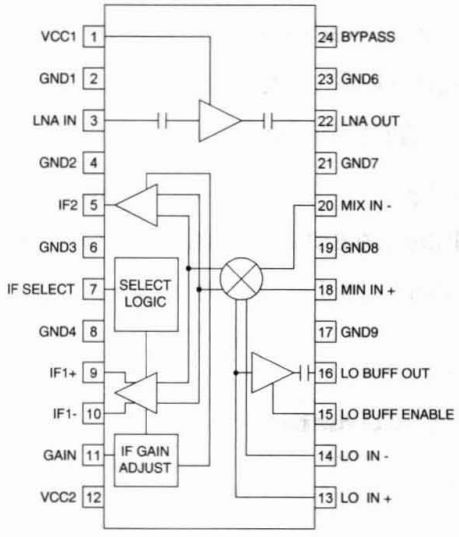
The RF9906 is a receiver front-end designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to amplify and down-convert RF signals while providing 9dB of gain control range. Noise Figure, IP3, and other specs are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of this Receive LNA/Mixer, a Receive IF AGC Amp, a Transmit IF AGC Amp, and a Transmit Upconverter. The IC is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and is packaged in a standard miniature 24-lead plastic SSOP package.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Complete Receiver Front-End
- Analog Gain Control
- Single 3.6V Power Supply
- Buffered LO Output
- Digitally Selectable IF Outputs
- 500MHz to 1500MHz Operation

Ordering Information

RF9906	CDMA/FM Low Noise Amplifier/Mixer
RF9906 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

8 FRONT-ENDS

Typical Applications

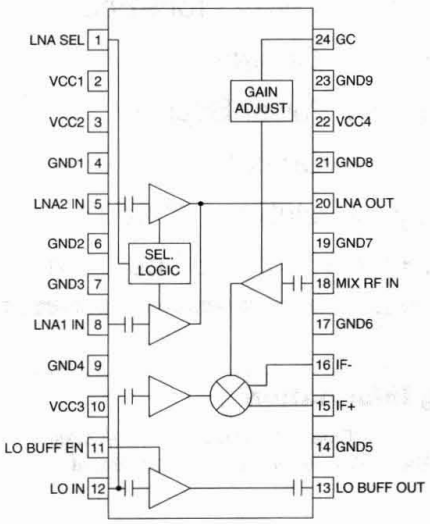
- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/WLAN 2400 Systems
- Receivers Employing Diversity Antennas
- General Purpose Down Converter
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

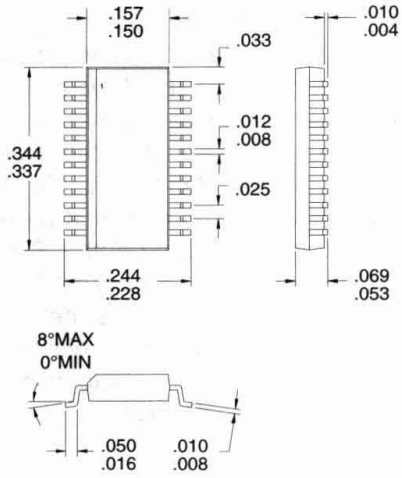
The RF9936 is a monolithic integrated receiver front-end for PCS applications. The IC contains all of the required components to implement the RF functions of the receiver front-end except for the passive filtering and LO generation. It contains two LNAs (low-noise amplifiers), a double-balanced Gilbert cell mixer, a balanced IF output, an LO isolation buffer amplifier, and an LO output buffer amplifier for providing the buffered LO signal as an output. On-chip digital logic is used to enable the appropriate LNA. The LNAs share a common output that permits insertion of a bandpass filter between the LNA output and the Mixer section. Analog gain adjustment is provided which allows 10dB variation in gain. The IC is designed to operate from a single 3.6V power supply.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-24

Features

- Complete Receiver Front-End
- Analog RF Gain Control
- Single 3.6V Power Supply
- Digitally Selectable LNA Inputs
- Digitally Selectable Buffered LO Output
- 1500MHz to 2500MHz Operation

Ordering Information

RF9936	PCS Low Noise Amplifier/Mixer
RF9936 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF9986

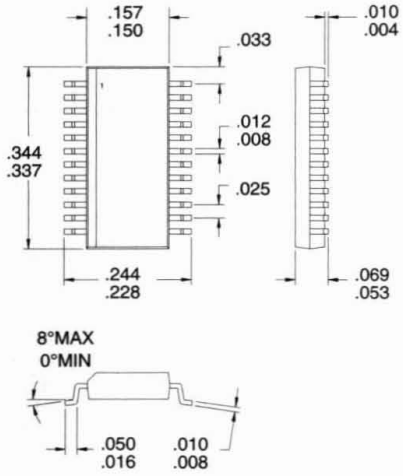
PCS LOW NOISE AMPLIFIER/MIXER

Typical Applications

- CDMA/TDMA/DCS1900 PCS Systems
- PHS 1500/WLAN 2400 Systems
- General Purpose Down Converter
- Micro-Cell PCS Base Stations
- Portable Battery Powered Equipment

Product Description

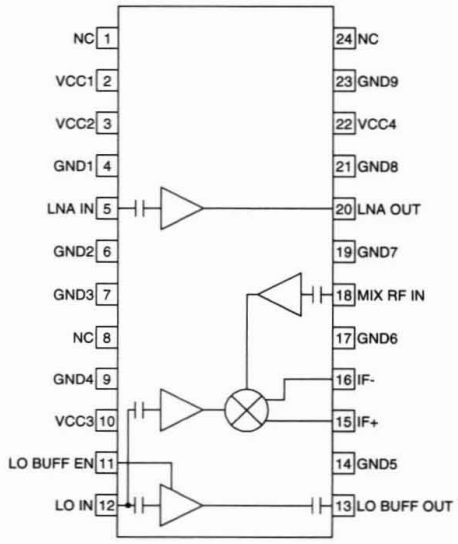
The RF9986 is a monolithic integrated receiver front-end for PCS, PHS, and WLAN applications. The IC contains all of the required components to implement the RF functions of the receiver front-end except for the passive filtering and LO generation. It contains an LNA (low-noise amplifiers), a double-balanced Gilbert cell mixer, a balanced IF output, an LO isolation buffer amplifier, and an LO output buffer amplifier for providing the buffered LO signal as an output. The IC is designed to operate from a single 3.6V power supply.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Complete Receiver Front-End
- Extremely High Dynamic Range
- Single 3.6V Power Supply
- External LNA IP3 Adjustment
- 1500MHz to 2500MHz Operation

Ordering Information

RF9986	PCS Low Noise Amplifier/Mixer
RF9986 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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9 Attenuators and Switches

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Ins. Loss (dB)	Attn. Range/ Isolation (dB)	Attn. Step (dB)	Package	Page
RF2410	UHF Programmable Attenuator	500 to 2100	5	6	4.0	38	2	SOP-16	9-1
RF2420	Programmable Attenuator	DC to 950	3 to 6	4	4.0	44	2	SOP-16	9-2
RF2421	10dB Switched Attenuator	500 to 3000	2.7 to 6	0.5	1.0	10	10	SOP-8	9-3
RF2425	4-Port Transfer Switch	800 to 2000	2.7 to 6	1.5	0.6	23	n/a	SOP-8	9-4
RF2436	Transmit/Receive Switch	100 to 2500	2.7 to 6	1.5	0.5	24	n/a	SOT-23-5	9-5

RF2410

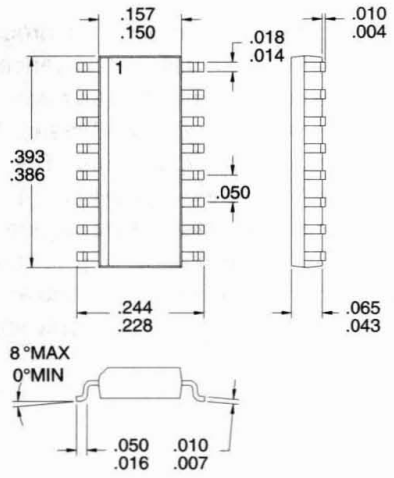
UHF PROGRAMMABLE ATTENUATOR

Typical Applications

- Power Control in Communication Systems
- CMOS Compatible Programmable Attenuators
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

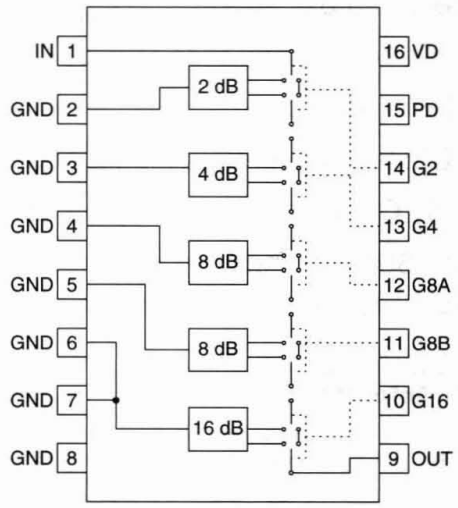
The RF2410 is a multistage monolithic programmable attenuator. The device is built using a Gallium Arsenide process technology and has an attenuation programmability over a 38dB range in 2dB steps. The attenuation is set by five bits of digital data. The input and output of the device have a low VSWR 50Ω match. The RF output can drive up to +10dBm. This unit is intended for use in systems that require RF transmit power control by digital means. A typical application is in dual mode IS-54/55 compatible cellular transceivers. No negative supply voltages are required, and the unit has a power down feature which reduces the current consumption to less than 0.5mA.



Package Style: SOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 5V Supply
- 0dB to 38dB Attenuation Range
- 4 dB Insertion Loss
- 5-bit Digitally Controlled Attenuation
- Digitally Controlled Power Down Mode
- 500MHz to 2100MHz Operation

Ordering Information

RF2410	UHF Programmable Attenuator
RF2410 PCBA	Fully Assembled Evaluation Board

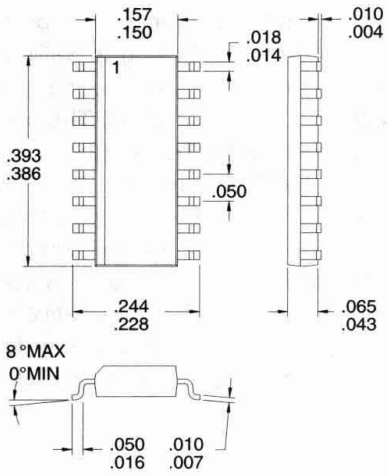
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Power Control in Communication Systems
- CMOS Compatible Programmable Attenuators
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

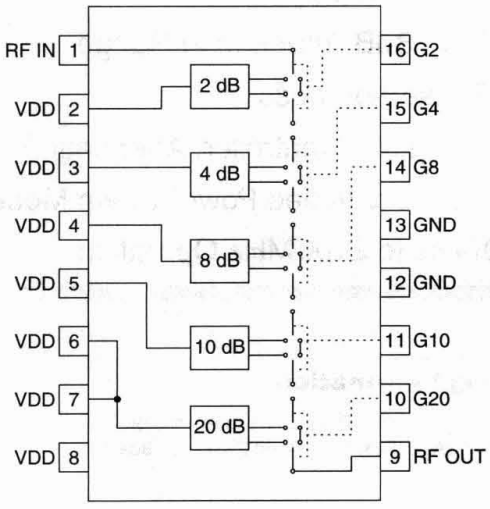
The RF2420 is a multistage monolithic programmable attenuator. The device is built using an advanced Gallium Arsenide process technology and has an attenuation programmability over a 44dB range in 2dB steps. The attenuation is set by five bits of digital data. The input and output of the device have a low VSWR 50Ω match. This unit is intended for use in systems that require RF transmit power control by digital means. Typical applications are in dual mode IS-54/55 compatible cellular transceivers and TETRA systems. No negative supply voltages are required.



Package Style: SOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 6V Supply
- 0dB to 44dB Attenuation Range
- 4dB Insertion Loss
- 5-bit Digitally Controlled Attenuation
- Digitally Controlled Power Down Mode
- DC to 950MHz Frequency Range

Ordering Information

RF2420	Programmable Attenuator
RF2420 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

RF2421

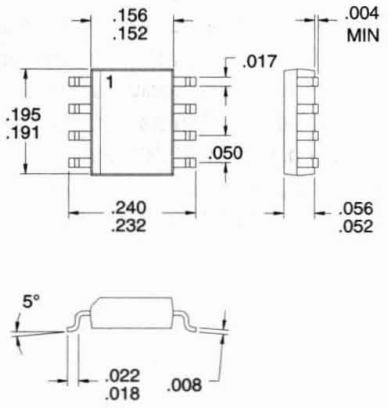
10dB SWITCHED ATTENUATOR

Typical Applications

- Power Control in Communication Systems
- CMOS Compatible Programmable Attenuator
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2421 is a monolithic switched attenuator. The device is built using a Gallium Arsenide process technology and has a single step attenuation of 10dB. The input and output of the device has a low VSWR 50Ω match. The RF output can drive up to +16dBm. This unit is intended for use in systems that require RF power control by digital means. No negative supply voltages are required, and the current consumption is less than 1μA when the attenuator is off.



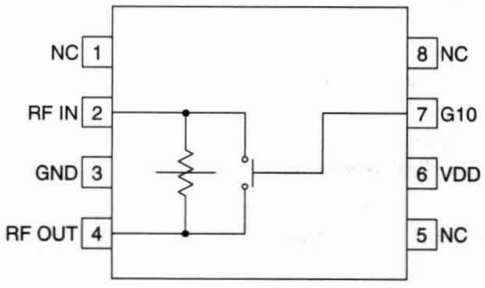
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS

Features

- Single 2.7V to 6V Supply
- 10dB Single Step Attenuation
- 1 dB Insertion Loss
- 1-bit Digitally Controlled Attenuation
- Digitally Controlled Power Down Mode
- 500MHz to 3000 MHz Operation



Functional Block Diagram

Ordering Information

RF2421	10dB Switched Attenuator
RF2421 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2425

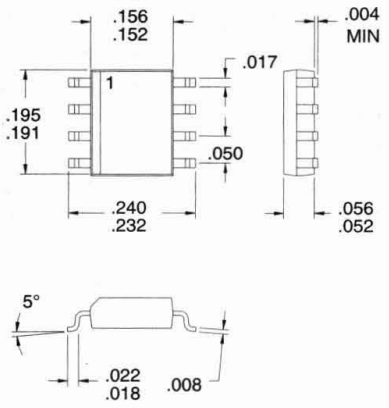
4-PORT TRANSFER SWITCH

Typical Applications

- Cordless Phones
- Wireless Computer Peripherals
- Wireless Security Systems
- General Purpose RF Switching
- Commercial and Consumer Systems

Product Description

The RF2425 is a very low-cost single-throw, double-pole GaAs MESFET switch. There are two bidirectional input/output channels which can be turned off or on by a single logic control line. Two of the ports may be tied together externally to make a transmit/receive switch. The device can handle power levels as high as +32dBm and spans a frequency range from DC to 2000MHz. The switch will operate from power supply voltages as low as 1.5V and as high as 6V with a CMOS logic driver for the control input.



Package Style: SOP-8

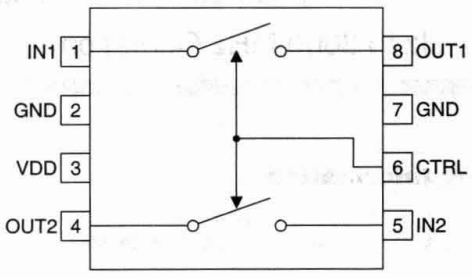
9 ATTENUATORS AND SWITCHES

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS

Features

- Single Power Supply of 1.5V to 6.0V
- Low Current Consumption
- 0.5dB Insertion Loss at 900MHz
- 24dB Crosstalk Isolation at 900MHz
- +31dBm Output P1dB



Functional Block Diagram

Ordering Information

RF2425	4-Port Transfer Switch
RF2425 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2436

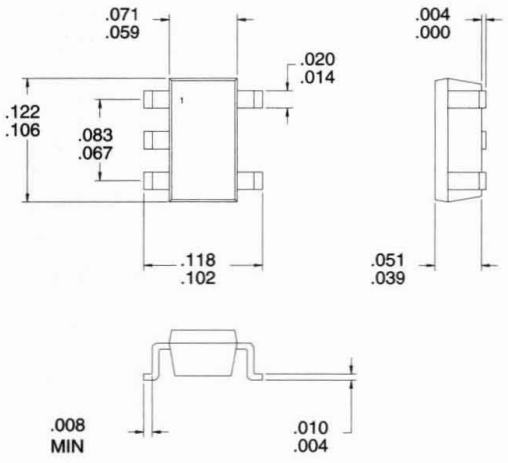
TRANSMIT/RECEIVE SWITCH

Typical Applications

- Cordless Phones
- Wireless Computer Peripherals
- Wireless Security Systems
- General Purpose RF Switching
- Commercial and Consumer Systems

Product Description

The RF2436 is a very low-cost transmit/receive GaAs MESFET switch. The device can handle power levels as high as +28dBm and spans a frequency range from DC to 2000MHz. The switch will operate from power supply voltages as low as 1.5V and as high as 6V with a CMOS logic driver for the control input. No negative voltage is required, and current consumption is very low. VSWR for the active channel (transmit or receive) is 1:1. The device is housed in a very small industry-standard SOT-23 5-lead plastic package.



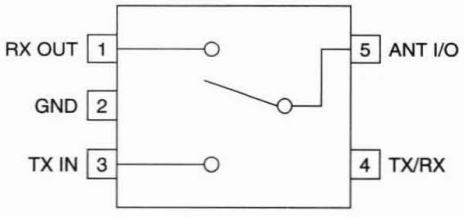
Package Style: SOT-23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☑ GaAs MESFET
- ☐ Si CMOS

Features

- Single Positive Power Supply
- Low Current Consumption
- 0.5dB Insertion Loss at 900MHz
- 24dB Crosstalk Isolation at 900MHz
- +27dBm Output P1dB



Functional Block Diagram

Ordering Information

RF2436	Transmit/Receive Switch
RF2436 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

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10 IF Amplifiers

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Gain (dB, Max)	Gain Control (dB)	RSSI	Package	Page
RF2607	CDMA/FM Receive AGC Amplifier	12 to 285	3.6	14	48	96	no	SSOP-16	10-1
RF2609	CDMA/FM Transmit AGC Amplifier	12 to 175	3.6	23	42	90	no	SSOP-16	10-2
RF2617	3V CDMA/FM Receive AGC Amplifier	12 to 285	3.0	14	48	96	no	SSOP-16	10-3
RF2619	3V CDMA/FM Transmit AGC Amplifier	12 to 175	3.0	23	42	90	no	SSOP-16	10-4
RF2627	3V CDMA Receive AGC Amplifier	12 to 285	2.7 to 3.3	14	48	96	no	MSOP-8	10-5
RF2629	3V CDMA/FM Transmit AGC Amplifier	12 to 175	2.7 to 3.3	23	42	90	no	MSOP-8	10-6
RF2670	8MHz Dual Baseband AGC with Programmable Low Pass Filtering	0.01 to 8	2.7 to 3.6	13	80	70	yes	SSOP-24	10-7
RF2903	Integrated Spread Spectrum Receiver	150 to 1000	3.0 to 6.0	23	90	90	yes	SSOP-24	10-8

RF MICRO·DEVICES

RF2607

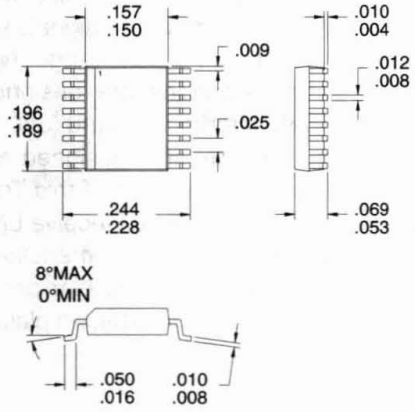
CDMA/FM RECEIVE AGC AMPLIFIER

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Linear IF Amplifier
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

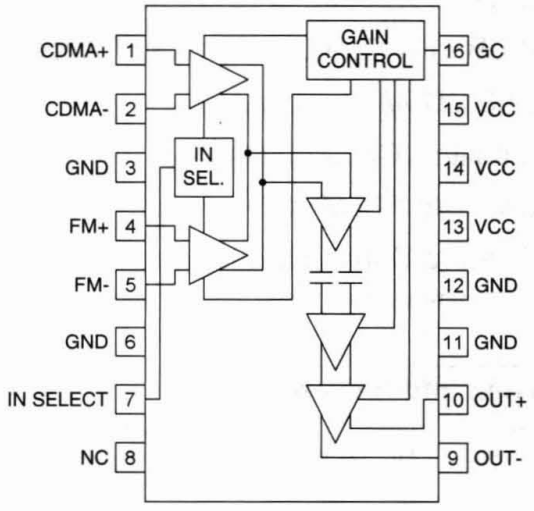
The RF2607 is a complete AGC amplifier designed for the receive section of dual-mode CDMA/FM cellular applications. It is designed to amplify IF signals while providing more than 90dB of gain control range. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and this Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process, and is packaged in a standard miniature 16-lead plastic SSOP package.



Package Style: SSOP-16

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- -48dB to +48dB Gain Control Range
- IS95 CDMA Compatible
- Digitally Selectable Inputs
- -2dBm Input IP_3
- 12MHz to 285MHz Operation

Ordering Information

RF2607	CDMA/FM Receive AGC Amplifier
RF2607 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

10 IF AMPLIERS

RF2609

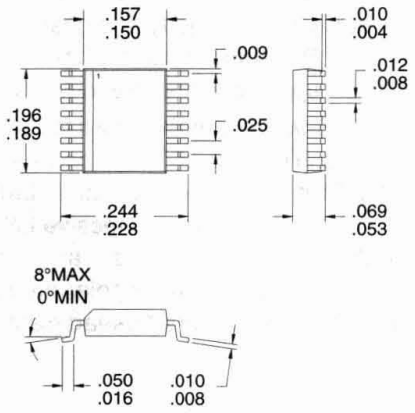
CDMA/FM TRANSMIT AGC AMPLIFIER

Typical Applications

- CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Linear IF Amplifier
- Portable Battery Powered Equipment
- Commercial and Consumer Systems

Product Description

The RF2609 is a complete AGC amplifier designed for the transmit section of dual-mode CDMA/FM cellular applications. It is designed to amplify IF signals while providing more than 84dB of gain control range. Noise Figure, IP3, and other specifications are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of this Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process and is packaged in a standard miniature 16-lead plastic SSOP package.



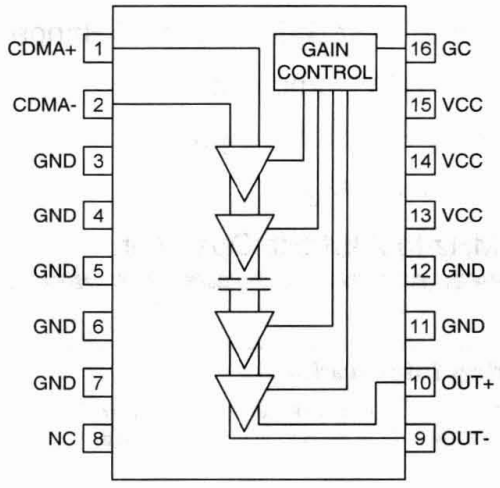
Package Style: SSOP-16

10

IF AMPLIFIERS

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- -48dB to +42dB Gain Control Range
- IS-95 CDMA Compatible
- Monolithic Construction
- 12MHz to 175MHz Operation
- Miniature Surface Mount Package

Ordering Information

RF2609	CDMA/FM Transmit AGC Amplifier
RF2609 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

RF2617

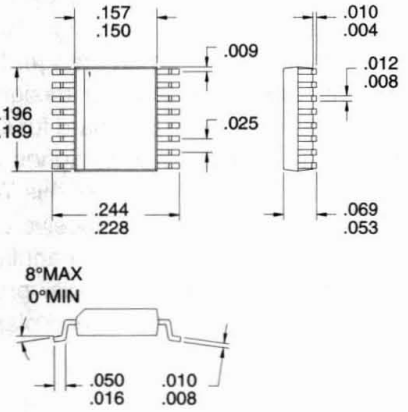
3V CDMA/FM RECEIVE AGC AMPLIFIER

Typical Applications

- 3V CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Linear IF Amplifier
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

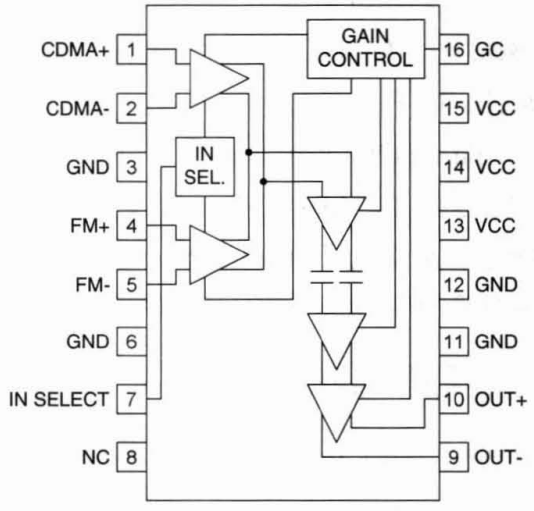
The RF2617 is a complete AGC amplifier designed for the receive section of 3V dual-mode CDMA/FM cellular applications. It is designed to amplify IF signals while providing more than 90dB of gain control range. Noise Figure, IP_3, and other specifications are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and this Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process, and is packaged in a standard miniature 16-lead plastic SSOP package.



Package Style: SSOP-16

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- -48dB to +48dB Gain Control Range
- Single 3V Power Supply
- Digitally Selectable Inputs
- -2dBm Input IP_3
- 12MHz to 285MHz Operation

Ordering Information

RF2617	3V CDMA/FM Receive AGC Amplifier
RF2617 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

RF2619

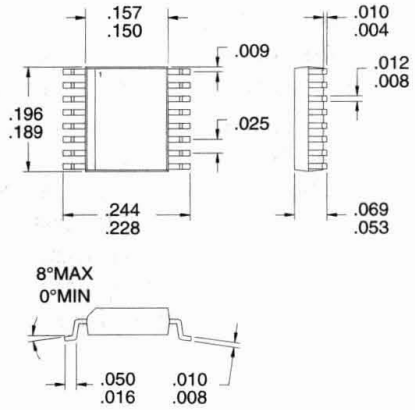
3V CDMA/FM TRANSMIT AGC AMPLIFIER

Typical Applications

- 3V CDMA/FM Cellular Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- General Purpose Linear IF Amplifier
- Portable Battery Powered Equipment
- Commercial and Consumer Systems

Product Description

The RF2619 is a complete AGC amplifier designed for the transmit section of 3V dual-mode CDMA/FM cellular applications. It is designed to amplify IF signals while providing more than 84dB of gain control range. Noise Figure, IP3, and other specifications are designed to be compatible with the IS-95 Interim Standard for CDMA cellular communications. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of this Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process and is packaged in a standard miniature 16-lead plastic SSOP package.



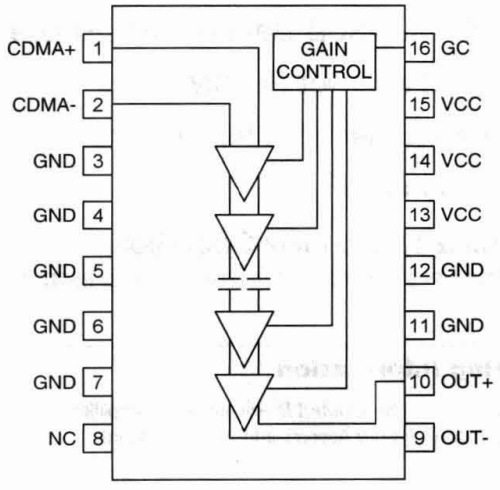
Package Style: SSOP-16

10

IF AMPLIFIERS

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Supports Dual Mode Operation
- -48dB to +42dB Gain Control Range
- Single 3V Power Supply
- Monolithic Construction
- 12MHz to 175MHz Operation
- Miniature Surface Mount Package

Ordering Information

RF2619	3V CDMA/FM Transmit AGC Amplifier
RF2619 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

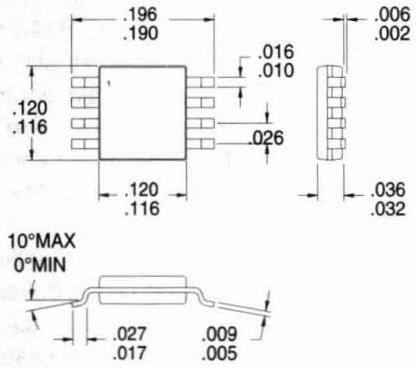
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- 3V CDMA Cellular Systems
- 3V CDMA PCS Systems
- 3V TDMA Cellular/PCS Systems
- General Purpose Linear IF Amplifier
- Commercial and Consumer Systems
- Portable Battery Powered Equipment

Product Description

The RF2627 is a complete AGC amplifier designed for the receive section of 3V CDMA cellular and PCS applications. It is designed to amplify IF signals while providing more than 90dB of gain control range. Noise Figure, IP_3, and other specifications are designed for CDMA handsets. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of a Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and this Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process, and is packaged in a standard miniature 8-lead plastic MSOP package.



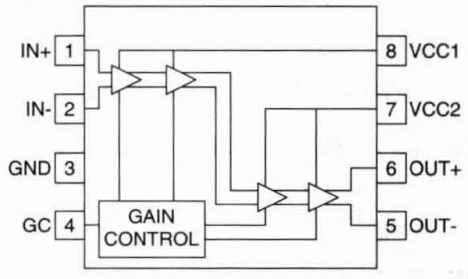
Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS

Package Style: MSOP-8

Features

- Supports PCS and Cellular Applications
- -48dB to +48dB Gain Control Range
- Single 3V Power Supply
- -2dBm Input IP_3
- 12MHz to 285MHz Operation
- Monolithic Construction



Functional Block Diagram

Ordering Information

RF2627	3V CDMA Receive AGC Amplifier
RF2627 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

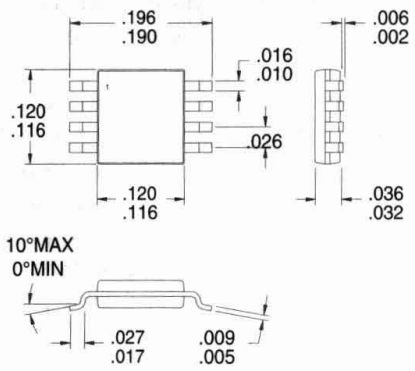
3V CDMA/FM TRANSMIT AGC AMPLIFIER

Typical Applications

- 3V CDMA/FM Cellular Systems
- 3V CDMA PCS Systems
- 3V TDMA Cellular/PCS Systems
- Supports Dual-Mode AMPS/CDMA
- Supports Dual-Mode TACS/CDMA
- Portable Battery Powered Equipment

Product Description

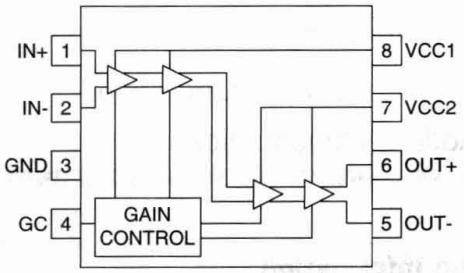
The RF2629 is a complete AGC amplifier designed for the transmit section of 3V dual-mode CDMA/FM cellular and PCS applications. It is designed to amplify IF signals while providing more than 84dB of gain control range. Noise Figure, IP3, and other specifications are designed for CDMA and dual mode CDMA/AMPS handsets. This circuit is designed as part of the RFMD CDMA Chip Set, consisting of this Transmit IF AGC Amp, a Transmit Upconverter, a Receive LNA/Mixer, and a Receive IF AGC Amp. The IC is manufactured on an advanced high frequency Silicon Bipolar process and is packaged in a standard miniature 8-lead plastic MSOP package.



Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS

Package Style: MSOP-8



Functional Block Diagram

Features

- Supports Dual Mode Operation
- Supports PCS and Cellular Applications
- -48dB to +38dB Gain Control Range
- Single 3V Power Supply
- 12MHz to 175MHz Operation
- Miniature Surface Mount Package

Ordering Information

RF2629	3V CDMA/FM Transmit AGC Amplifier
RF2629 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF MICRO·DEVICES

Preliminary

RF2670

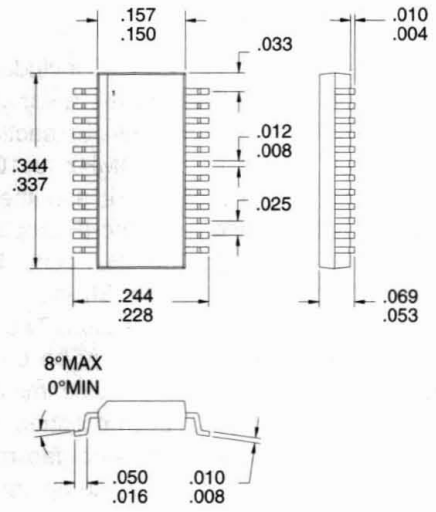
8MHZ DUAL BASEBAND AGC WITH PROGRAMMABLE LOW PASS FILTERING

Typical Applications

- Digital Cordless Telephones
- Secure Communication Links
- Wireless LANs
- Inventory Tracking
- Wireless Security
- Battery Powered Applications

Product Description

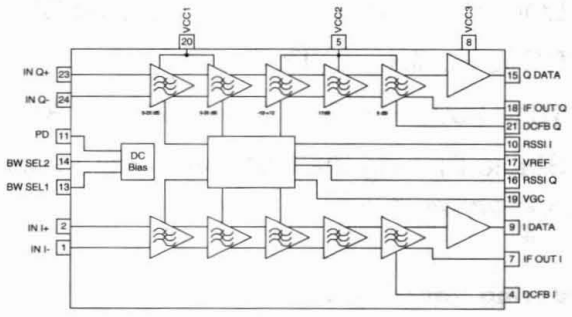
The RF2670 is a monolithic integrated circuit specifically designed for direct conversion to baseband QPSK receivers. The part provides dual baseband amplifiers with a 70dB gain range (single pin analog input) and separate I and Q RSSI. On-chip programmable baseband filters are incorporated into each amplifier providing 1MHz, 2MHz, 4MHz, or 8MHz bandwidth with a 5-pole Bessel response. I and Q output are available in digital or analog form. The data comparators use a self generated DC reference to track DC offsets in the received signal. The analog outputs have a 500mVpp swing with approximately 1.7V DC offset. A 2.0V reference voltage is also available for A/D converters changing DC bias.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- I/Q Baseband Receivers
- 10dB to 80dB Gain Range
- Digital and Analog Outputs
- On-Chip Selectable IF Bandwidths
- Reference Voltage for A/D Converter
- 2.7V to 3.6V Operation

Ordering Information

RF2670	8MHz Dual Baseband AGC with Programmable Low Pass Filtering
RF2670PCBA	Fully Assembled Eval Board.

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

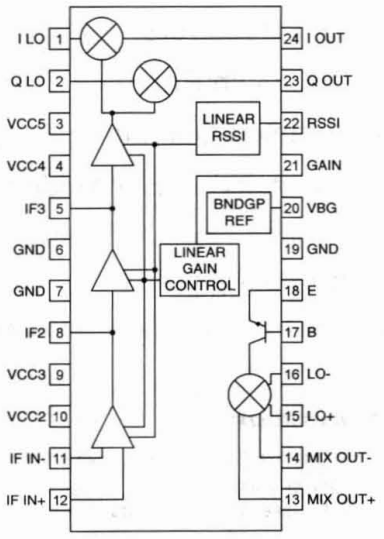
- Spread Spectrum Systems
- Dual-IF Strip for PCS and 2.4 GHz ISM Band Receivers
- Dual Mode Digital/Analog Receivers
- POS Terminals
- Commercial Handheld Systems

Product Description

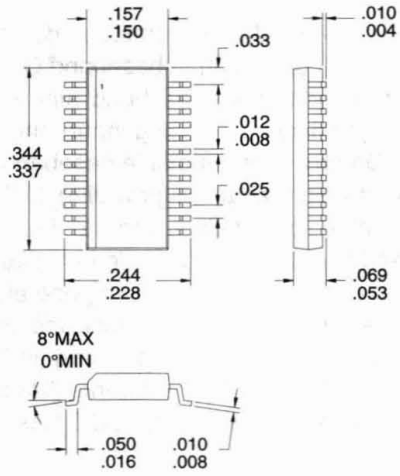
The RF2903 spread spectrum receiver IC includes an RF front-end with an RF pre-amp and mixer, a variable-gain IF section with RSSI, and a demodulator section. The front-end can accept inputs from 150MHz to 1000MHz and is suitable for ISM band receivers and the first IF stage in superheterodyne receivers. The IF amplifier provides up to 90dB of gain up to 200MHz, controlled with an analog voltage. A Received Signal Strength Indicator (RSSI) is present for power level detection. Two double-balanced mixers are provided which may be configured for quadrature demodulation, FM/FSK discrimination, or AM detection. AM detection is accomplished with an external detector circuit. An internal band-gap reference maintains consistent performance over temperature and power supply voltage.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: SSOP-24

Features

- 3V to 6V Operation
- FM, PM, or Quadrature Demodulation
- Linear Analog Gain Control and RSSI
- DC to 50MHz I/Q Frequency
- 10 to 200MHz IF, 150 to 1000MHz RF
- Stable Biasing Via Band-Gap Reference

Ordering Information

RF2903	Integrated Spread Spectrum Receiver
RF2903 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

11 Transceivers

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc-Rx (mA)	Icc-Tx (mA)	TX Power (dBm)	RX Sensitivity (dBm)	Package	Page
RF2510	VHF/UHF Transmitter	300 to 1000	2.4 to 5.0	n/a	13	-4	n/a	SSOP-16	11-1
RF2512	UHF Transmitter	300 to 1000	2.7 to 5.0	n/a	25	+10	n/a	SSOP-24	11-2
RF2513	UHF Transmitter	300 to 1000	2.7 to 5.0	n/a	25	+6	n/a	SSOP-24	11-3
RF2516	VHF/UHF Transmitter	100 to 960	2.0 to 3.6	n/a	10.5	+10	n/a	SSOP-16	11-4
RF2905	433/868/915MHz FM/FSK/ASK/OOK Transceiver	300 to 1000	2.7 to 5.0	9	25	+10	-101	LQFP-48	11-5
RF2907	433/868/915MHz AM/ASK/OOK Transceiver	300 to 1500	2.7 to 5.0	11.5	20	+7.0	-97	SSOP-28	11-6
RF2908	915MHz Spread Spectrum Receiver with PLL Frequency Synthesizer	700 to 1100	2.7 to 3.6	50	n/a	n/a	TBD	LQFP-48	11-7
RF2909	3V 915MHz Spread-Spectrum Transmitter IC	100 to 1100	2.7 to 5.0	n/a	30 to 175	17	n/a	SSOP-24	11-8
RF2915	433/868/915MHz FSK/ASK/OOK Transceiver	300 to 1000	2.4 to 5.0	5.6	22	+8.5	-99	LQFP-32	11-9
RF2917	433/868/915MHz FM/FSK Receiver	300 to 1000	2.7 to 5.0	9	n/a	n/a	-101	LQFP-32	11-10
RF2919	433/868/915MHz ASK/OOK Receiver	300 to 1000	2.7 to 5.0	10	n/a	n/a	-104	LQFP-32	11-11
RF2925	433/868/915MHz FM/FSK/ASK/OOK Transceiver	300 to 1000	2.7 to 5.0	9	25	+10	-101	LQFP-48	11-12
RF2926	UHF Dual Conversion Transceiver	300 to 1000	2.7 to 5.0	10	37	+8.5	-99	LQFP-48	11-13
RF2938	2.4GHz Spread Spectrum Transceiver	45 to 500 and 2.4 to 2.5GHz	2.7 to 3.6	65	105	+6	n/a	TQFP-48 EPP	11-14
RF2945	433/868/915MHz FSK/ASK/OOK Transceiver	300 to 1000	2.4 to 5.0	6.1	22	+8.5	-96	LQFP-32	11-15
RF9901	FSK Transmitter	400 to 930	3.0 to 5.0	n/a	30	+2	n/a	SOP-16	11-16
RF9902	FSK Receiver	400 to 930	3.0 to 5.0	25	n/a	n/a	-85	SOP-16	11-17

RF2510

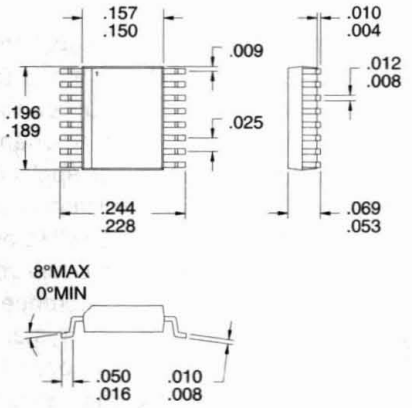
VHF/UHF TRANSMITTER

Typical Applications

- Local Oscillator Source
- FM/FSK Transmitter
- Wireless Data Transmitters
- 433/868/915MHz ISM Band Systems
- Low Cost Single Frequency LO Source
- Wireless Security Systems

Product Description

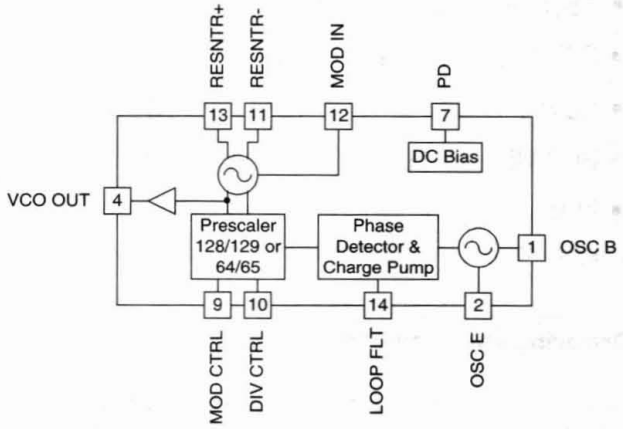
The RF2510 is a monolithic integrated circuit intended for use as a low-cost Frequency Synthesizer. The device is provided in a 16 pin SSOP package and is designed to provide a phased locked frequency source for use in local oscillator or transmitter applications. The chip can be used in FM or FSK applications in the U.S. 915MHz ISM band and European 433MHz and 868MHz ISM band. The integrated VCO, dual modulus/dual divide (128/129 or 64/65) pre-scaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator.



Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS

Package Style: SSOP-16



Functional Block Diagram

Features

- Fully Integrated PLL Circuit
- Integrated VCO and Reference Oscillator
- 2.4V to 5.0V Supply Voltage
- Low Current and Power Down Capability
- 300MHz to 1000MHz Frequency Range
- Narrowband and Wideband FM

Ordering Information

RF2510	VHF/UHF Transmitter
RF2510 PCBA-L	Fully Assembled Evaluation Board 433MHz
RF2510 PCBA-M	Fully Assembled Evaluation Board 868MHz
RF2510 PCBA-H	Fully Assembled Evaluation Board 915MHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
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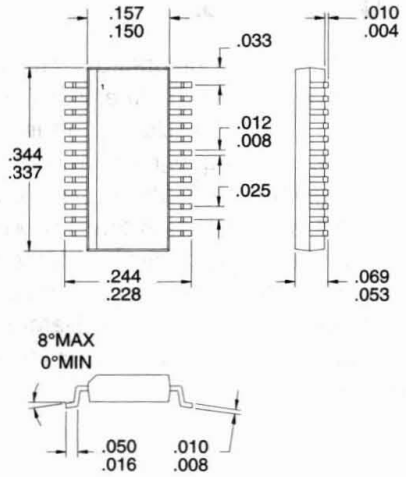
http://www.rfmd.com

Typical Applications

- Single or Dual Channel LO Source
- FM/FSK Transmitter
- Wireless Data Transmitters
- 433/868/915MHz ISM Band Systems
- Wireless Security Systems

Product Description

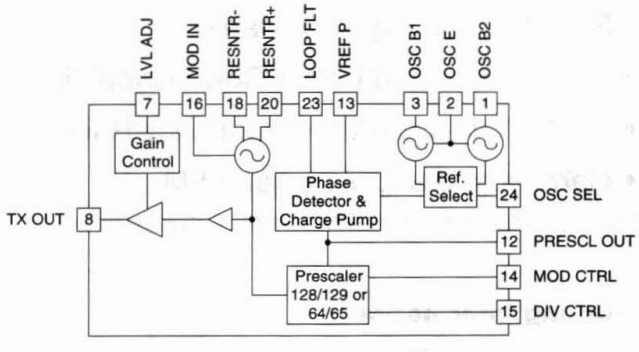
The RF2512 is a monolithic integrated circuit intended for use as a low-cost Frequency Synthesizer and Transmitter. The device is provided in a 24 pin SSOP package and is designed to provide a phased locked frequency source for use in local oscillator or transmitter applications. The chip can be used in FM or FSK applications in the U.S. 915MHz ISM band and European 433MHz or 868MHz ISM band. The integrated VCO, dual modulus/dual divide (128/129 or 64/65) prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator. A second reference oscillator is available to support two channel applications.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] GaAs HBT
- [ ] GaAs MESFET
- [ ] Si Bi-CMOS
- [ ] SiGe HBT
- [ ] Si CMOS



Functional Block Diagram

Features

- Fully Integrated PLL Circuit
- 15mW Output Power at 433MHz
- 2.7V to 5.0V Supply Voltage
- Low Current and Power Down Capability
- 300MHz to 1000MHz Frequency Range
- Narrowband and Wideband FM

Ordering Information

RF2512	UHF Transmitter
RF2512 PCBA-L	Fully Assembled Evaluation Board, 433MHz
RF2512 PCBA-M	Fully Assembled Evaluation Board, 868MHz
RF2512 PCBA-H	Fully Assembled Evaluation Board, 915MHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2513

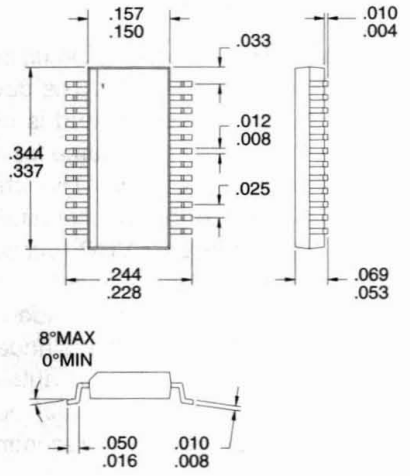
UHF TRANSMITTER

Typical Applications

- Single or Dual Channel LO Source
- FM/FSK Transmitter
- Wireless Data Transmitters
- 433/868/915MHz ISM Band Systems
- Wireless Security Systems

Product Description

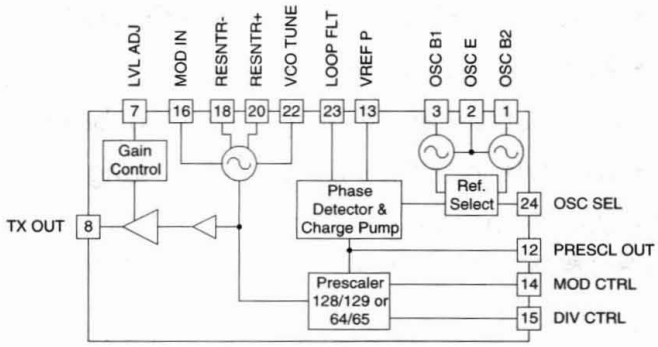
The RF2513 is a monolithic integrated circuit intended for use as a low-cost Frequency Synthesizer and Transmitter. The device is provided in a 24 pin SSOP package and is designed to provide a phased locked frequency source for use in local oscillator or transmitter applications. The chip can be used in FM or FSK applications in the U.S. 915MHz ISM band and European 433MHz or 868MHz ISM band. The integrated VCO, dual modulus/dual divide (128/129 or 64/65) prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator. A second reference oscillator is available to support two channel applications.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Fully Integrated PLL Circuit
- 10mW Output Power at 433MHz
- 2.7V to 5.0V Supply Voltage
- Low Current and Power Down Capability
- 300MHz to 1000MHz Frequency Range
- Narrowband and Wideband FM

Ordering Information

RF2513	UHF Transmitter
RF2513 PCBA-L	Fully Assembled Evaluation Board, 433MHz
RF2513 PCBA-M	Fully Assembled Evaluation Board, 868MHz
RF2513 PCBA-H	Fully Assembled Evaluation Board, 915MHz

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7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2516

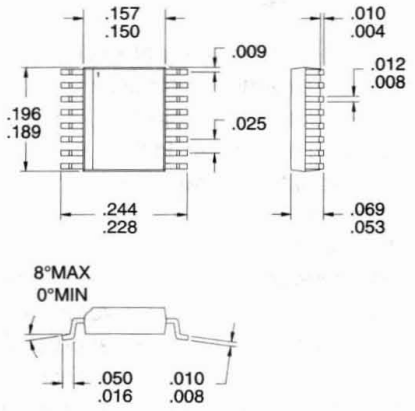
VHF/UHF TRANSMITTER

Typical Applications

- 315/433MHz Band Systems
- Local Oscillator Source
- Part 15.231 Applications
- Remote Keyless Entry
- Wireless Security Systems
- AM/ASK/OOK Transmitter

Product Description

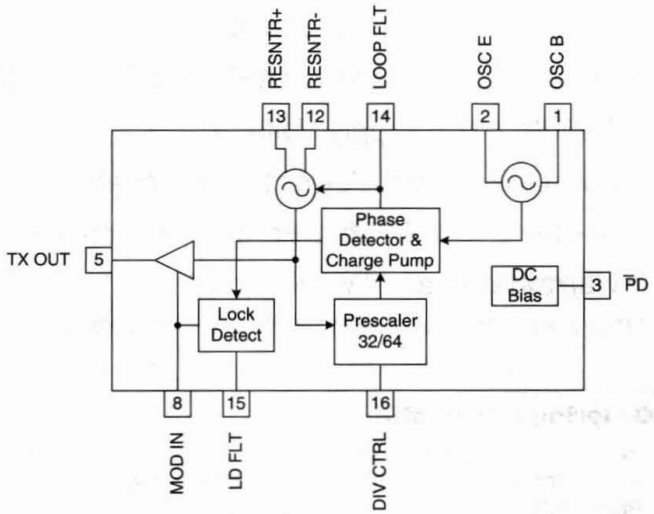
The RF2516 is a monolithic integrated circuit intended for use as a low-cost AM/ASK transmitter. The device is provided in a 16-pin SSOP-16 package and is designed to provide a phased locked frequency source for use in local oscillator or transmitter applications. The chip can be used in applications in the North American and European VHF/UHF bands. The integrated VCO, phase detector, prescaler, and reference oscillator transistor require only the addition of an external crystal to provide a complete phase-locked loop. In addition to the standard power-down mode, the chip also includes an automatic lock-detect feature that disables the transmitter output when the PLL is out-of-lock. Currently not recommended for Part 15.249 applications.



Package Style: SSOP-16

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Fully Integrated PLL Circuit
- Integrated VCO and Reference Oscillator
- 2.0V to 3.6V Supply Voltage
- Low Current and Power Down Capability
- 100MHz to 960MHz Frequency Range
- Out-of-Lock Inhibit Circuit

Ordering Information

RF2516	VHF/UHF Transmitter
RF2516 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2905

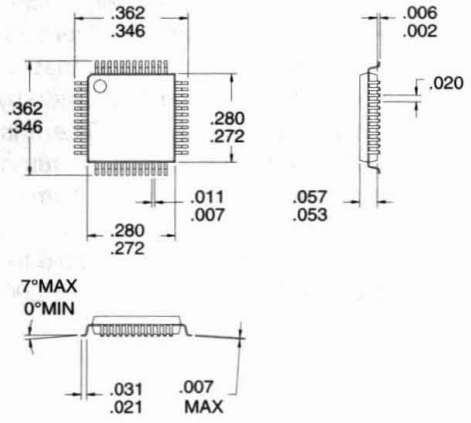
433/868/915MHZ FM/FSK/ASK/OOK TRANSCEIVER

Typical Applications

- Wireless Meter Reading
- Keyless Entry Systems
- 433/868/915MHz ISM Band Systems
- Wireless Data Transceiver
- Wireless Security Systems
- Battery Powered Portable Devices

Product Description

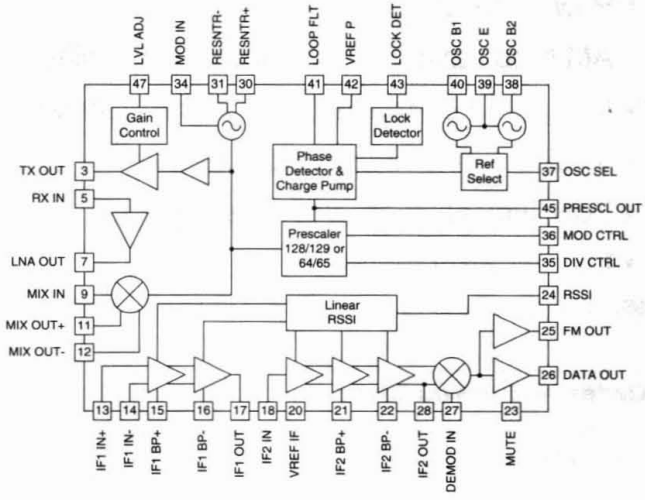
The RF2905 is a monolithic integrated circuit intended for use as a low cost FM transceiver. The device is provided in 48-lead plastic LQFP packaging and is designed to provide a fully functional FM transceiver. The chip is intended for linear (AM, FM) or digital (ASK, FSK, OOK) applications in the North American 915MHz ISM band and European 433MHz and 868MHz ISM bands. The integrated VCO, dual modulus/dual divide (128/129 or 64/65) prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator.



Package Style: LQFP-48

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Fully Monolithic Integrated Transceiver
- 2.7V to 5.0V Supply Voltage
- Narrow Band and Wide Band FM/FSK
- 300MHz to 1000MHz Frequency Range
- 10dB Cascaded Noise Figure
- 10mW Output Power at 433MHz

Ordering Information

RF2905	433/868/915MHz FM/FSK/ASK/OOK Transceiver
RF2905 PCBA-L	Fully Assembled Evaluation Board (433MHz)
RF2905 PCBA-M	Fully Assembled Evaluation Board (868MHz)
RF2905 PCBA-H	Fully Assembled Evaluation Board (915MHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
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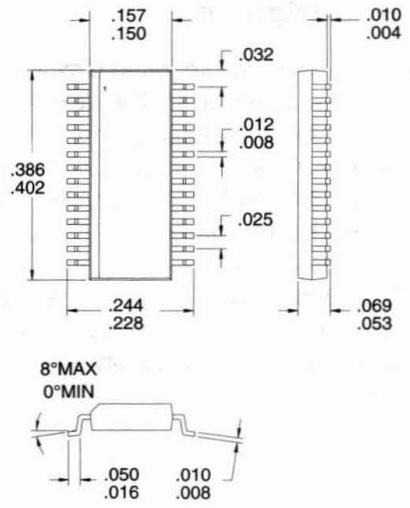
Typical Applications

- Battery Powered AM Transceivers
- 915MHz ISM Applications
- 433MHz and 868MHz ISM Applications
- Wireless Data Transmitter/Receiver
- Wireless Security Systems
- Wireless Meter Reading

Product Description

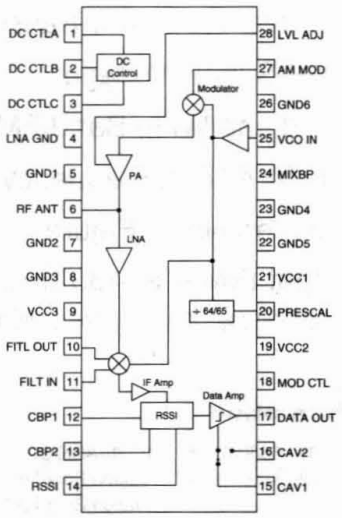
The RF2907 is a complete AM/ASK transceiver. This highly integrated device operates at frequencies in the 300MHz to 1500MHz range. This transceiver features an AM modulator/transmitter with analog-variable output power up to +7dBm, a dual modulus divide-by 64/65 prescaler, and a complete AM receiver. There is also a sleep mode provided so the device may be turned off to save battery life. Dual time constant control on the demodulator allows for faster settling for wake up mode. The RF2501or RF2502 VCO ICs are available to provide a high isolation, low cost LO source for the RF2907.



Package Style: SSOP-28

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] GaAs HBT
- [ ] GaAs MESFET
- [ ] Si Bi-CMOS
- [ ] SiGe HBT
- [ ] Si CMOS



Functional Block Diagram

Features

- Power Down Feature
- AM Modulation/Demodulation Capability
- Integrated 64/65 Dual Modulus Prescaler
- +7dBm Transmitter Output Power
- 7dB Typical Receiver Noise Figure
- Micropower Operation

Ordering Information

RF2907	433/868/915MHz AM/ASK/OOK Transceiver
RF2907 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

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http://www.rfmd.com

RF2908

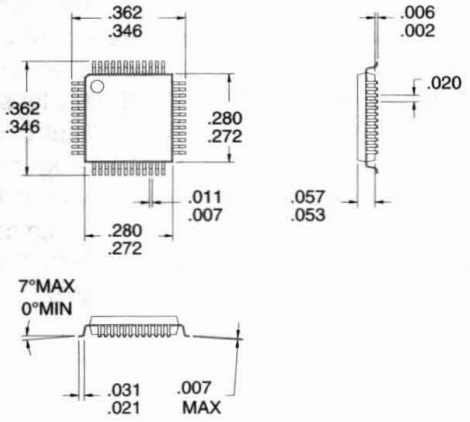
915MHZ SPREAD SPECTRUM RECEIVER WITH PLL FREQUENCY SYNTHESIZER

Typical Applications

- Digital Cordless Telephones
- Secure Communication Links
- Wireless LANs
- Inventory Tracking
- Wireless Security
- Battery Powered Applications

Product Description

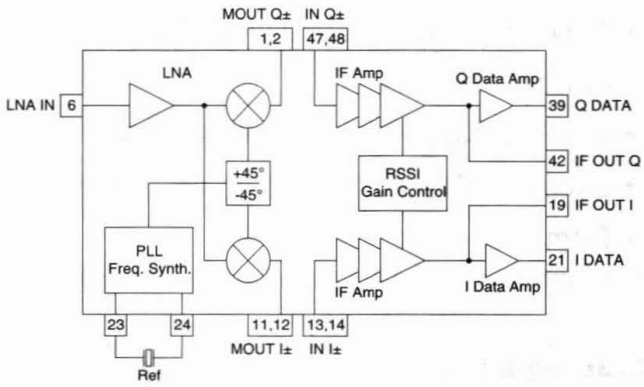
The RF2908 is a monolithic integrated circuit specifically designed for direct-sequence spread-spectrum systems operating in the 902MHz to 928MHz ISM band. The part includes a direct conversion receiver, quadrature demodulator, dual IF amplifiers with gain control and RSSI, on-chip programmable baseband filters, dual data comparators, and a serially programmable 86-channel PLL frequency synthesizer. Two cell or regulated three cell (3.6V maximum) battery applications are supported by the part. The part is also designed to operate in compliance with FCC Part 15.247. The device is provided in 48-lead plastic LQFP packaging.



Package Style: LQFP-48

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Refer to the Detailed Functional Block Diagram for description of full functionality

Functional Block Diagram

Features

- FCC Part 15.247 Compliant
- Direct Conversion Receiver
- On-Chip 86 Channel Frequency Synthesizer
- On-Chip Selectable IF Bandwidths
- 2.7V to 3.6V Operation

Ordering Information

RF2908	915MHz Spread Spectrum Receiver with PLL Frequency Synthesizer

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2909

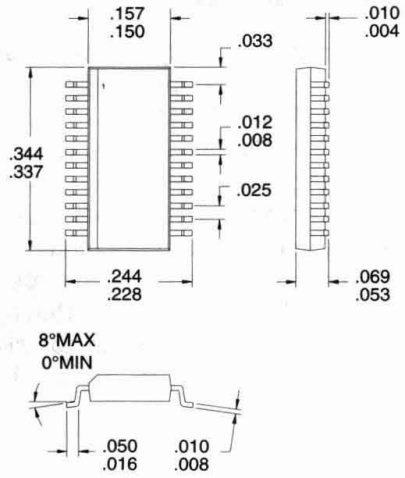
3V 915MHZ SPREAD-SPECTRUM TRANSMITTER IC

Typical Applications

- Direct Sequence Spread Spectrum
- Spread Spectrum Cordless Phones
- Portable Battery Powered Equipment
- GMSK, QPSK, DQPSK, QAM Modulation
- 915MHz ISM Applications

Product Description

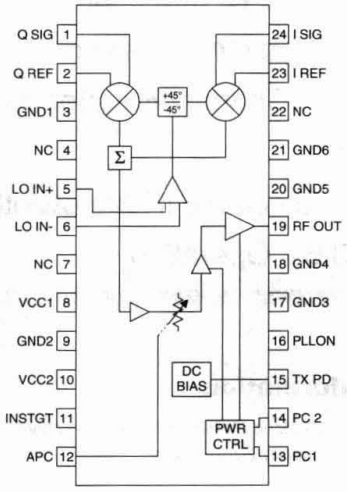
The RF2909 is a monolithic integrated transmitter IC capable of universal direct modulation. The quadrature modulator allows for a variety of modulation formats and compound carriers. The transmitter has two power control modes. Two inputs can be controlled digitally for stepping output power 1mW, 10mW, or 70mW output power. Or, the output level can be adjusted by an analog input from 1mW to 80mW. The quadrature mixers have differential inputs, and are internally biased; a DC blocking capacitor is required if external DC levels are present. The LO is split with a passive network tuned for 915MHz.



Package Style: SSOP-24

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- 2.7V to 5V Power Supply
- 1mW, 10mW, 70mW Digital Output Power
- 20dB Analog Power Control Range
- Excellent Phase & Amplitude Balance
- Compatible with the RF2908

Ordering Information

RF2909	3V 915MHz Spread-Spectrum Transmitter IC
RF2909 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2915

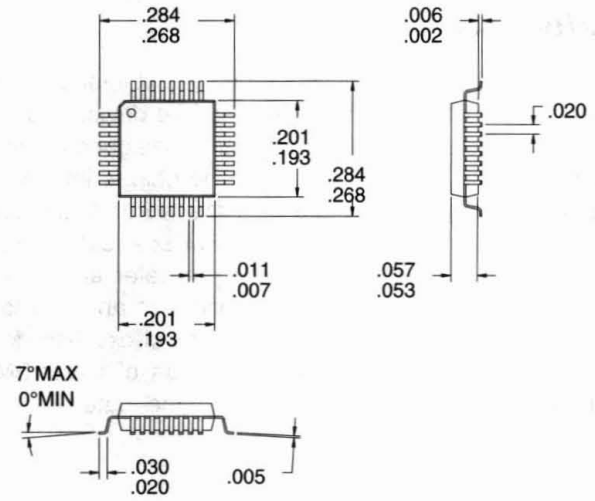
433/868/915MHZ FSK/ASK/OOK TRANSCEIVER

Typical Applications

- Wireless Meter Reading
- Keyless Entry Systems
- 433MHz/868MHz/915MHz ISM Band
- Wireless Data Transceiver
- Wireless Security Systems
- Battery Powered Portable Devices

Product Description

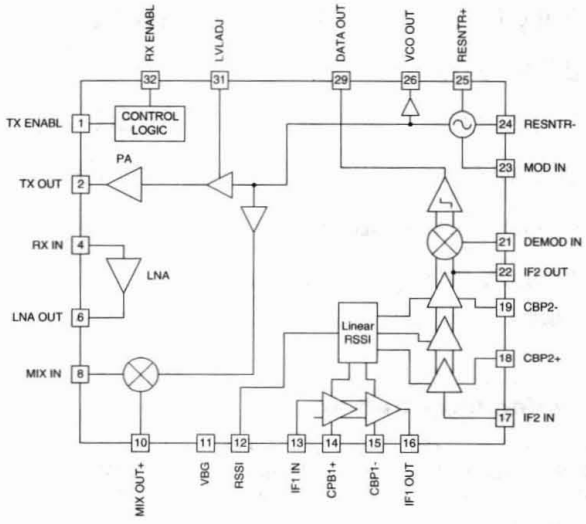
The RF2915 is a monolithic integrated circuit intended for use as a low cost FM transceiver. The device is provided in 32-lead plastic TQFP packaging and is designed to be used with a PLL IC to provide a fully functional FM transceiver. The chip is intended for digital (ASK, FSK, OOK) applications in the North American 915MHz ISM band and European 433MHz/868MHz ISM band. The integrated VCO has a buffered output to feed the RF signal back to the PLL IC to form the frequency synthesizer. Internal decoding of the RX ENABL and TX ENABL lines allow for half duplex operation as well as turning on the VCO to give the synthesizer time to settle and complete power down mode.



Package Style: LQFP-32

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Fully Monolithic Integrated Transceiver
- 2.4V to 5.0V Supply Voltage
- Narrow Band and Wide Band FSK
- 300MHz to 1000MHz Frequency Range
- 10dB Cascaded Noise Figure
- 10mW Output Power With Power Control

Ordering Information

RF2915	433/868/915MHz FSK/ASK/OOK Transceiver
RF2915 PCBA-L	Fully Assembled Evaluation Board (433MHZ)
RF2915 PCBA-M	Fully Assembled Evaluation Board (868MHZ)
RF2915 PCBA-H	Fully Assembled Evaluation Board (915MHz)

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

11 TRANSCEIVERS

RF2917

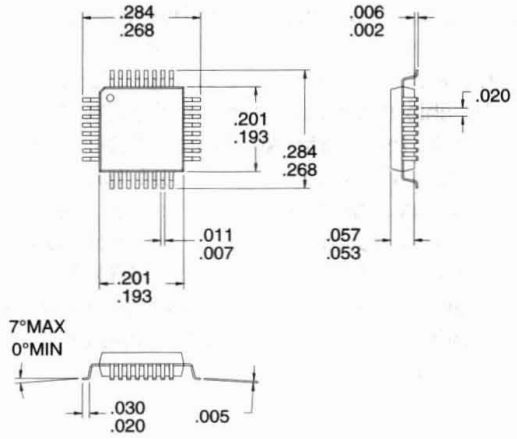
433/868/915MHZ FM/FSK RECEIVER

Typical Applications

- Wireless Meter Reading
- Keyless Entry Systems
- 433/868/915MHz ISM Band Systems
- Remote Data Transfers
- Wireless Security Systems

Product Description

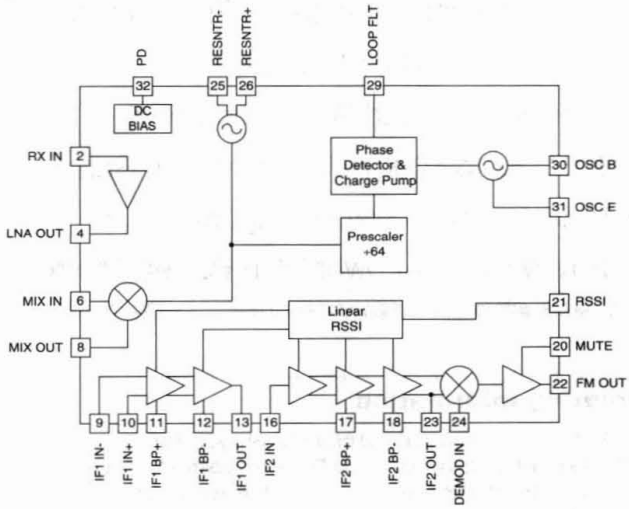
The RF2917 is a monolithic integrated circuit intended for use as a low cost FM or FSK receiver. The device is provided in 32-lead plastic packaging and is designed to provide a fully functional FM receiver. The chip is intended for analog or digital applications in the North American 915MHz ISM band and European 433MHz and 868 MHz ISM bands. The integrated VCO, ÷64 prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator for single channel applications. The selection of linear FM output or digital FSK output is done with the mute pin.



Package Style: LQFP-32

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] Si Bi-CMOS
- [ ] GaAs HBT
- [ ] SiGe HBT
- [ ] GaAs MESFET
- [ ] Si CMOS



Functional Block Diagram

Features

- Fully Monolithic Integrated Receiver
- 2.7V to 5.0V Supply Voltage
- Narrow Band and Wide Band FSK
- 300MHz to 1000MHz Frequency Range
- Power Down Capability
- Analog or Digital Output

Ordering Information

RF2917	433/868/915MHz FM/FSK Receiver
RF2917 PCBA-L	Fully Assembled Evaluation Board, 433MHz
RF2917 PCBA-M	Fully Assembled Evaluation Board, 868MHz
RF2917 PCBA-H	Fully Assembled Evaluation Board, 915MHz

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7625 Thorndike Road
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http://www.rfmd.com

RF MICRO·DEVICES

Preliminary

RF2919

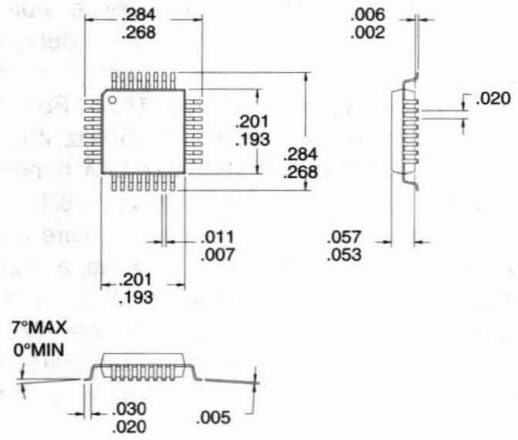
433/868/915MHZ ASK/OOK RECEIVER

Typical Applications

- Wireless Meter Reading
- Keyless Entry Systems
- 433/868/915MHz ISM Bands Systems
- Remote Data Transfers
- Wireless Security Systems
-

Product Description

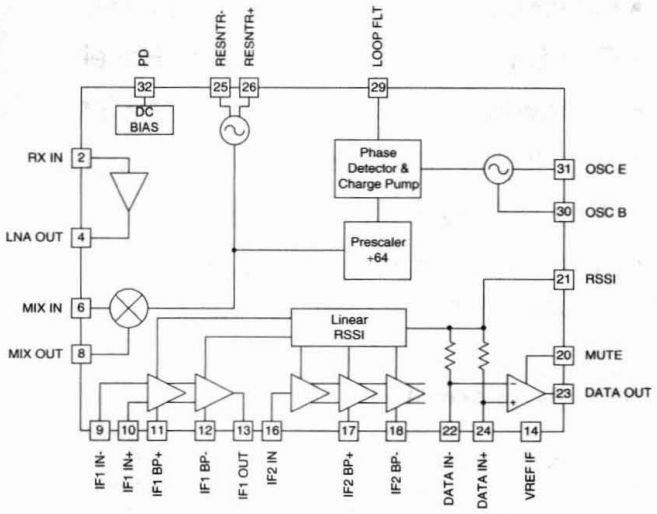
The RF2919 is a monolithic integrated circuit intended for use as a low cost ASK/OOK receiver. The device is provided in 32-lead plastic packaging and is designed to provide a fully functional AM receiver. The chip is intended for applications in the North American 915MHz ISM band and European 433MHz and 868MHz ISM bands. The integrated VCO, +64 prescaler, and reference oscillator require only the addition of an external crystal to provide a complete phase-locked oscillator for single channel applications. A data comparator is included to provide logic level outputs.



Package Style: LQFP-32

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Fully Monolithic Integrated Receiver
- 2.7V to 5.0V Supply Voltage
- Up to 256kbps Data Rates
- 300MHz to 1000MHz Frequency Range
- Power Down Capability
- Analog or Digital Output

Ordering Information

RF2919	433/868/915MHz ASK/OOK Receiver
RF2919 PCBA-L	Fully Assembled Evaluation Board, 433MHz
RF2919 PCBA-M	Fully Assembled Evaluation Board, 868MHz
RF2919 PCBA-H	Fully Assembled Evaluation Board, 915MHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2925

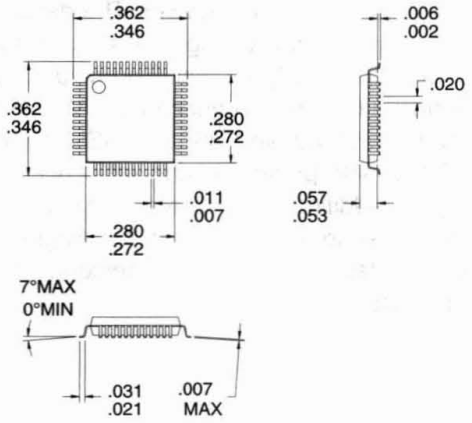
433/868/915MHZ FM/FSK/ASK/OOK TRANSCEIVER

Typical Applications

- Wireless Meter Reading
- TDD Systems
- 433/868/915MHz ISM Band Systems
- Wireless Data Transceiver
- Wireless Security Systems
- Battery Powered Portable Devices

Product Description

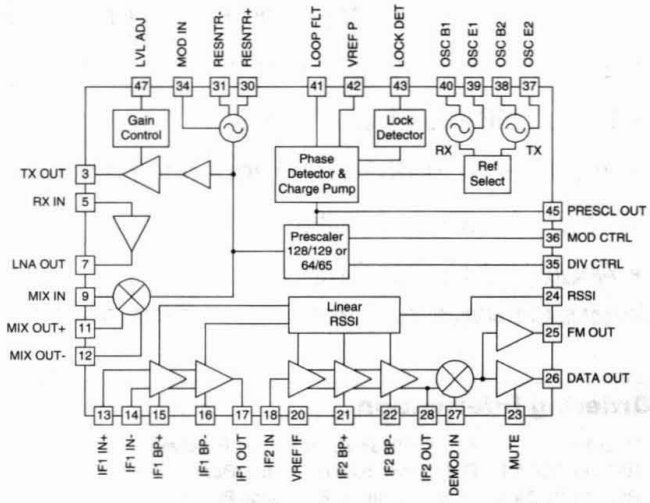
The RF2925 is a monolithic integrated circuit intended for use as a low cost FM transceiver. The device is provided in 48-lead plastic LQFP packaging and is designed to provide a fully functional FM transceiver. The chip is intended for linear (AM, FM) or digital (ASK, FSK, OOK) applications in the North American 915MHz ISM band and European 433MHz and 868MHz ISM bands. The integrated VCO, dual modulus/dual divide (128/129 or 64/65) prescaler, and reference oscillators require only the addition of an external crystal to provide a complete phase-locked oscillator. The RF2925 differs from the RF2905 in that both reference oscillators are always on when the PLL is enabled which decreases start-up time when switching between transmit and receive oscillators.



Package Style: LQFP-48

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] GaAs HBT
- [ ] GaAs MESFET
- [ ] Si Bi-CMOS
- [ ] SiGe HBT
- [ ] Si CMOS



Functional Block Diagram

Features

- Fully Monolithic Integrated Transceiver
- Fast Switching from Transmit to Receive
- Narrow Band and Wide Band FM/FSK
- 300MHz to 1000MHz Frequency Range
- 2.7V to 5.0V Supply Voltage
- 10mW Output Power at 433MHz

Ordering Information

RF2925	433/868/915MHz FM/FSK/ASK/OOK Transceiver
RF2925 PCBA-L	Fully Assembled Evaluation Board (433MHz)
RF2925 PCBA-M	Fully Assembled Evaluation Board (868MHz)
RF2925 PCBA-H	Fully Assembled Evaluation Board (915MHz)

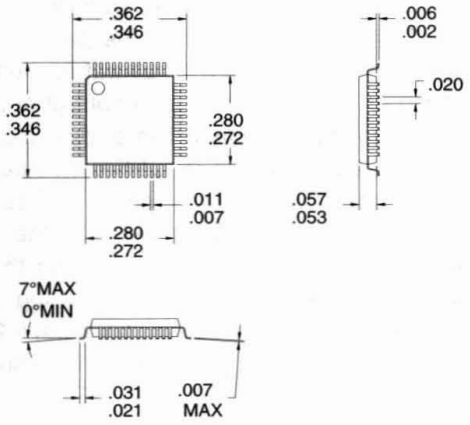
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Wireless Meter Reading
- Keyless Entry Systems
- 433/868/915MHz ISM Band Systems
- Wireless Data Transceiver
- Wireless Security Systems
- Battery Powered Portable Devices

Product Description

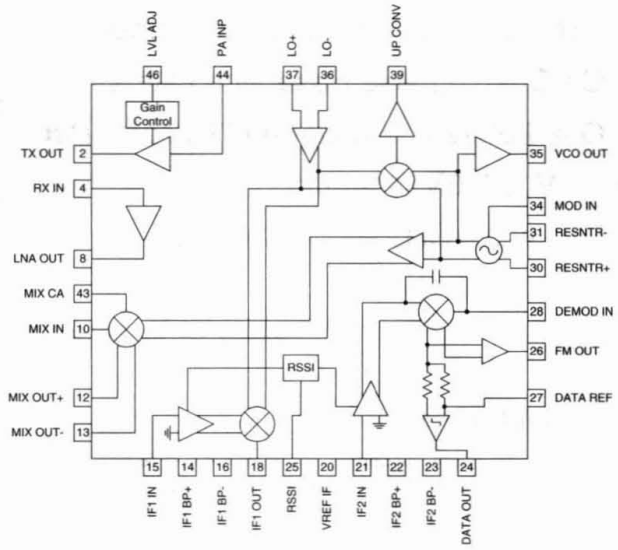
The RF2926 is a monolithic integrated circuit intended for use as a low cost FM transceiver. The device is provided in 48-lead plastic TQFP packaging and is designed to provide a dual conversion, half-duplex transceiver. The chip is intended for linear (AM, FM) or digital (ASK, FSK, OOK) applications in the North American 915MHz and European 433/868MHz ISM bands. The integrated VCO has a buffered output to feed the RF signal back to the PLL IC to form the frequency synthesizer. Separate RX ENABL, TX ENABL, and PLL ENABL lines allow for half duplex operation as well as turning on the VCO to give the synthesizer time to settle and complete power down-mode.



Package Style: LQFP-48

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Monolithic Integrated Transceiver
- 2.7V to 5.0V Supply Voltage
- Narrow Band and Wide Band FM/FSK
- 300MHz to 1000MHz Frequency Range
- 130MHz Bandwidth in First IF
- 5mW Output Power at 433MHz

Ordering Information

RF2926	UHF Dual Conversion Transceiver
RF2926 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2938

2.4GHZ SPREAD SPECTRUM TRANSCEIVER

Typical Applications

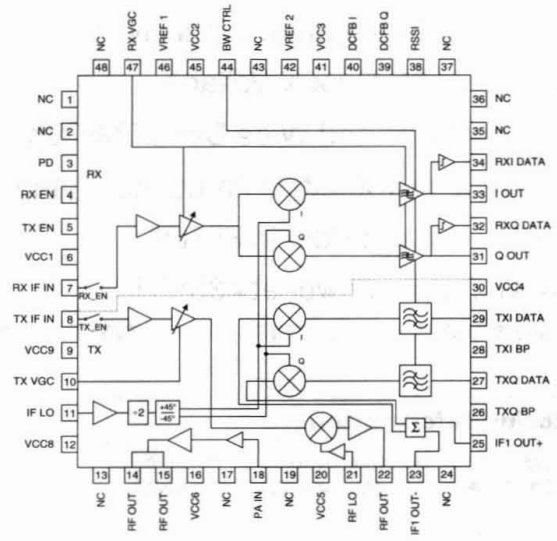
- Wireless LANs
- Wireless Local Loop
- Secure Communication Links
- Inventory Tracking
- Wireless Security
- Digital Cordless Telephones

Product Description

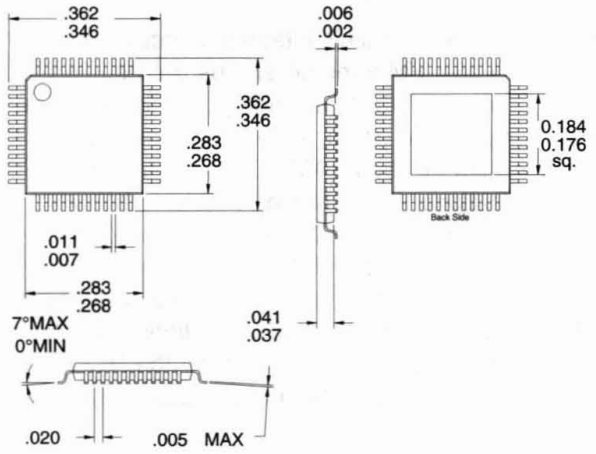
The RF2938 is a monolithic integrated circuit specifically designed for direct-sequence spread-spectrum systems operating in the 2.4GHz ISM band. The part includes a direct conversion from IF receiver, quadrature demodulator, I/Q baseband amplifiers with gain control and RSSI, on-chip programmable baseband filters, dual data comparators. For the transmit side, a QPSK modulator and upconverter are provided. The design reuses the IF SAW filter for transmit and receive reducing the number of SAW filters required. Two cell or regulated three cell (3.6V maximum) battery applications are supported by the part. The part is also designed to be part of a 2.4GHz chip set consisting of the RF2444 LNA/Mixer and one of the many RFMD high efficiency GaAs HBT PA's and a dual frequency synthesizer.

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: TQFP-48 EPP

Features

- 45MHz to 500MHz IF Quad Demod
- On-Chip Variable Baseband Filters
- Quadrature Modulator and Upconverter
- 2.7V to 3.6V Operation
- Part of 2.4GHz Radio Chipset
- 2.4GHz PA Driver

Ordering Information

RF2938	2.4GHz Spread Spectrum Transceiver
RF2938 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2945

433/868/915MHZ FSK/ASK/OOK TRANSCEIVER

Typical Applications

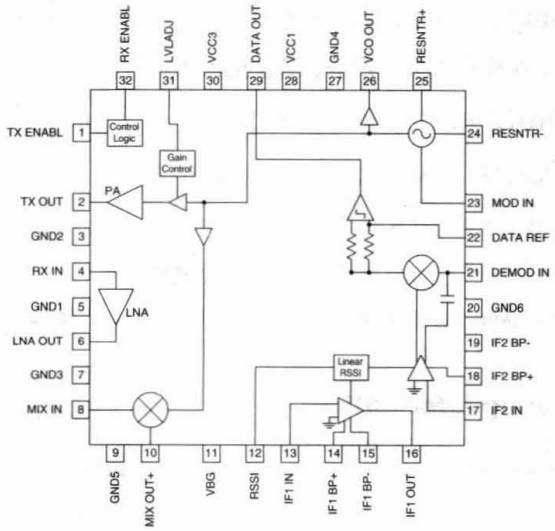
- Wireless Meter Reading
- Keyless Entry Systems
- 433, 868 and 915MHz ISM Band Systems
- Wireless Data Transceiver
- Wireless Security Systems
- Battery Powered Portable Devices

Product Description

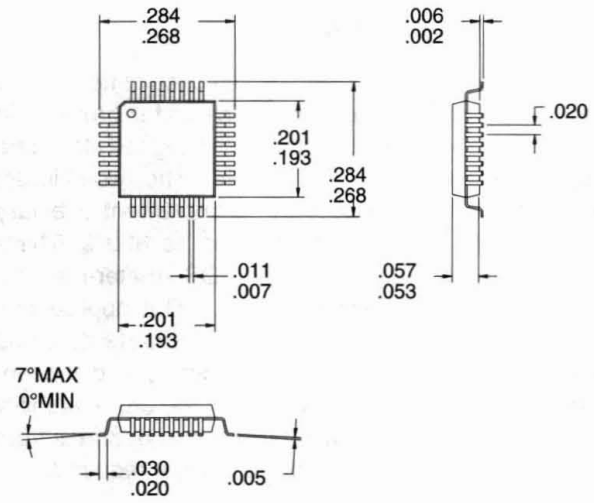
The RF2945 is a monolithic integrated circuit intended for use as a low cost FM transceiver. The device is provided in 32-lead plastic TQFP packaging and is designed to be used with a PLL IC to provide a fully functional FM transceiver. The chip is intended for digital (ASK, FSK, OOK) applications in the North American 915MHz ISM band and European 433/868MHz ISM bands. The integrated VCO has a buffered output to feed the RF signal back to the PLL IC to form the frequency synthesizer. Internal decoding of the RX ENABL and TX ENABL lines allow for half duplex operation as well as turning on the VCO to give the synthesizer time to settle and complete power downmode. The DATA REF line allows the use of an external capacitor to control the DC level at the adaptive Data Slicer input for setting the bit decision threshold.

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram



Package Style: LQFP-32

Features

- Fully Monolithic Integrated Transceiver
- 2.4V to 5.0V Supply Voltage
- Narrow Band and Wide Band FSK
- 300MHz to 1000MHz Frequency Range
- 10dB Cascaded Noise Figure
- 10mW Output Power With Power Control

Ordering Information

RF2945	433/868/915MHz FSK/ASK/OOK Transceiver
RF2945 PCBA-L	Fully Assembled Evaluation Board (433MHZ)
RF2945 PCBA-H	Fully Assembled Evaluation Board (915MHz)

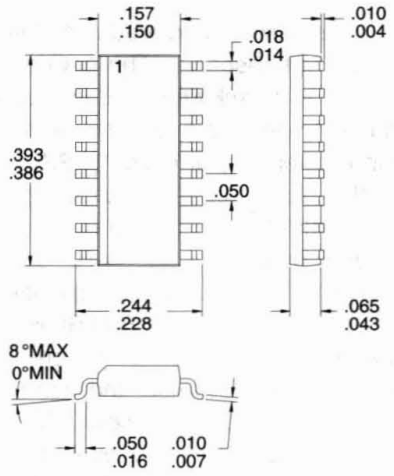
RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA
Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

Typical Applications

- Handheld POS Terminals
- General Purpose 868 and 915MHz ISM Band Applications
- Digital Communication Systems
- Commercial and Consumer Products

Product Description

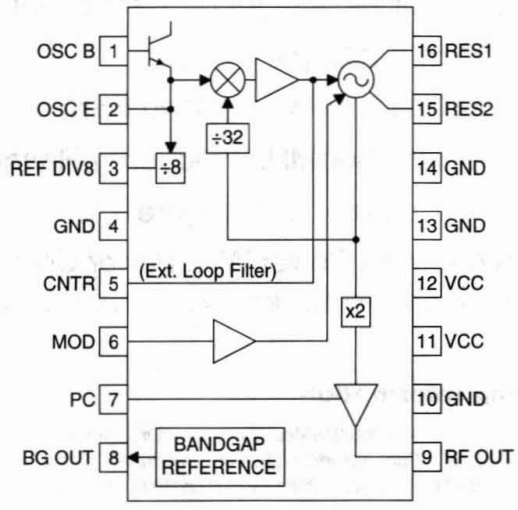
The RF9901 is a monolithic integrated circuit intended for use as a low-cost FSK transmitter. The unit is provided in 16-lead plastic packaging, and is designed to mate directly with the RF9902 FSK receiver. The two-chip set provides all functions necessary to implement a binary FSK transceiver for such applications as 868/915MHz ISM-band handheld terminals for POS, meter-reading, bar-code reading; as well as other digital applications such as SMR. The self-contained VCO and divide-by-32 circuitry simplify the system requirements, and the on-chip bandgap reference provides temperature stability and minimizes process variations. The part operates from a 3V to 5V supply, with no negative voltage required.



Package Style: SOP-16

Optimum Technology Matching® Applied

- [x] Si BJT
- [ ] Si Bi-CMOS
- [ ] GaAs HBT
- [ ] SiGe HBT
- [ ] GaAs MESFET
- [ ] Si CMOS



Functional Block Diagram

Features

- Single 3V to 5V Supply
- Direct Binary FSK Modulation
- On-Chip Divider for PLL
- Output Power up to +4dBm
- On-Chip VCO
- 400MHz to 930MHz Operation

Ordering Information

RF9901	FSK Transmitter
RF9901 PCBA	Fully Assembled Evaluation Board, 915MHz

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
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RF MICRO·DEVICES

RF9902

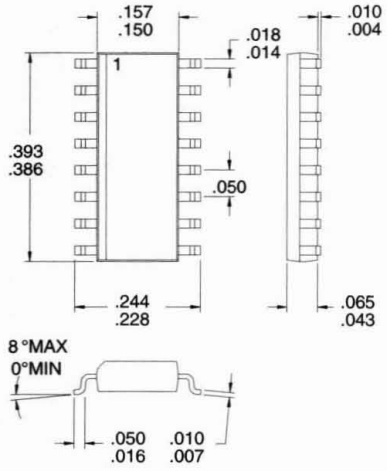
FSK RECEIVER

Typical Applications

- Handheld POS Terminals
- General Purpose 868 and 915MHz ISM Band Applications
- Digital Communication Systems
- Commercial and Consumer Systems

Product Description

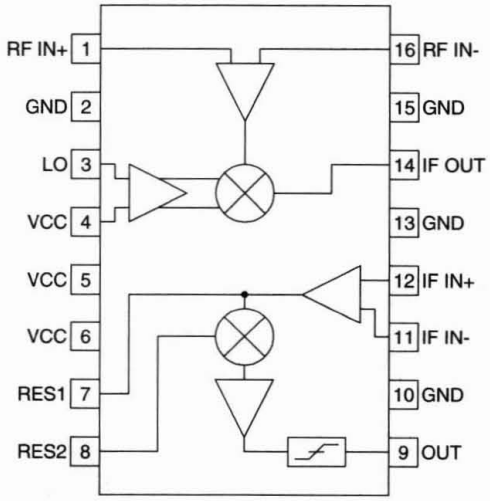
The RF9902 is a monolithic integrated circuit intended for use as a low-cost FSK receiver. The unit is provided in 16-lead plastic SOIC packaging, and is designed to operate with the RF9901 FSK transmitter. The two-chip set provides all functions necessary to implement a binary FSK transceiver for such applications as 868/915MHz ISM-band handheld terminals for POS, meter-reading, bar-code reading; as well as other digital applications such as SMR. The part contains the input amplifier, mixer, IF limiting amplifier, phase detector, and an output Schmitt trigger to generate the FSK digital signal. The part operates from a 3V to 5V supply with no negative voltage required.



Package Style: SOP-16

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS



Functional Block Diagram

Features

- Single 3V to 5V Supply
- Fully Integrated FSK Receiver
- Direct Binary FSK Demodulation
- CMOS / TTL Output Levels
- 400MHz to 930MHz Operation
- RF9901 Compatible

Ordering Information

RF9902	FSK Receiver
RF9902 PCBA	Fully Assembled Evaluation Board, 915MHz

RF Micro Devices, Inc.
7625 Thorndike Road
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http://www.rfmd.com

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12 VCOs

Part	Description	Frequency (MHz)	Vcc (Volts)	Icc (mA)	Output Power (dBm)	Package	Page
RF2504	VCO/High-Isolation Buffer Amplifier	700 to 1500	2.2 to 5.0	5.5	-6	SOP-8	12-1
RF2506	VHF/UHF VCO/High-Isolation Buffer Amplifier	10 to 1000	2.7 to 3.6	9	-3	SOP-8	12-2

RF MICRO·DEVICES

Preliminary

RF2504

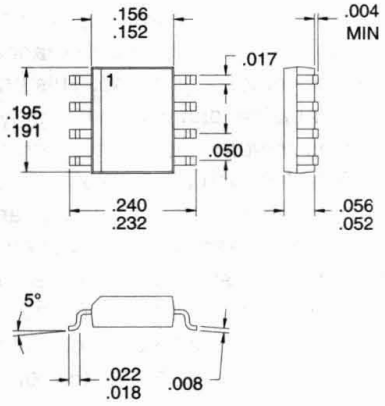
VCO/HIGH-ISOLATION BUFFER AMPLIFIER

Typical Applications

- 2-Way Paging
- ISM Band Systems
- Wireless Local Loop Systems
- GPS Receivers
- Cellular Systems
- Low Voltage Applications

Product Description

The RF2504 is an integrated oscillator and buffer amplifier chain designed to achieve extremely low sensitivity to fluctuations in load impedance and power supply noise, thereby greatly reducing load pulling and pushing. The IC offers great flexibility, yet is easy to use. This product was designed for use in applications with low supply voltages. It has a power-down feature and is designed to operate from 700MHz to 1500MHz with the help of an external resonator. Frequency control is achieved with an external varactor diode. The IC's ease of use, reduced load pulling, small size, and low cost make it an ideal LO (Local Oscillator) for almost any wireless application.



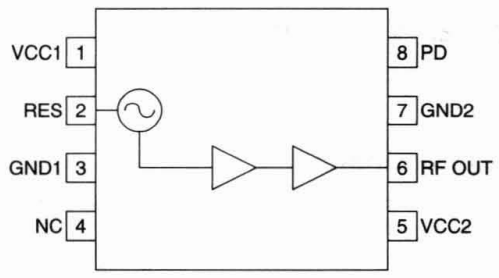
Package Style: SOP-8

Optimum Technology Matching® Applied

- ☑ Si BJT
- ☐ Si Bi-CMOS
- ☐ GaAs HBT
- ☐ SiGe HBT
- ☐ GaAs MESFET
- ☐ Si CMOS

Features

- High-Isolation / Reduced Load Pulling
- Low Current Consumption
- -6dBm Output Power
- Digitally Controlled Power Down Mode
- 700MHz to 1500MHz Operating Range
- Single 2.2V to 5V Supply



Functional Block Diagram

Ordering Information

RF2504	VCO/High-Isolation Buffer Amplifier
RF2504 PCBA	Fully Assembled Evaluation Board

RF Micro Devices, Inc.
7625 Thorndike Road
Greensboro, NC 27409, USA

Tel (336) 664 1233
Fax (336) 664 0454
http://www.rfmd.com

RF2506

VHF/UHF VCO/HIGH-ISOLATION BUFFER AMPLIFIER

Typical Applications

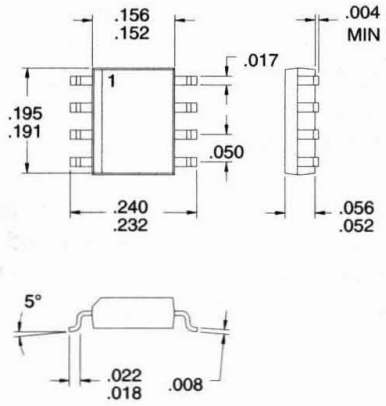
- Low Voltage
- Wireless LANs
- IF LO for 2.45GHz ISM Band Systems
- Wireless Local Loop
- Digital Cordless Phones

Product Description

The RF2506 is an integrated oscillator and buffer amplifier chain designed to achieve low sensitivity to fluctuations in load impedance and power supply noise, while maintaining superior phase noise performance. The IC offers great flexibility, yet is easy to use. This product was designed for use in applications with low supply voltages. It has a power-down feature and is designed to operate from 10MHz to 1000MHz with the help of an external resonator. Frequency control is achieved with an external varactor diode. The IC's ease of use, reduced load pulling, small size, and low cost make it an ideal LO (Local Oscillator) for wireless applications in the VHF/UHF range. The RF2506 was designed to operate with the 2.4GHz chipset; specifically with the IF portion of the RF2518 PLL/synthesizer.

Optimum Technology Matching® Applied

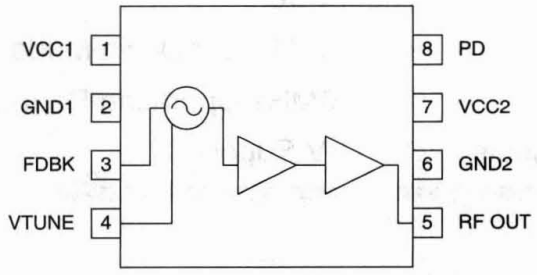
- ☐ Si BJT
- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☑ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Package Style: SOP-8

Features

- High-Isolation/Reduced Load Pulling
- Low Current Consumption
- -7dBm Output Power
- Digital Controlled Power Down Mode
- 10MHz to 1GHz Operating Range
- Single 2.7V to 3.6V Supply



Functional Block Diagram

Ordering Information

RF2506	VHF/UHF VCO/High-Isolation Buffer Amplifier
RF2506 PCBA	Fully Assembled Evaluation Board

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13 Technical Notes and Articles

See the RF Micro Devices, Inc.,

2000 Designer's Handbook or the 2000 CDROM.

14 Quality And Reliability

"Total Customer Satisfaction By Providing Products With Exceptional Quality, Reliability and Performance Standards"

Introduction

RF Micro Devices, an ISO9001 company, is committed to providing products of world class design, performance, reliability and quality. Our quality program includes conservative design techniques, extensive subcontractor and supply line management, comprehensive statistical process control, and 100 percent RF and DC test. Whether manufactured at our own GaAs HBT foundry, or one of our foundry partners, RF Micro Devices' rigorous attention to quality has resulted in a high level or customer satisfaction. Because of this, RF Micro Devices has become one of the world's fastest growing RF integrated circuit manufacturers.

ISO 9001

RF Micro Devices is ISO9001 certified. ISO9001 breaks a quality system down into 20 key areas, or sections. These sections form the framework for RF Micro Devices' successful quality system. ISO9001 offers something many other quality systems do not: stringent requirements on the key elements of quality program framework, combined with the flexibility to decide how to best implement that framework. For a copy of our Corporate Quality Manual, please contact your RF Micro Devices sales representative.

Designed-in Reliability

Our products are designed and developed using conservative design rules and cutting edge commercial and proprietary design tools. In order to assure strict compliance to foundry specifications, all designs are scrutinized using computerized, proprietary Design Rule Checks (DRC's). These checks help ensure high reliability and significant manufacturing margin. In addition, simulation tools evaluate circuit performance under worst-case conditions of temperature and process variation. In all cases, the designs are centered on standard foundry processes and tolerances, and do not require any product-specific process control or screening.

Sub-Contract

RF Micro Devices supplements its in-house capabilities by using qualified foundries and off-shore packaging and assembly operations. All outside suppliers are well established, certified facilities with exceptional quality programs. After the facilities pass RF Micro Devices' initial qualification process, the compliance of our vendors to performance and quality requirements is strictly monitored. Our compliance assurance program includes incoming inspection operations, as well as regular audits.

Production Test

High speed, automated IC handlers and test equipment are used to ensure consistent lot-to-lot product uniformity. All products are 100 percent tested at RF Micro Devices for critical RF and DC parameters. The goal for all products is to maintain a Cpk>1.5 relative to each critical product specification (corresponding to a 4.5 sigma distribution). All production test data is evaluated using standard SPC techniques and then archived for future use. Any control limit violations will alert our Production Test and Quality departments that corrective action is required.

Process Control Monitors

Process control monitors (PCMs) are used throughout the production process, including critical areas of fabrication, assembly, and electrical test. The table below shows electrical, mechanical, reliability, and environment stress control monitors used to monitor final packaged products. These and other monitors are used to ensure the quality of all products, to guide our quality improvement efforts, and to focus our energy on areas which can further enhance our process capabilities.

Process Control Monitor Testing

(these tests are subject to change without notice)

Thermal Shock Test, Liquid-to-Liquid

- 30 Cycles @ T = -45°C to +125°C, Dwell 5 Minutes @ Each Temperature
- MIL-STD-883, Method 1011, Condition B (M)
- Quarterly Per Package Family, Process Technology and Assembly Location

Pressure Pot Test

- Temperature = +121°C @ 2 ATM & 100% Relative Humidity For 96 Hours
- Quarterly Per Package Family, Process Technology and Assembly Location

Operating Lifetest

- Ambient Temperature = +150°C For 185 Hours(min) to 1000 Hours(max)
- Bi-Quarterly Per Assembly Location and Process Technology

Solderability
- MIL-STD-883 Method 2003
- Quarterly Per Package Family and Assembly Location

Resistance to Solvents
- MIL-STD-883 Method 2015
- Quarterly Per Package Family and Assembly Location

Lead Integrity
- MIL-STD-883 Method 2004
- Performed Bi-Quarterly Per Package Family and Assembly Location

Bond Strength
- MIL-STD-883 Method 2011
- Bi-Quarterly Per Package Family, Assembly Location, and Process Technology

ESD
- MIL-STD-883 Method 3015
- Yearly Per Process Technology and Foundry

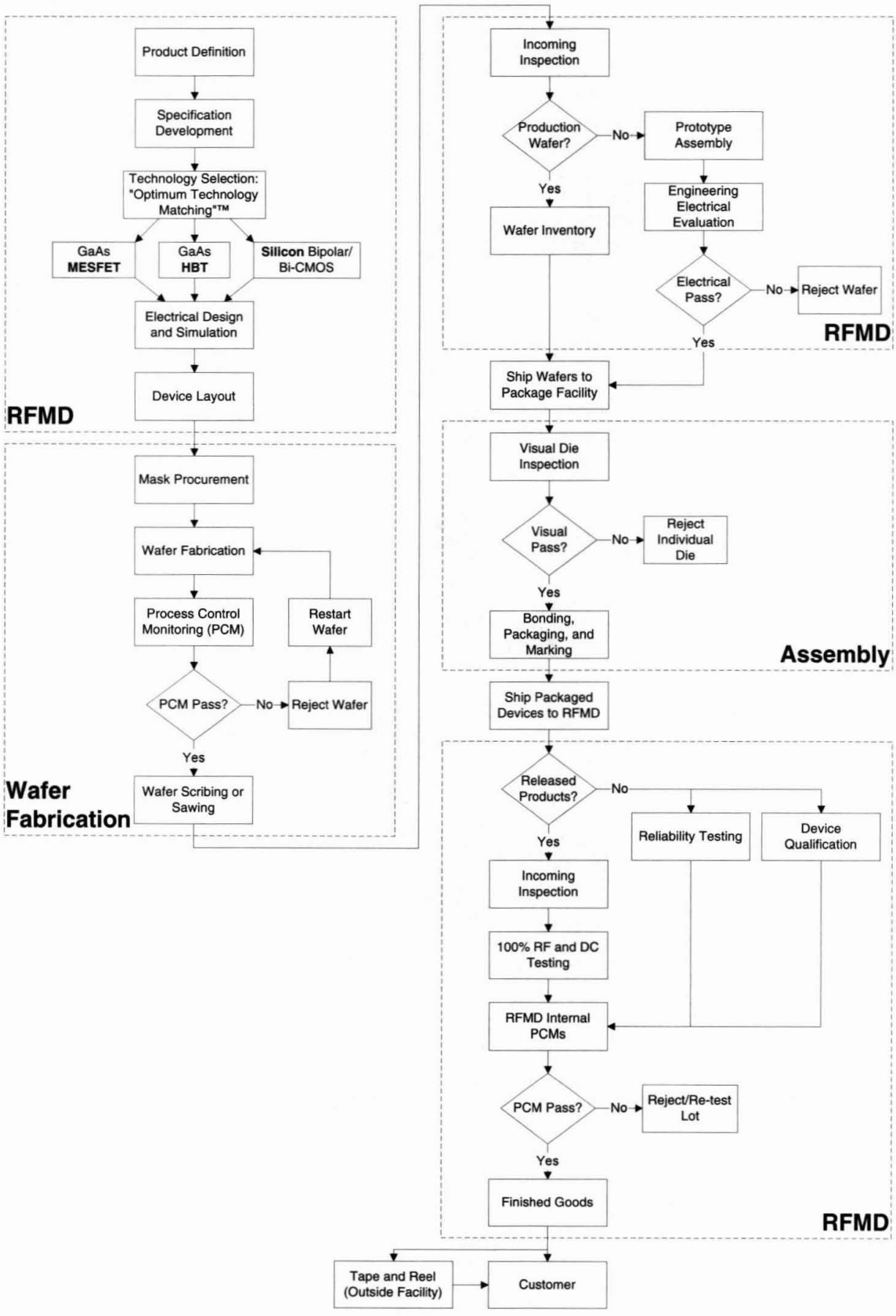
ESD

As with all high-performance integrated circuits, caution must be used when handling RF Micro Devices products. Without proper precautions, electrostatic discharge can be a major contributor to device failures.

Electrostatic discharge sensitivity (ESDS) is defined as the level of susceptibility of a device to damage by static electricity. The level of susceptibility of a device is found by ESDS classification testing, and is used as the basis for assigning an ESDS class. RF Micro Devices continually evaluates devices to determine the ESD sensitivity level. RF Micro Device's standard method of ESD testing is Human Body Model (HBM), although Charged Device Model (CDM) or Machine Model (MM) testing can be performed as well. Knowing the ESD sensitivity will enable the end user to asses the adequacy of work areas, shipping materials, storage materials, and production equipment used while handling RF Micro Devices parts. We recommend that all personnel wear conductive smocks, heel straps on both feet or conductive shoes, wrist straps (RF Micro Devices recommends the use of 3M 722 continuous monitor wrist straps), and antistatic hand lotion. Production facilities should have ESD safe floors, and all benches, chairs, and production equipment should be grounded. ESD generating materials (paper, glass, plastic, Scotch tape, styrofoam, etc.) should be kept out of ESD safe areas at all times. All employees should be soft grounded via a 1Mohm resistor, and all equipment should be hard grounded.

Continuous process improvement and the relentless drive to exceed customer quality and reliability needs is a critical part of our success. Please contact RF Micro Devices for more detailed information on our Quality Program.

MANUFACTURING PROCESS FLOW DIAGRAM



15 Sales and Ordering Information

Ordering Information

To order any product, obtain pricing information, or for additional applications information, please contact your local factory sales representative *or RFMD customer service*. Listings of both domestic and international sales representatives are provided in the Sales Information section of this catalog.

Purchase orders may be faxed to RF Micro Devices at (336) 664-0454, or may be sent to your local representative. In either case, the original copy of the purchase order should be sent to the factory as confirmation. If you are a new customer, we ask that you include a copy of your credit references when initially placing your order.

Standard terms are net 30. Payment may be made by check payable to RF Micro Devices, Inc. We also accept VISA, MasterCard, American Express, Discover, bank draft and money orders.

Delivery is FOB Greensboro, North Carolina.

Availability

To support pre-production, off-the-shelf delivery is available on all standard products. Evaluation boards with matching components and SMA connectors are available for a nominal fee. Samples of all products are also available for immediate evaluation. Prototype parts are sometimes not available as samples or for orders; please contact your local factory sales representative or RFMD customer service to ascertain availability.

Sample Requests

Requests for samples and evaluation boards should be placed through the Customer Service Department.

PRODUCT WARRANTY AND DISCLAIMER INFORMATION

Warranty

RF Micro Devices warrants its products to be free from defects in materials and workmanship under proper use in normal conditions for a period of one year from the date of shipment. Return of product in question should be made prepaid to RF Micro Devices for evaluation. If product is found to be defective, RF Micro Devices will repair or replace, at its option, said defective product. This warranty does not apply to products which have been disassembled, modified, or subjected to conditions exceeding the application specifications.

Disclaimer

RF Micro Devices reserves the right to change circuit designs or specifications at any time without notice. It is the user's responsibility to verify that the information in this publication is current at the time of placing orders. The applications information included herein is intended solely for general guidance and information. Use of these devices in a user's specific application is at the user's own risk.

RF Micro Devices believes the furnished information is correct and accurate at the time of this printing. However, RF Micro Devices reserves the right to make changes to its products without notice. RF Micro Devices does not assume responsibility for the use of the described product(s). These products should not be used in critical life support devices or systems.

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