SERIES HGM & HGV CW & VCO GUNN OSCILLATORS

DESCRIPTION:

The HGM and HGV series Gunn Oscillators cover the range from 18 – 100 GHz. A wide variety of designs provide the designer with a solution for most applications to meet customer specific requirements. Units are available with mechanical and electrical tuning and both mechanically tuned and varactor tuned designs are available with wide tuning bandwidths. Superior frequency and power stability are achieved using cavity design and diode selection. Heaters can be provided to achieve greater frequency stability.

GaAs and InP gunns are used depending on the performance requirement. Cavity designs are mated with the proper Gunn diode to maximize performance. Gunn oscillators are used as sources for mixer LO's, to drive multipliers, transmitters, and radars. Options include voltage regulators, hybrid heaters, isolators, heat sinks, and thermal barriers.

Applications:

Transmitters

Local Oscillators

Transceivers

Radar Sources

Features:

Low Phase Noise

High Stability

High Output Power

Rugged Construction

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Specifications @ 35^{0}C T_{CASE}, Specifications subject to change w/o notice.

Waveguide	Frequency Range (GHz)	Mechanical Tuning Maximum (MHz)	Standard Flange	Power (1) Maximum (mW)	Frequency Stability (MHz/^{O}C) (typ)	Bias Voltage (typ)	Bias Current Amps (typ)
WR – 90 / 112	7.00 – 12.4	500	UG–39/U	400	-0.5	+10.0	1.3
WR – 62	12.4 –18.0	500	UG–419/U	350	-0.7	+8.0	1.3
WR – 42	18.0 – 26.5	500	UG–595/U	250	-0.8	+7.0	1.2
WR – 28/22	26.5 – 40.0	500	UG–599/U	200	-0.9	+6.5	1.1
WR – 22/19	40.0 – 45.0	500	UG–599/U	170	-0.9	+6.5	1.1
WR – 22/19	45.0 – 50.0	500	UG–599/U	150	-1.0	+6.0	1.0
WR – 19/15	50.0 – 55.0	400	UG–599/U	100	-1.8	+6.0	1.0
WR – 19/15	55.0 – 60.0	400	UG–599/U	90	-2.5	+5.5	0.9
WR – 15/12	60.0 – 65.0	400	UG–385/U	80	-3.0	+5.0	0.8
WR – 15/12	65.0 – 70.0	400	UG–385/U	60	-3.2	3.5-7.0	0.7
WR – 12	70.0 – 75.0	300	UG–387/U	60	-3.5	3.5-7.0	0.7
WR – 12/10	75.0 – 80.0	300	UG–387/U-M	60	-4.0	3.5-7.0	0.7
WR – 12/10	80.0 – 85.0	200	UG–387/U-M	60	-4.0	+5.0	0.7
WR – 12/10	85.0 – 90.0	200	UG–387/U-M	50	-4.5	+4.5	0.7
WR – 12/10	90.0 – 95.0	200	UG–387/U-M	40	-5.0	+4.0	0.7
WR – 12/10	95.0 – 100.0	200	UG–387/U-M	30	-6.0	+4.0	0.7
WR – 12/10	100.0 – 110.0	200	UG–387/U-M	consult	factory	consult	factory

Notes:
1. Power & bias shown for GaAs gunns, consult factory for InP data.
2. Current is dependent on output power required.
3. Typical capabilities shown, consult factory with exact requirement.

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Specifications @ 35^{0}C T_{CASE}, Specifications subject to change w/o notice.

Waveguide	Frequency Range (GHz)	Maximum Power Vs Elec. tuning 50 MHz 500 MHz	Standard Flange	Varactor Tuning (V)	Frequency Stability (MHz/^{O}C) (typ)	Bias Voltage (typ)	Bias Current Amps (typ)
WR – 90 / 112	7.00 – 12.4	300 150	UG–39/U	0 - 25	-0.5	+10.0	1.3
WR – 62	12.4 –18.0	300 150	UG–419/U	0 - 25	-0.7	+8.0	1.3
WR – 42	18.0 – 26.5	250 100	UG–595/U	0 - 25	-0.8	+7.0	1.2
WR – 28/22	26.5 – 40.0	200 100	UG–599/U	0 - 25	-0.9	+6.5	1.1
WR – 22/19	40.0 – 45.0	160 70	UG–599/U	0 - 25	-1.3	+6.0	1.0
WR – 22/19	45.0 – 50.0	130 70	UG–599/U	0 - 25	-1.3	+6.0	1.0
WR – 19/15	50.0 – 55.0	100 60	UG–599/U	0 - 25	-1.8	+6.0	1.0
WR – 19/15	55.0 – 60.0	80 60	UG–599/U	0 - 25	-2.5	+5.5	0.9
WR – 15/12	60.0 – 65.0	80 45	UG–385/U	0 - 25	-3.0	+5.0	0.8
WR – 15/12	65.0 – 70.0	60 45	UG–385/U	0 - 25	-3.5	3.5-7.0	0.7
WR – 12	70.0 – 75.0	60 40	UG–387/U	0 - 25	-4.0	3.5-7.0	0.7
WR – 12/10	75.0 – 80.0	50 30	UG–387/U-M	0 - 25	-4.5	3.5-7.0	0.7
WR – 12/10	80.0 – 85.0	50 30	UG–387/U-M	0 - 25	-5.0	+5.0	0.7
WR – 12/10	85.0 – 90.0	40 25	UG–387/U-M	0 - 25	-6.0	+4.5	0.7
WR – 12/10	90.0 – 95.0	40 25	UG–387/U-M	0 - 25	-7.0	+4.0	0.7
WR – 12/10	95.0 – 100.0	30 20	UG–387/U-M	0 - 25	-8.0	+4.0	0.7
WR – 12/10	100.0 – 110.0		UG–387/U-M	consult	factory	consult	factory

Notes:
1. Power & bias shown for GaAs gunns, consult factory for InP data.
2. Current is dependent on output power required.
3. Typical capabilities shown consult factory with exact requirement.

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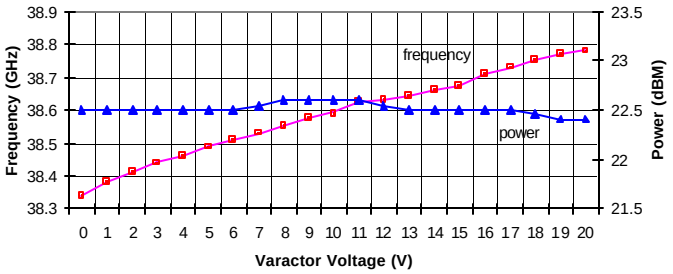
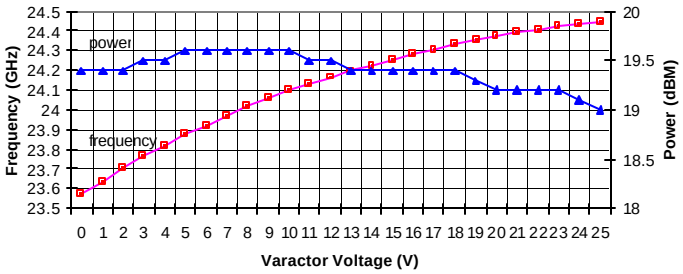
Typical Data on HGM and HGV Gunn Oscillators

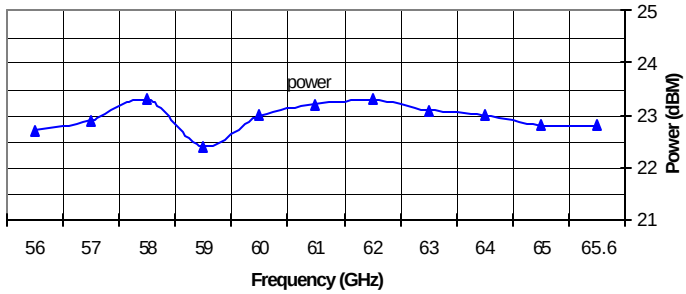
Power & Frequency vs Tuning Voltage
HGV38.5242228 GaAs VCO
38.5 GHz 160 mW



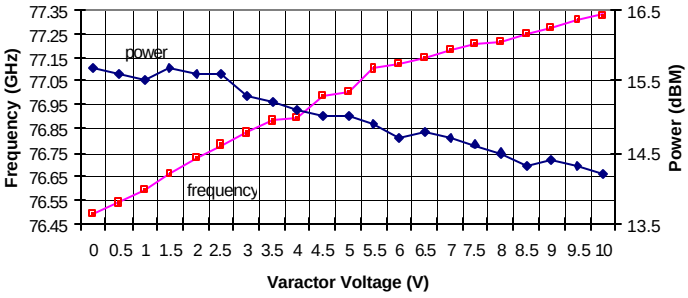
Power & Frequency vs Tuning Voltage
HGV24.1041742 GaAs VCO
24.125 GHz 50 mW 800 MHZ Etune



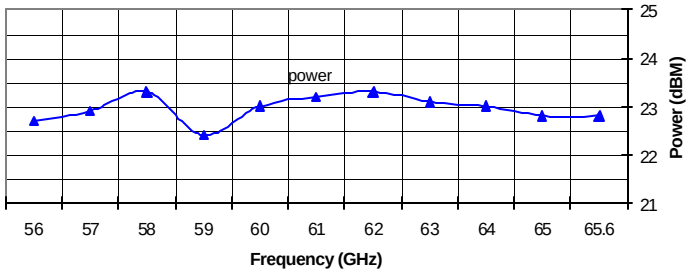
Power & Frequency vs Mechanical Tuning
HGM63.7202015 InP CW Gunn Oscillator
60 GHz @ 200 mW Power With 7 GHz Bandwidth



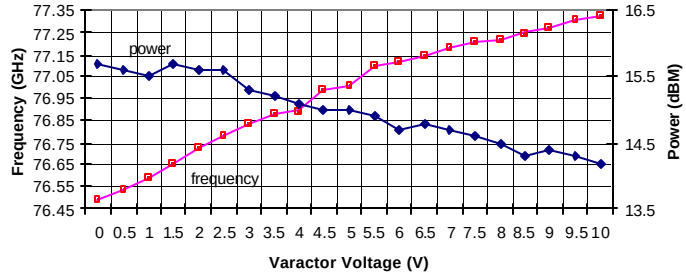
Power & Frequency vs Tuning Voltage
HGV77.0141510 GaAs VCO
77.0 GHz



Power & Frequency vs Mechanical Tuning
HGM63.7202015 InP CW Gunn Oscillator
60 GHz @ 200 mW Power With 7 GHz Bandwidth



Power & Frequency vs Tuning Voltage
HGV77.0141510 GaAs VCO
77.0 GHz



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Ordering Information

Mechanically Tuned Gunn Oscillator: HGMXX.XMDBWG O

Varactor Tuned Gunn Oscillator: HGVXX.XMVDBWG O

Standard Bias: Filtercon for Gunn Bias, SMA F for Varactor Bias

RF Frequency: XX.X = Frequency in GHz

M = Mechanical Tuning Range		V = Varactor Tuning Range	
O:	Fixed Frequency	1:	50 MHz
1:	± 100 MHz	2:	100 MHz
2:	± 250 MHz	3:	200 MHz
3:	± 500 MHz	4:	350 MHz
4:	± 750 MHz	5:	500 MHz
5:	± 1000 MHz	6:	750 MHz
6:	± 1500 MHz	7:	1000 MHz
7:	± 2000 MHz	5:	1500 MHz
8:	± 2500 MHz	6:	2000 MHz
9:	± 3000 MHz	7:	3000 MHz

DB = OUTPUT POWER IN dBM

WG = Output Waveguide

O = Options

I = Integral Isolator	R = Voltage Regulator
H = +28 VDC Heater	MT = Micrometer Frequency Tuner
HS = Heat Sink	/383 = UG-383 Flange Option

EXAMPLE: HGV59.5242015IRH is a varactor-tuned vco at 59.5 GHz with ± 250 MHz of mechanical tuning, 350 MHz of varactor tuning, +20 dBM of power, a WR-15 output waveguide, with an isolator, voltage regulator, and a heater.

HGV	59.5	2	4	20	15	IRH
✕	✕	✕	✕	✕	✕	✕
SERIES	FREQ (GHz)	MTUNE	VTUNE	POWER (dBM)	WAVEGUIDE (WR-XX)	OPTIONS A/R

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