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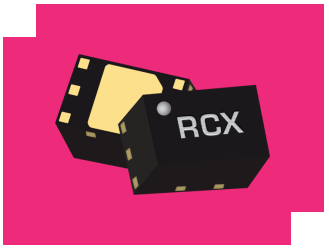
ATN20-0040PSM

20dB DC-40GHz MMIC Attenuator

DEVICE OVERVIEW

General Description

The ATN20-0040PSM is a surface mount GaAs MMIC 20dB attenuator in a DFN package. This attenuator is an ideal solution for attenuating a signal and can be used in a wide range of applications. The compact DFN package allows for extreme miniaturization of SMT footprint making this attenuator suitable for low SWaP applications. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low-cost form factor. A 50-ohm match is maintained over the entire operating frequency range.



Download s-parameters here

Features

- Small 1.3 x 2.0 mm package size
- 20dB attenuation from DC to 40 GHz
- 22dB typical return loss over operating band
- Low SWaP

Applications

- 5G
- Test Equipment
- Precision Characterization
- Airborne Applications
- Amplitude Matching
- High Channel Count Systems

Functional Block Diagram

Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
ATN20-0040PSM	20dB DC-40GHz MMIC Attenuator	DFN	RoHS REACH	Released	EAR99
EVB-ATN20-0040P	Evaluation Board, 20dB DC-40 GHz Attenuator	EVB	REACH RoHS	Released	EAR99

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Revision History

Revision Code	Revision Date	Comment
-	2024-02-29	Datasheet Initial Release

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Port Configuration and Functions

Port Diagram

A top-down x-ray view of the package outline drawing is shown below.

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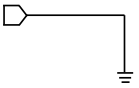
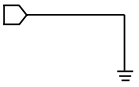
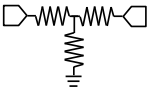
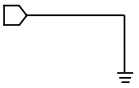
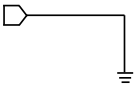
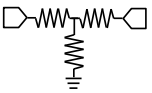
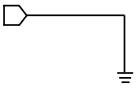
Port Functions

Port	Function	Description	Equivalent Circuit for Package
GND	Ground	DFN package ground path is provided through the ground paddle.	
Pin 1	Non-connect (NC)	Pin 1 is not connected internally and can be tied to RF ground.	
Pin 2	Input/Output	Pin 2 and Pin 5 are DC connected to each other and ground through a T-network of resistors.	
Pin 3	Non-connect (NC)	Pin 3 is not connected internally and can be tied to RF ground.	
Pin 4	Non-connect (NC)	Pin 4 is not connected internally and can be tied to RF ground.	
Pin 5	Input/Output	Pin 2 and Pin 5 are DC connected to each other and ground through a T-network of resistors.	
Pin 6	Non-connect (NC)	Pin 6 is not connected internally and can be tied to RF ground.	

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Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
DC Current	100	mA
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power	2	W

Package Information

Parameter	Details	Rating
Dimensions	-	2.0 x 1.3 mm

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Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a PSM package with a sine wave input applied to pin 2.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	-	0	40	-	20	-	dB
Attenuation Accuracy	-	0	40	-	0.6	-	dB
Return Loss	-	0	40	15	22	-	dB
Impedance	-	0	40	-	50	-	Ω

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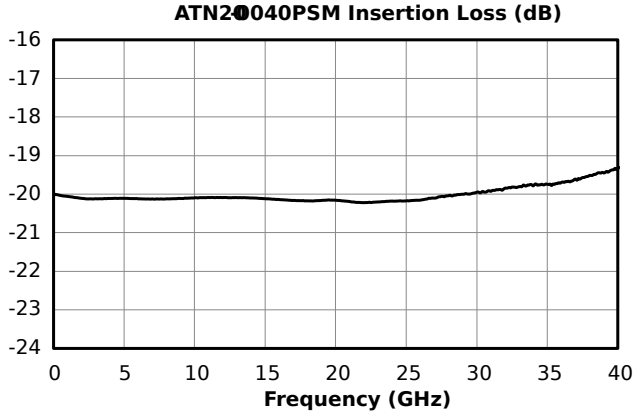
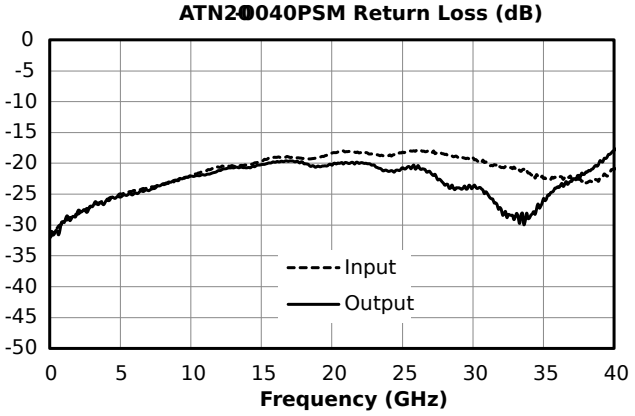
Typical Performance Plots

Measured data is de-embedded from evaluation fixture using AFR.





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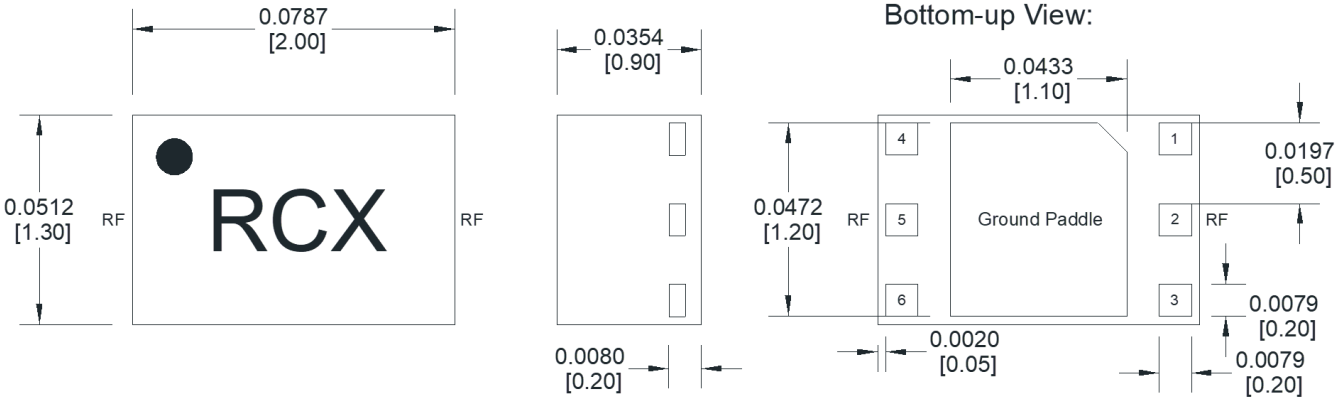
Mechanical Data

Outline Drawing

PROJECTION INCH [MM]

All dimensions are typical



Pin #	Port
1	GND
2	RF
3	GND
4	GND
5	RF
6	GND

Notes (unless otherwise specified):

1. Substrate material is LCP.
2. I/O Leads and Die Paddle are 0.05 micron Au over 0.02 microns Pd over 0.5 microns Ni.
3. All unconnected pins should be connected to PCB RF ground.

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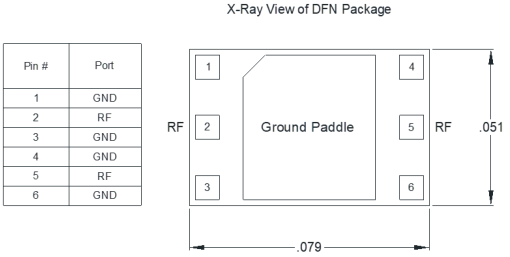
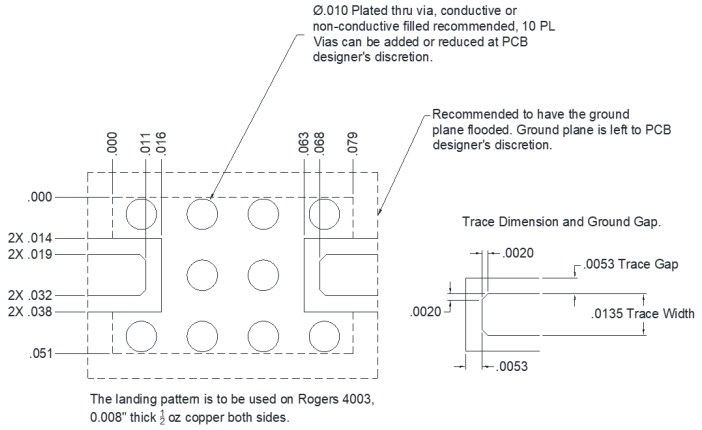
Footprint Image

Pin #	Port
1	GND
2	RF
3	GND
4	GND
5	RF
6	GND





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