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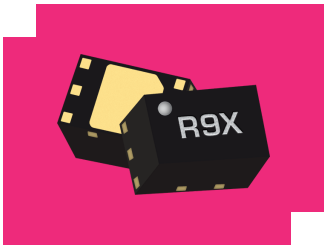
ATN09-0040PSM

9dB DC-40GHz MMIC Attenuator

DEVICE OVERVIEW

General Description

The ATN09-0040PSM is a surface mount GaAs MMIC 9dB 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
- 9dB attenuation from DC to 40 GHz
- 20dB 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
ATN09-0040PSM	9dB DC-40GHz MMIC Attenuator	DFN	RoHS REACH	Released	EAR99
EVB-ATN09-0040P	Evaluation Board, 9dB DC-40 GHz Attenuator	EVB	REACH RoHS	Released	EAR99

Table Of Contents

Revision History

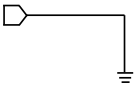
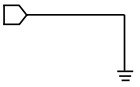
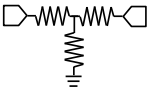
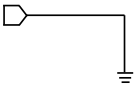
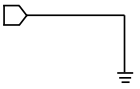
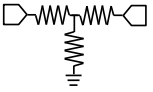
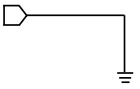
Revision Code	Revision Date	Comment
-	2024-02-29	Datasheet Initial Release
A	2026-03-02	ESD Class Added

Port Configuration and Functions

Port Diagram

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

Port Functions

Port	Function	Description	DC Equivalent Circuit
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.	

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 Handling	2	W

Package Information

Parameter	Details	Rating
ESD	1000 to < 2000 Volts	HBM Class 1C
Dimensions	-	2.0 x 1.3 mm
Moisture Sensitivity Level	-	MSL 1

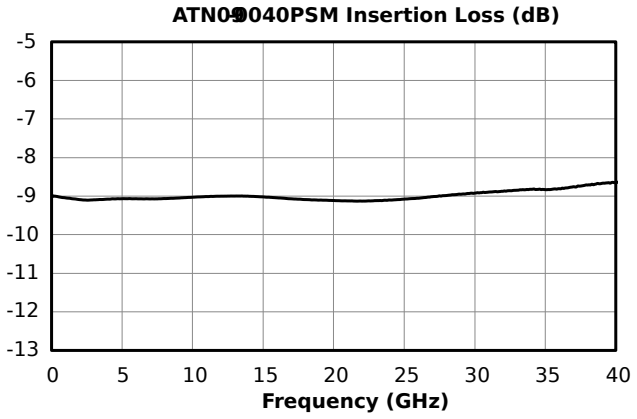
Electrical Specifications

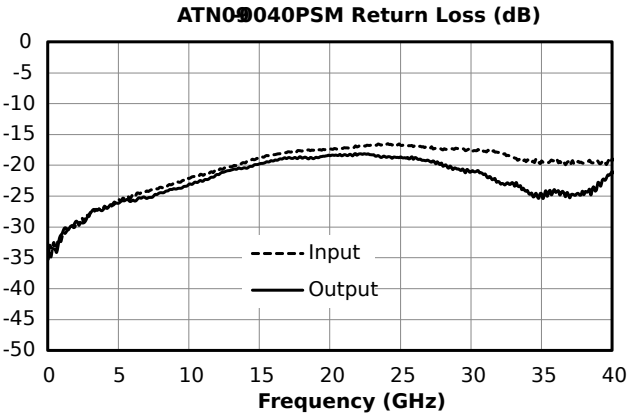
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a PSM package with a sine wave input applied to pin 2.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	-	0	40	-	9	-	dB
Attenuation Flatness	-	0	40	-	0.3	-	dB
Impedance	-	0	40	-	50	-	Ω
Return Loss	-	0	40	12	20	-	dB

Typical Performance Plots

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

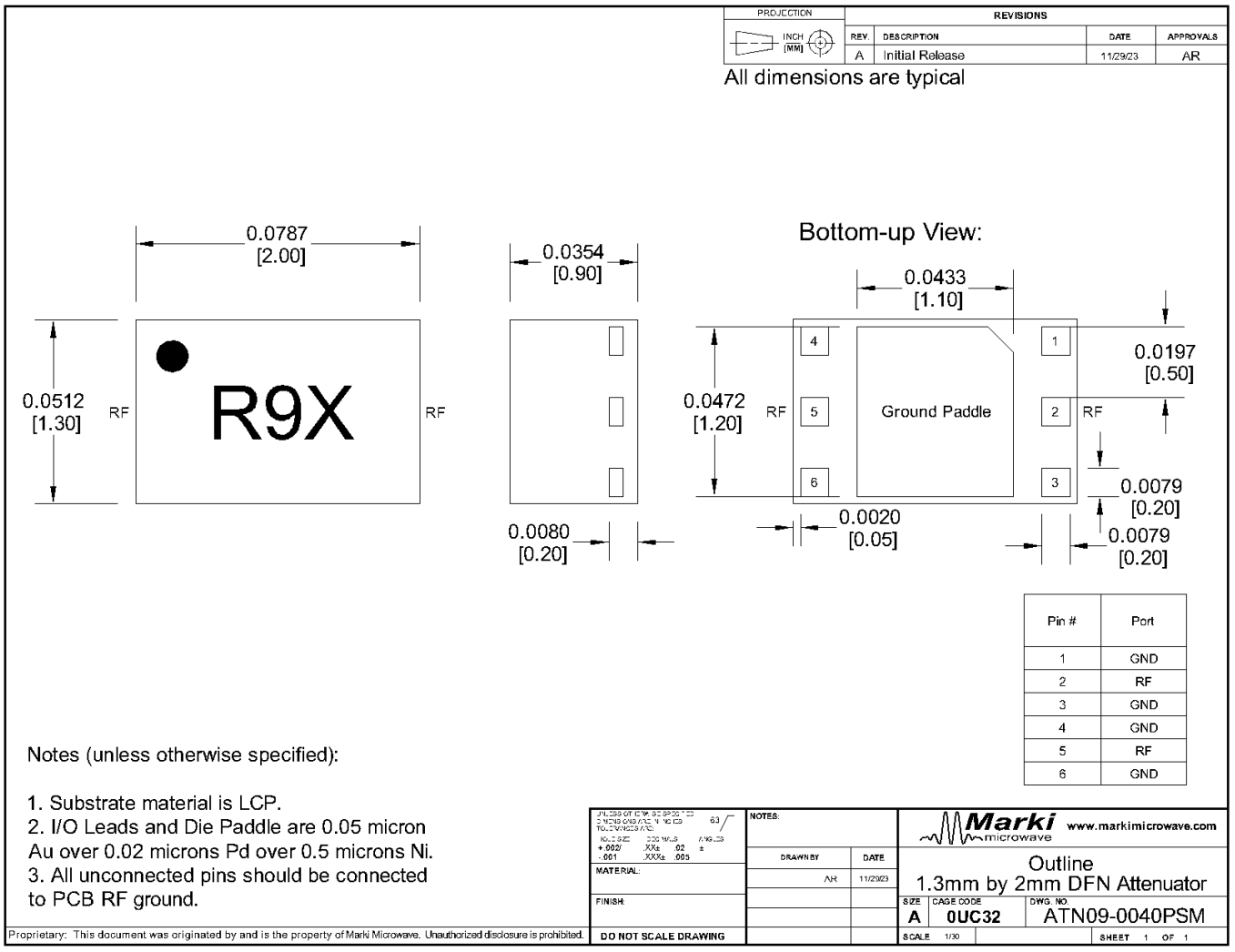




Mechanical Data

Outline Drawing

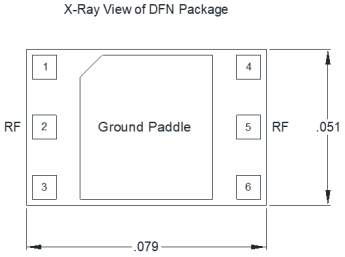
Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP

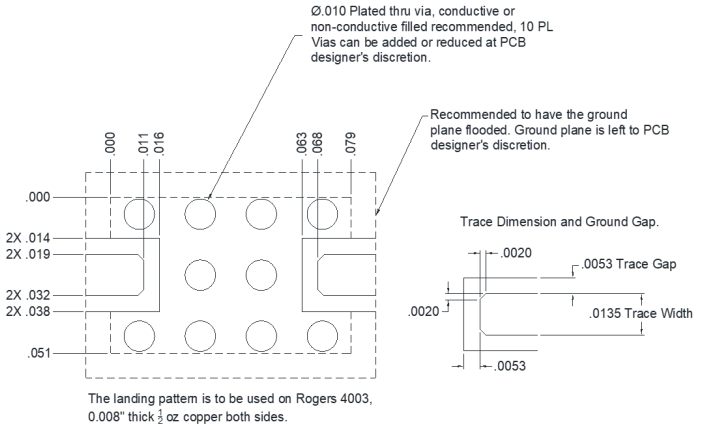


Footprint Image

Download : Footprint Drawing

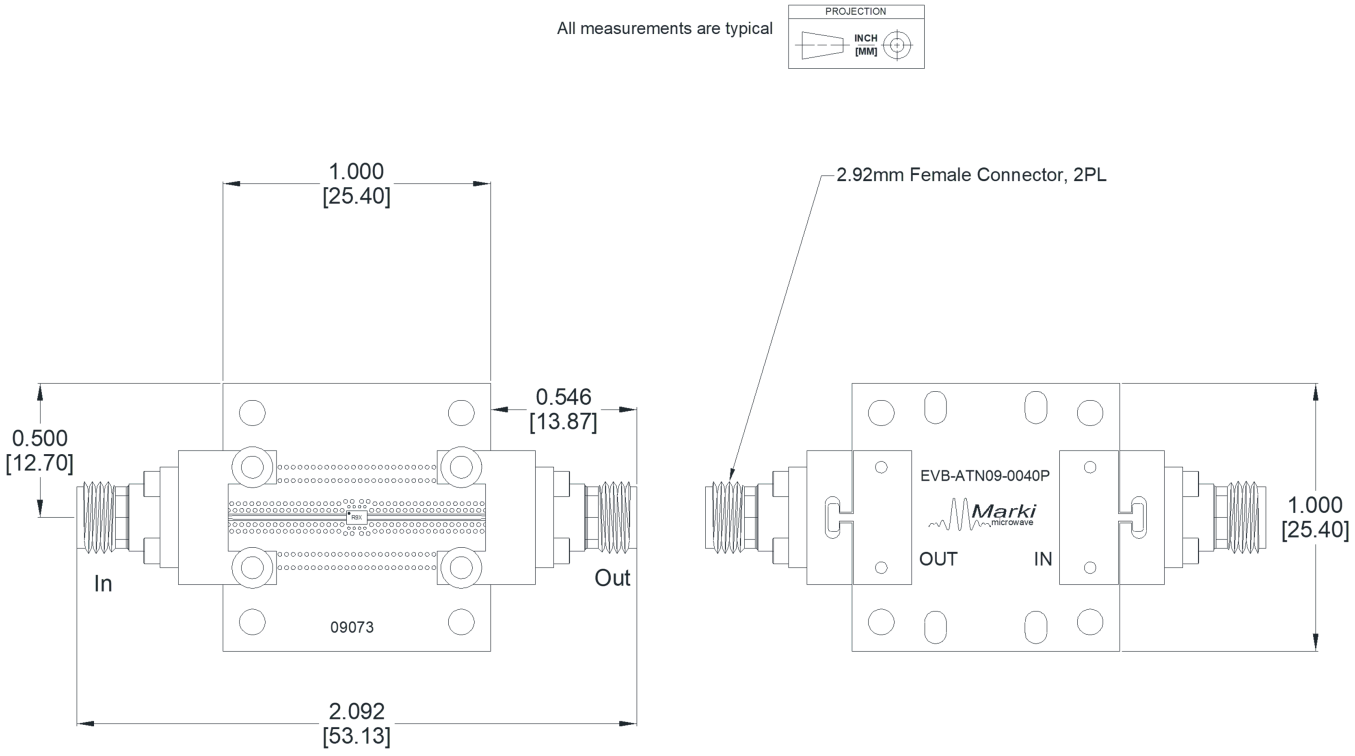
Pin #	Port
1	GND
2	RF
3	GND
4	GND
5	RF
6	GND





Evaluation Board - Outline Drawing

All measurements are typical



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