

ATN10-0050CSP1

Chip Scale Package MMIC 50 GHz 10dB Attenuator

DEVICE OVERVIEW

General Description

The ATN10-0050CSP1 is a surface mount GaAs MMIC 10dB attenuator in a chip scale package (CSP1). This attenuator is an ideal solution for attenuating a signal and can be used in a wide range of applications. The CSP1 allows for extreme miniaturization of SMT footprint while providing die-like performance. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low-cost form factor. Compensates for high frequency board losses with a positive gain slope. A 50-ohm match is maintained over the entire operating frequency range.



[Download s-parameters here](#)

Features

- Small 1.5 x 1.5 mm package size
- 10dB attenuation from DC to 50 GHz
- 24dB typical return loss over operating band
- 1W RF Power
- This product embodies Marki Microwave's U.S. Pat. 11,869,858.

Applications

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

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification	Recommended Replacement
ATN10-0050CSP1	Chip Scale Package MMIC 50 GHz 10dB Attenuator	CSP1	RoHS REACH	Not Recommended for New Design	EAR99	ATN10-0070CSP1
EVB-ATN10-0050	Evaluation Board, Chip Scale Package MMIC 50 GHz 10dB Attenuator	EVB	REACH RoHS	Released	EAR99	-

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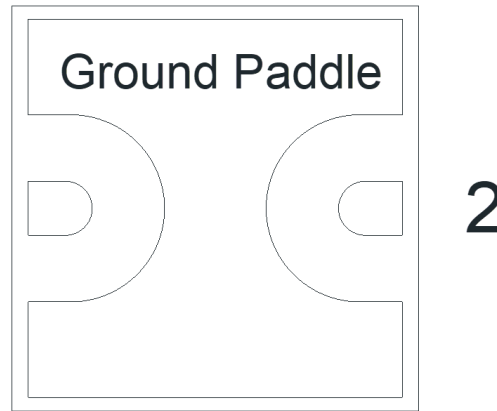
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Revision History

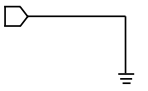
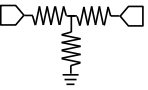
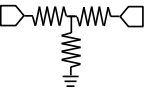
Revision Code	Revision Date	Comment
-	2022-08-11	Initial Release
A	2025-04-15	NRND

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	DC Equivalent Circuit
Ground Paddle	Ground	CSP package ground path is provided through the ground paddle.	
Pin 1	Input/Output	Pin 1 and Pin 2 are DC connected to each other and ground through a T-network of resistors.	
Pin 2	Input/Output	Pin 1 and Pin 2 are DC connected to each other and ground through a T-network of resistors.	

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
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling	1	W

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	1.5 x 1.5 mm
Moisture Sensitivity Level	-	MSL 3

NOT RECOMMENDED FOR NEW DESIGN

Electrical Specifications

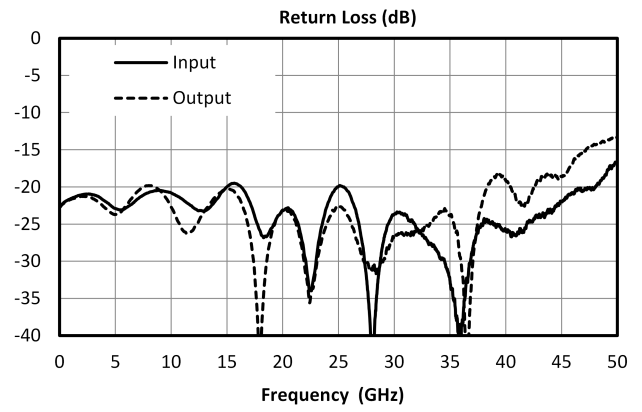
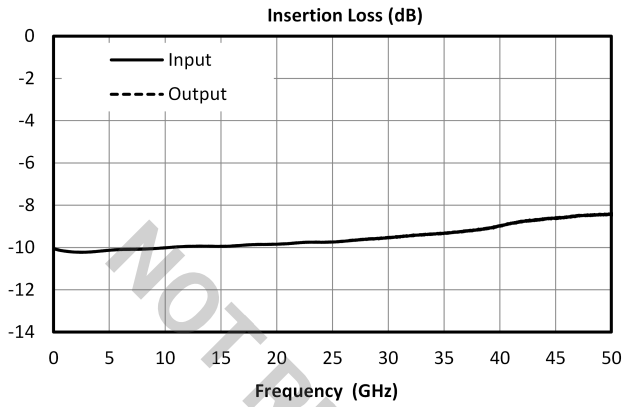
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a CSP package with a sine wave input applied to port 1.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	-	30	50	-	9	-	dB
Attenuation	-	0	30	-	10	-	dB
Return Loss	-	0	40	15	24	-	dB
Return Loss	-	40	50	-	18	-	dB

NOT RECOMMENDED FOR NEW DESIGN

Typical Performance Plots

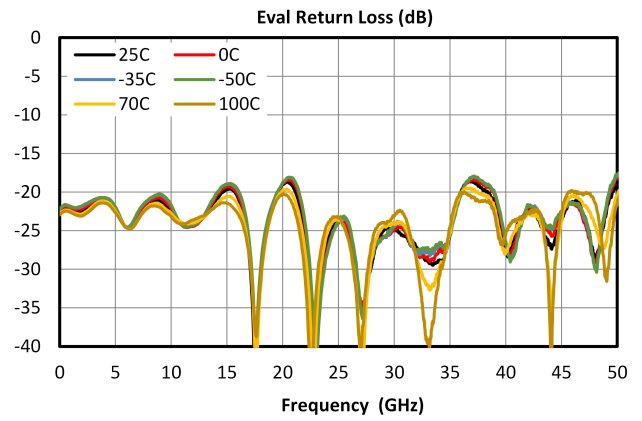
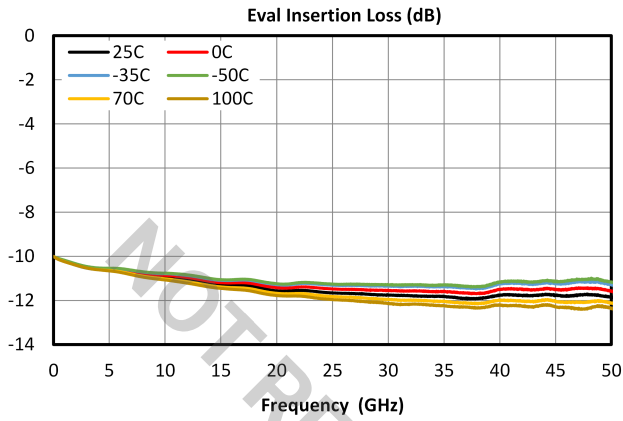
Electrical Performance Data is de-embedded to the CSP package ports



NOT RECOMMENDED FOR NEW DESIGN

Electrical Performance Over Temperature

Evaluation board performance is shown as a proxy for device performance due to fixturing variability over temperature



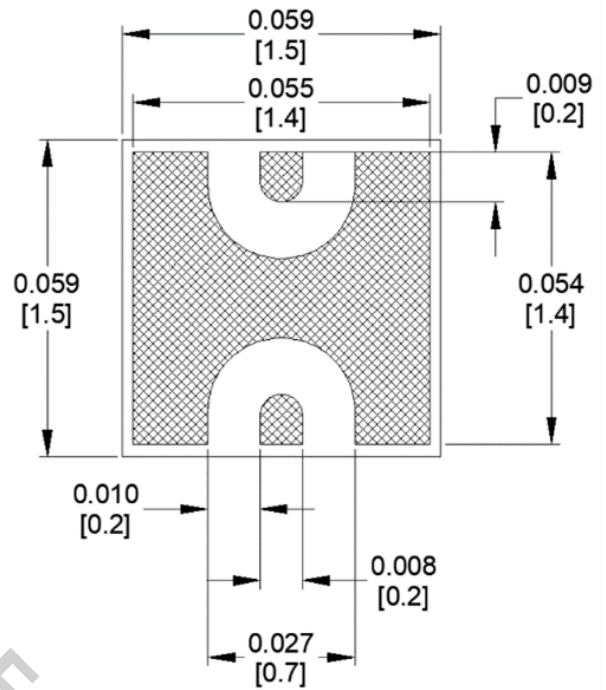
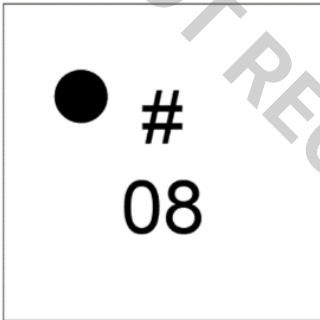
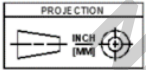
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Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)

All measurements are typical



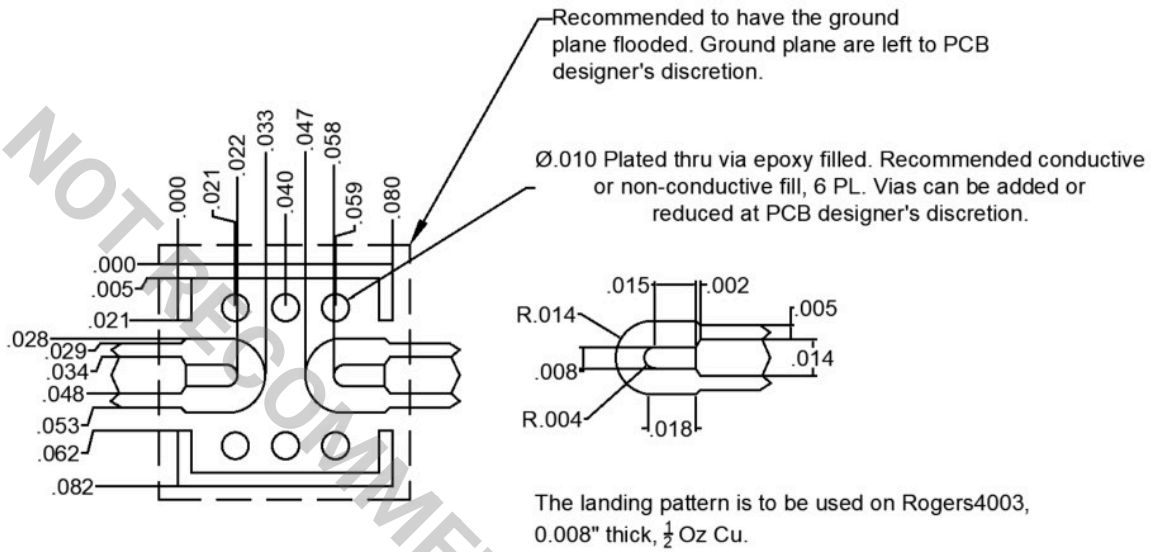
NOT RECOMMENDED FOR NEW DESIGN

ATN10-0050CSP1

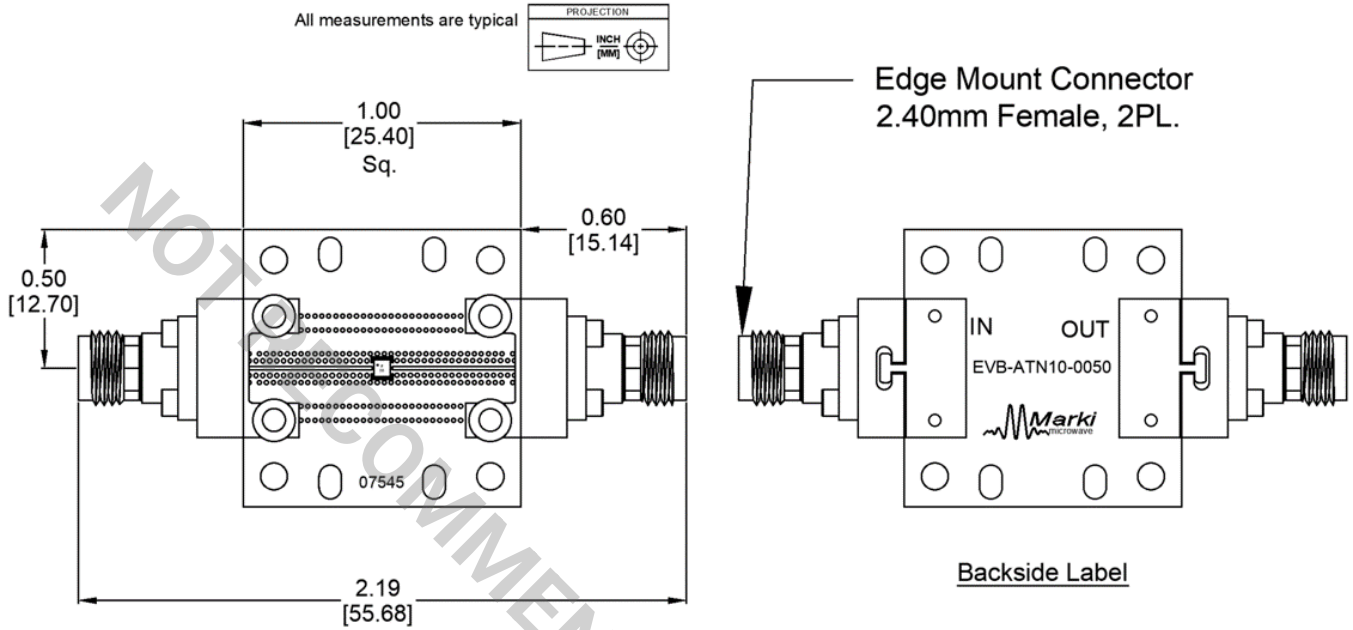
Chip Scale Package MMIC 50 GHz 10dB
Attenuator

Footprint Image

Download : [Footprint Drawing](#)



Evaluation Board - Outline Drawing



Unless otherwise specified, dimensions are in inches. Tolerances are:

.XX	±.02
.XXX	±.005

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