

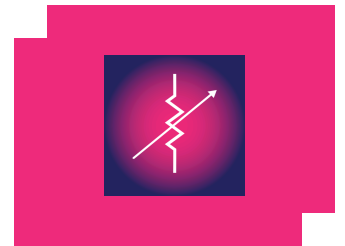
ATN09-0070CSP1

Chip Scale Package MMIC 70 GHz 9dB Attenuator

DEVICE OVERVIEW

General Description

The ATN09-0070CSP1 is a surface mount GaAs MMIC 9dB attenuator in a chip scale package (CSP). This attenuator is an ideal solution for attenuating a signal and can be used in a wide range of applications. The CSP 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.



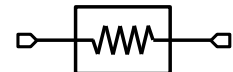
Features

- Small 1.5 x 1.5 mm package size
- 9 dB attenuation from DC to 70 GHz
- ? dB typical return loss over operating band
- ? W RF Power Handling
- Low SWaP
- This product embodies Marki Microwave's U.S. Pat. 11,869,858.

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
ATN09-0070CSP1	Chip Scale Package MMIC 70 GHz 9dB Attenuator	CSP1	REACH RoHS	Pre-release	EAR99

Table Of Contents

■ Device Overview	■ Revision History
General Description	■ Specifications
Features	Absolute Maximum Ratings
Applications	Package Information
Functional Block Diagram	Electrical Specifications
■ Port Configuration and Functions	Typical Performance Plots
Port Diagram	■ Footprint Image
Port Functions	■ Evaluation Board

Revision History

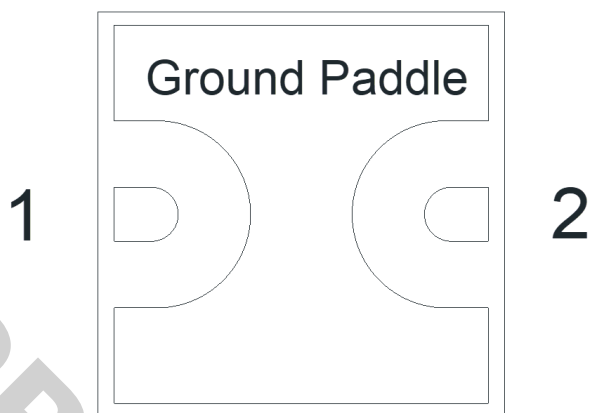
Revision Code	Revision Date	Comment
G1	2024-12-11	Pre-Release

ATN09-0070CSP1

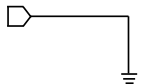
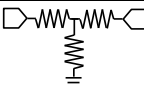
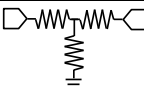
Chip Scale Package MMIC 70 GHz 9dB
Attenuator

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	Equivalent Circuit for Package
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.	

ATN09-0070CSP1**Chip Scale Package MMIC 70 GHz 9dB
Attenuator****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

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a CSP1 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	70	-	2	-	dB
Attenuation	-	0	30	-	2.85	-	dB
Impedance	-	0	70	-	50	-	Ω
Return Loss	-	0	40	13	20	-	dB
Return Loss	-	40	70	-	15	-	dB

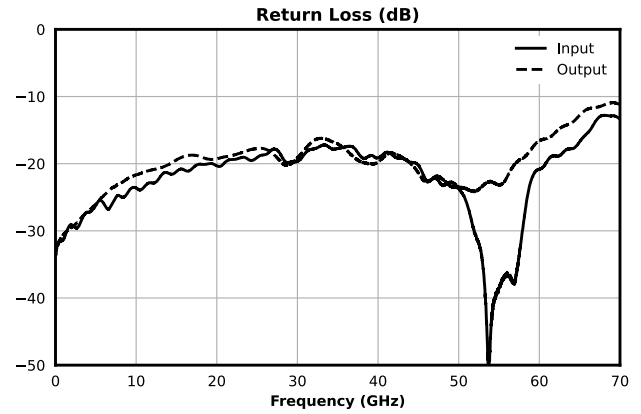
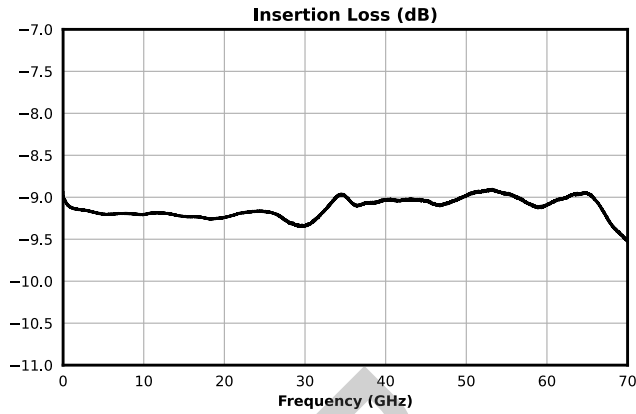
PRE-RELEASE

ATN09-0070CSP1

Chip Scale Package MMIC 70 GHz 9dB
Attenuator

Typical Performance Plots

Electrical performance data is de-embedded to the CSP package ports.

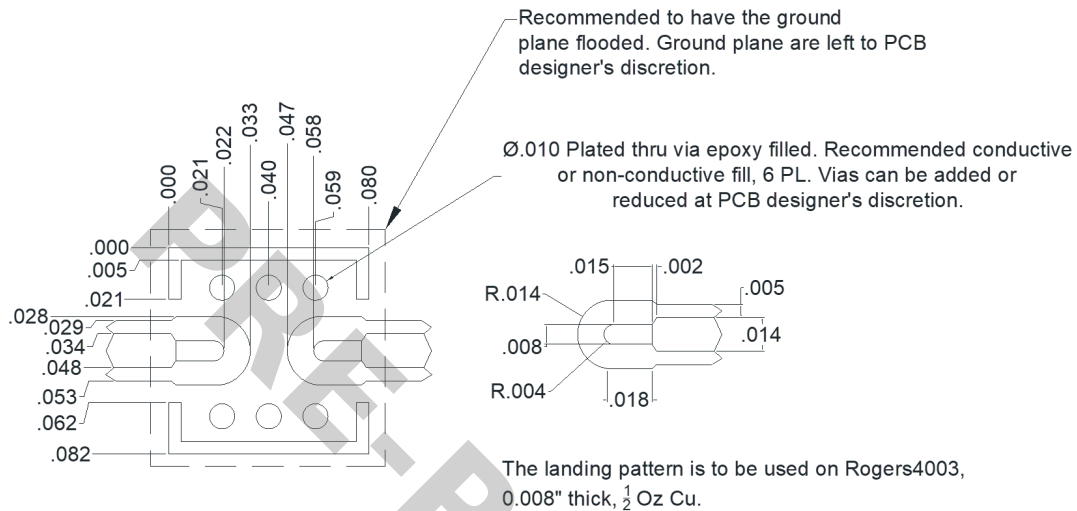


ATN09-0070CSP1

Chip Scale Package MMIC 70 GHz 9dB
Attenuator

Footprint Image

Download : [Footprint Drawing](#)



DISCLAIMER

MARKI MICROWAVE, INC., ("MARKI") PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES "AS IS" AND WITH ALL FAULTS. MARKI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art designing with Marki products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. Marki makes no guarantee regarding the suitability of its products for any particular purpose, nor does Marki assume any liability whatsoever arising out of your use or application of any Marki product. Marki grants you permission to use these resources only for development of an application that uses Marki products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Marki intellectual property or to any third-party intellectual property. Marki reserves the right to make changes to the product(s) or information contained herein without notice.

MARKI MICROWAVE and T3 MIXER are trademarks or registered trademarks of Marki Microwave, Inc. All other trademarks used are the property of their respective owners.

© 2024, Marki Microwave, Inc.

PRE-RELEASE