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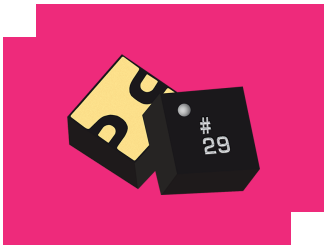
ATN02-0070CSP1

Chip Scale Package MMIC DC - 70 GHz 2dB Attenuator

DEVICE OVERVIEW

General Description

The ATN02-0070CSP1 is a surface mount GaAs MMIC 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 ATN02-0070CSP1 features a typical 2.1 dB attenuation with 0.1 dB attenuation flatness and 25 dB return loss across the DC-70 GHz bandwidth. The CSP allows for extreme miniaturization of SMT footprint while providing die-level performance. 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

- 1.5 x 1.5 mm chip scale package
- 2.1 dB attenuation
- 0.1 dB attenuation flatness
- 25 dB return loss
- 1 W RF Power Handling
- 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
ATN02-0070CSP1	Chip Scale Package MMIC DC - 70 GHz 2dB Attenuator	CSP1	REACH RoHS	Released	EAR99
EVB-ATN02-0070	Evaluation Board, Chip Scale Package MMIC DC - 70 GHz 2dB Attenuator	EVB	REACH RoHS	Released	EAR99

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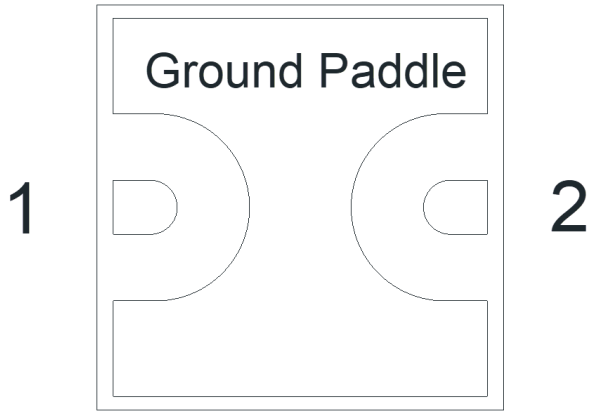
Table Of Contents

Revision History

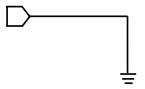
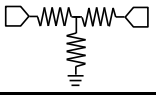
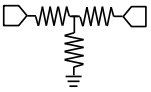
Revision Code	Revision Date	Comment
-	2025-03-19	Initial Release

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

Electrical Specifications

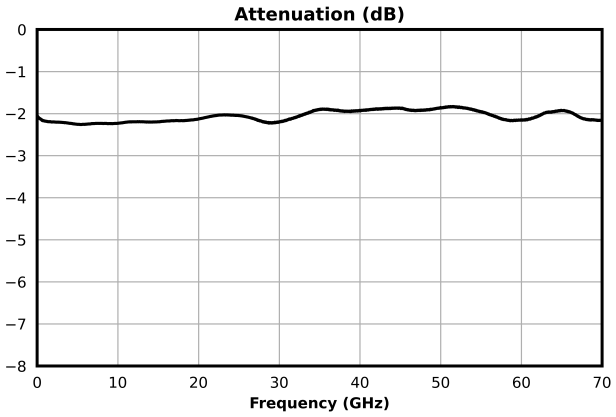
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a CSP1 package with a sine wave input applied to port 1.

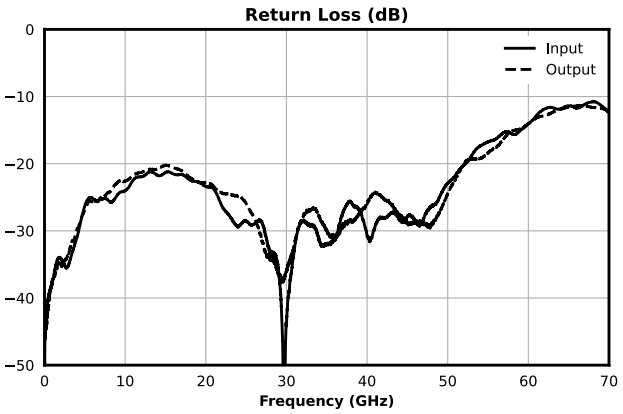
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	Configuration A, Temp = 25°C	0	70	-	2.1	-	dB
Return Loss	Configuration A, Temp = 25°C	0	70	-	24	-	dB
Attenuation Flatness [1]	Configuration A, Temp = 25°C	0	70	-	0.4	-	dB
Impedance	-	0	70	-	50	-	Ω

[1] Attenuation Flatness = Max(Insertion Loss) - Min(Insertion Loss)

Typical Performance Plots

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





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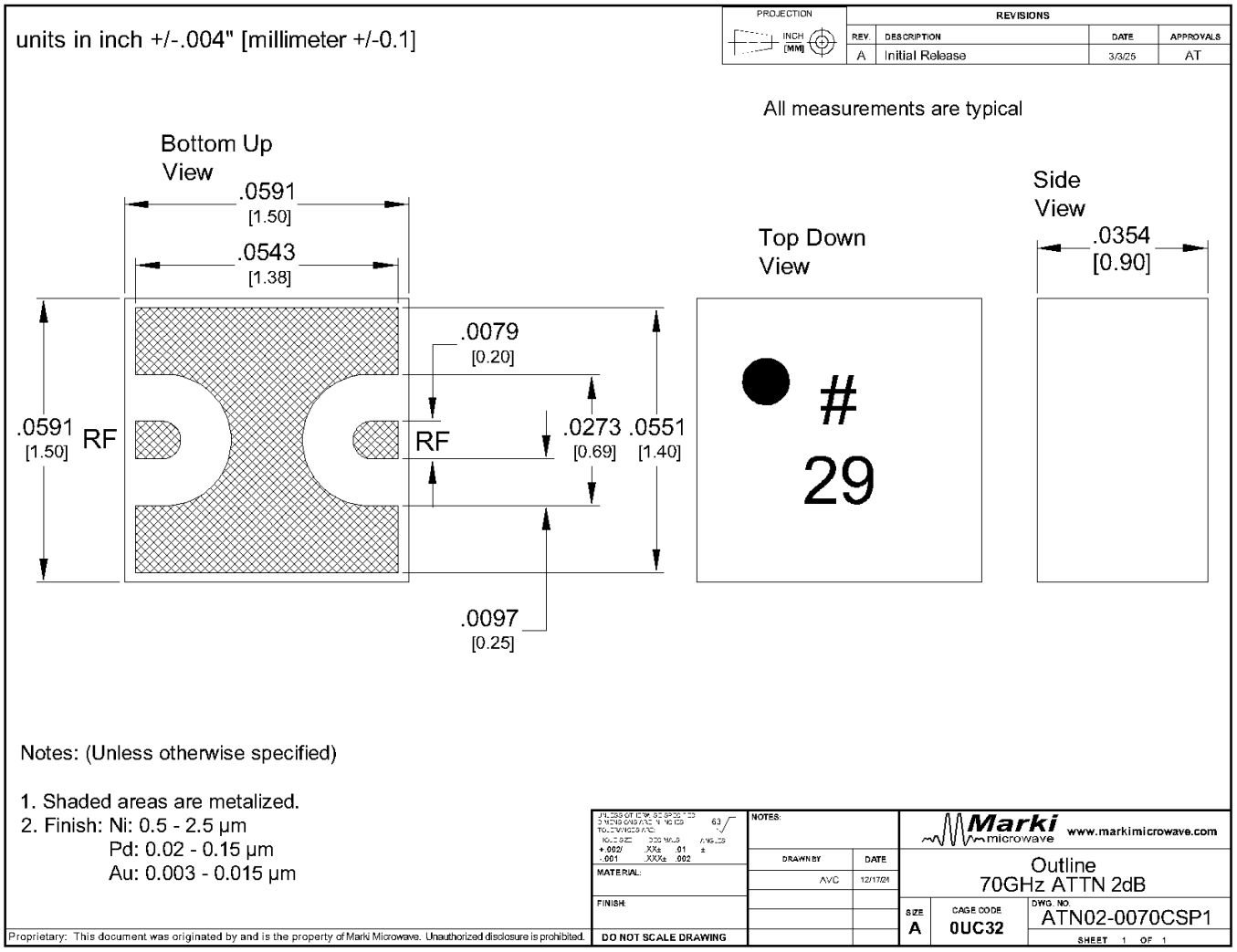
Mechanical Data

Outline Drawing

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



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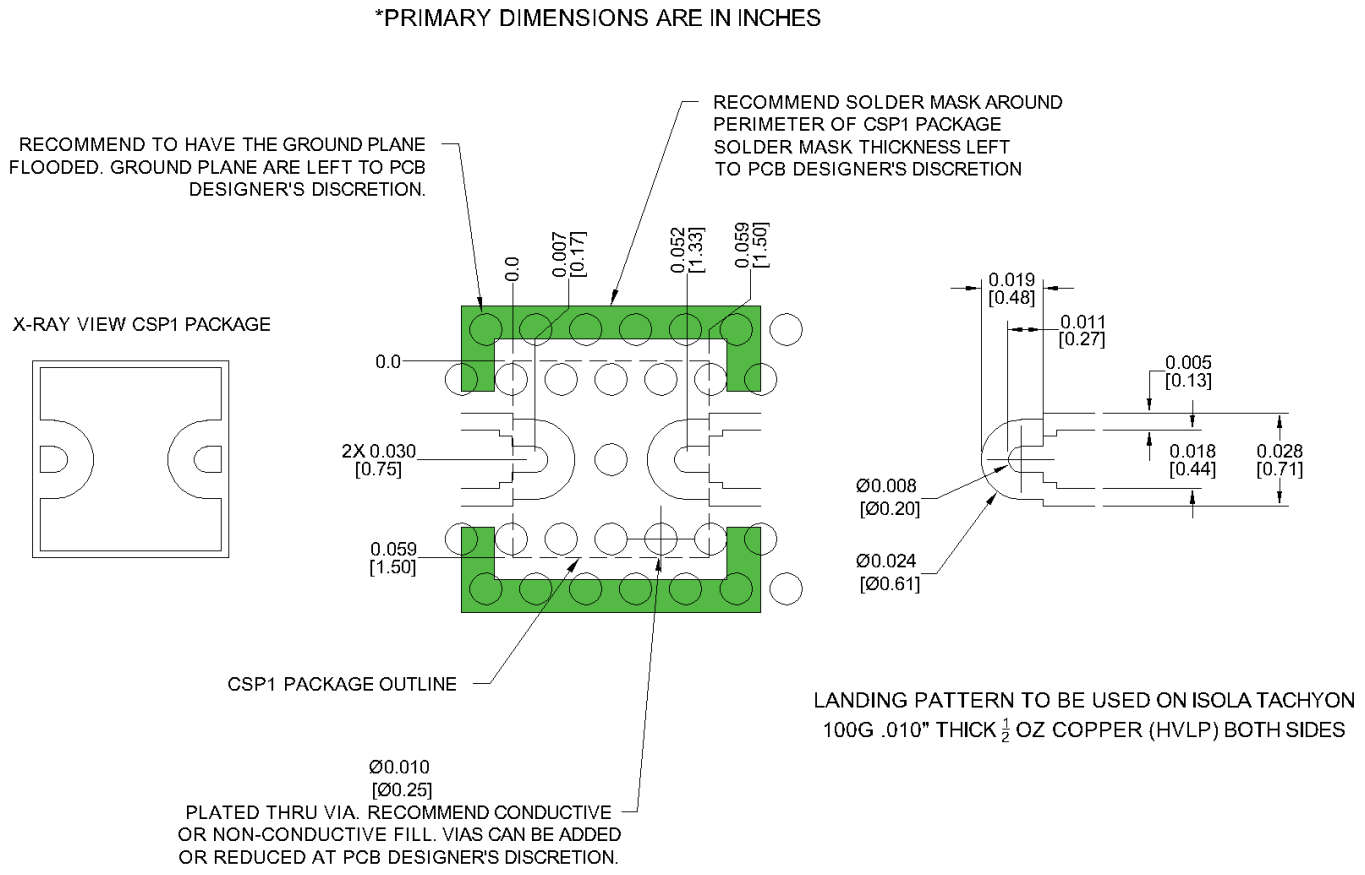
Footprint Image

Download : Footprint Drawing



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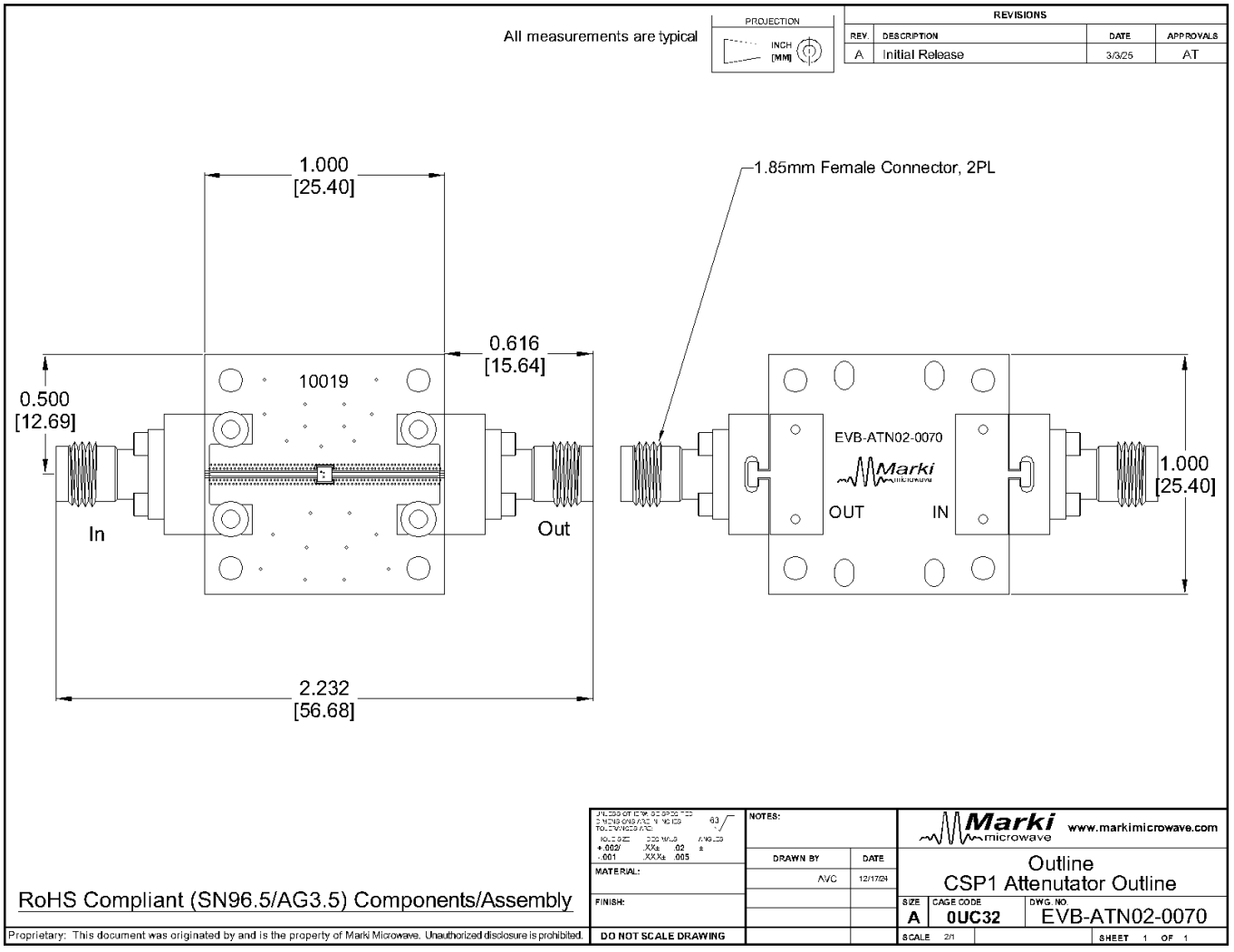
Evaluation Board - Outline Drawing



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