

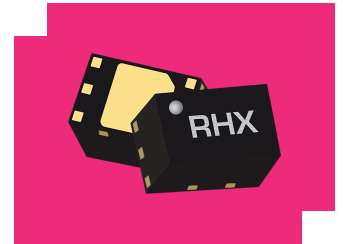
ATD10-0040PSM

10dB DC - 40GHz MMIC Differential Attenuator

DEVICE OVERVIEW

General Description

The ATD10-0040PSM is a surface mount GaAs MMIC 10dB differential attenuator housed in a DFN package. This attenuator is an ideal solution for attenuating differential signals and can be used in a wide range of applications. The compact DFN package allows for extreme miniaturization of SMT footprints. 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](#)

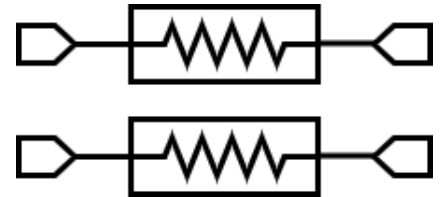
Features

- Small 1.3 x 2.0 mm Package Size
- 10dB Attenuation From DC to 40 GHz
- 27dB Typical Return Loss Over Operating Band

Applications

- Test Equipment
- Electronic Warfare
- Radar and satellite communications
- High Channel Count Systems

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
ATD10-0040PSM	10dB DC - 40GHz MMIC Differential Attenuator	DFN	REACH RoHS	Released	EAR99
EVB-ATD10-0040P	Evaluation Board, 10dB DC-40 GHz Differential Attenuator	EVB	REACH RoHS	Released	EAR99

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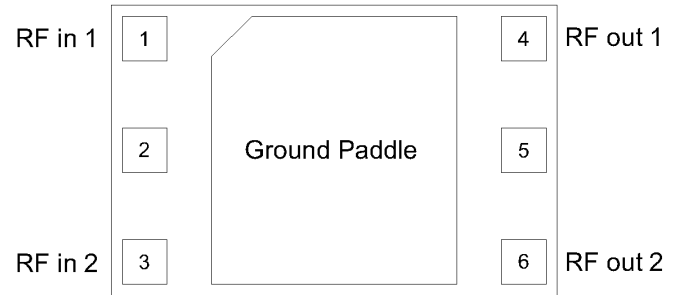
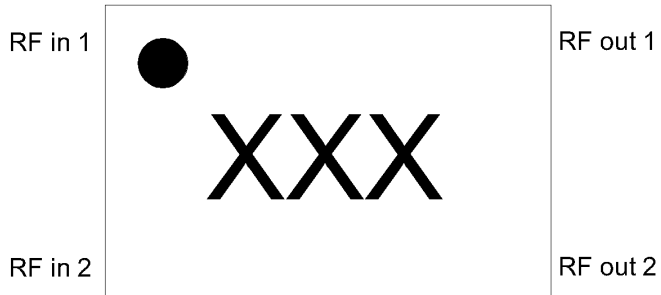
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Revision History

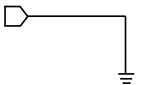
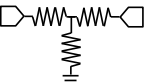
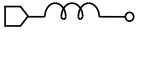
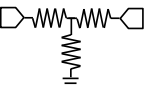
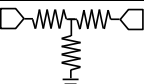
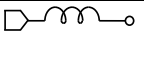
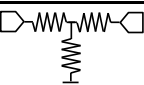
Revision Code	Revision Date	Comment
-	2026-06-02	Initial Release

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	DC Equivalent Circuit
Ground Paddle	Gnd	Ground paddle should be connected to RF ground	
Pin 1	Input/Output 1	Pin 1 and Pin 4 are DC connected to each other and ground through a T-network of resistors.	
Pin 2	Non-connect (NC)	Pin 2 is not connected internally and should be tied to RF ground.	
Pin 3	Input/Output 2	Pin 3 and Pin 6 are DC connected to each other and ground through a T-network of resistors.	
Pin 4	Input/Output 1	Pin 4 and Pin 1 are DC connected to each other and ground through a T-network of resistors.	
Pin 5	Non-connect (NC)	Pin 5 is not connected internally and should be tied to RF ground.	
Pin 6	Input/Output 2	Pin 6 and Pin 3 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
DC Current	45	mA
RF Power Handling	1.5	W

Power handling tested with a continuous wave at 18GHz.

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	2.0 x 1.3 mm
Moisture Sensitivity Level	-	MSL 1

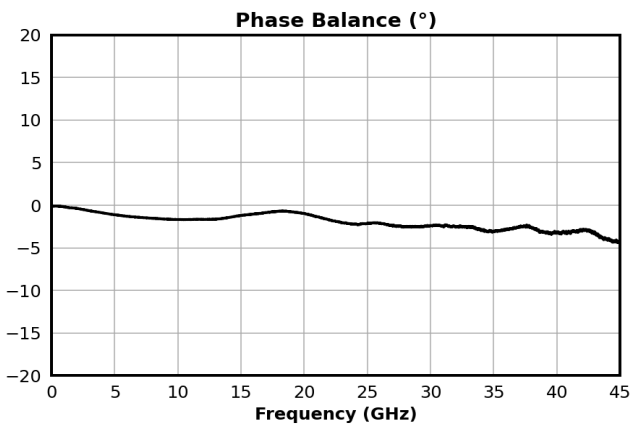
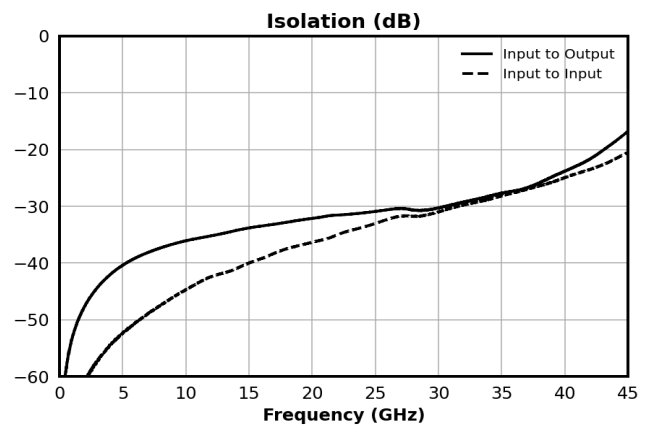
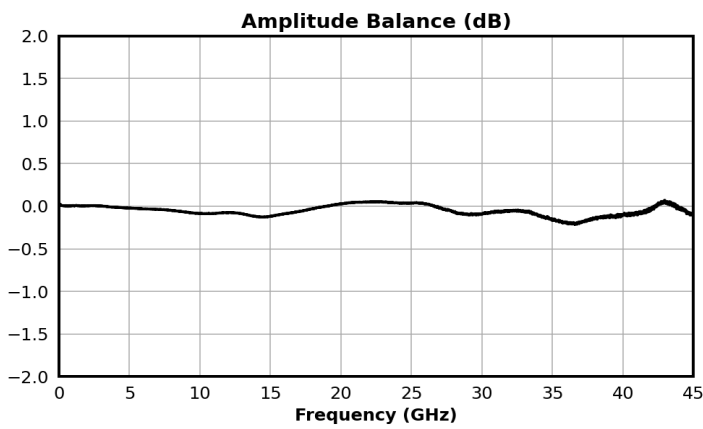
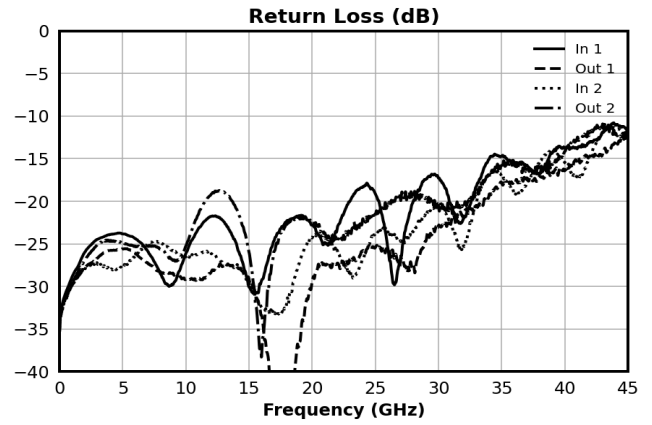
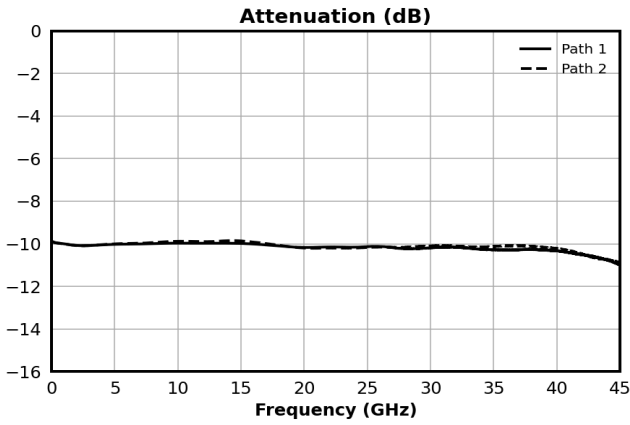
Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C. Attenuation paths 1 and 2 are symmetrical and have the same typical performance.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	Temp = 25°C	0	40	-	10.1	-	dB
Return Loss	Temp = 25°C	0	40	-	27	-	dB
Attenuation Flatness ¹	Temp = 25°C	0	40	-	0.5	-	dB
Phase Balance	-	0	40	-	1.8	-	°
Amplitude Balance	-	0	40	-	0.1	-	dB

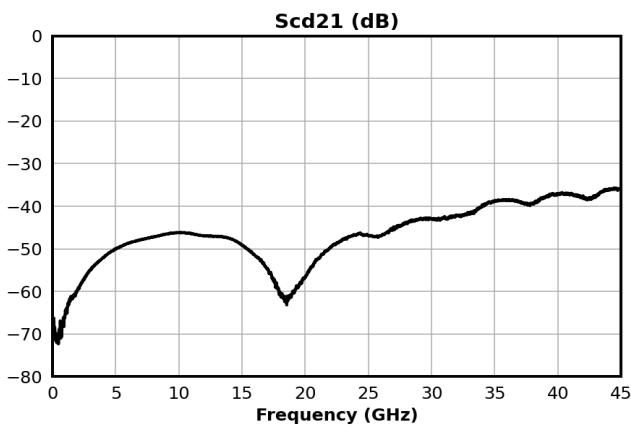
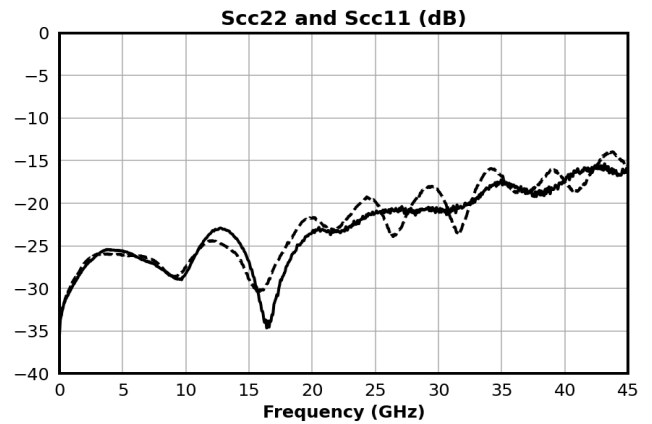
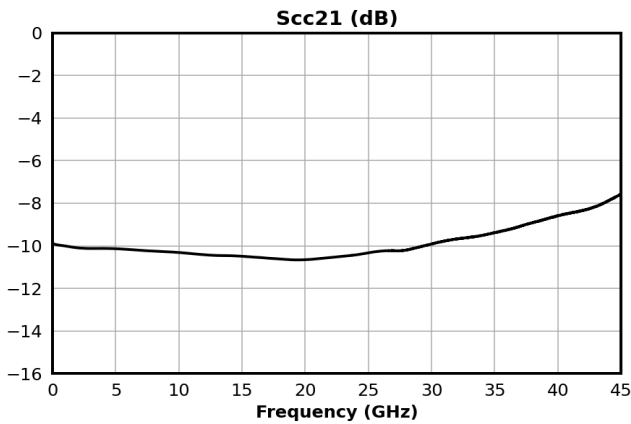
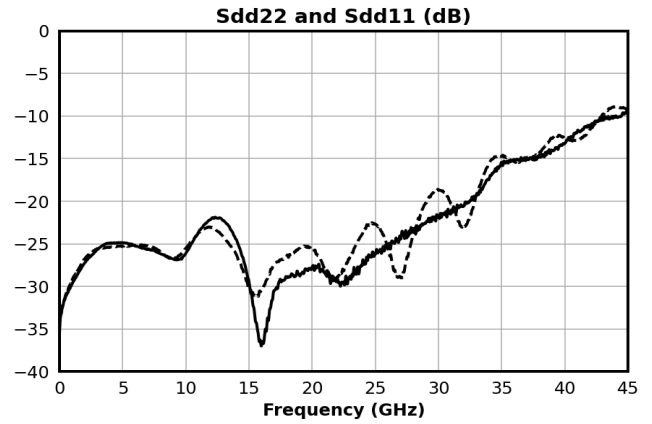
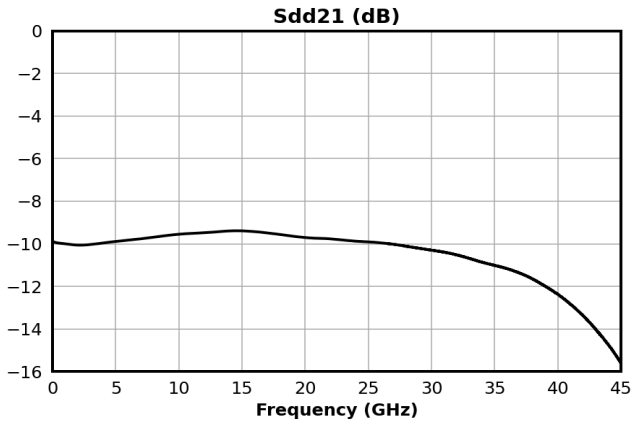
^[1] Attenuation Flatness = Max(Insertion Loss) - Min(Insertion Loss)

Typical Performance Plot



Typical Mixed Mode Performance Plots

Mixed mode scattering parameters are used to characterize differential circuits. For differential attenuators this means that the 2 input ports become a single 100Ω differential port and the 2 output ports become a single 100Ω differential port. The two-port s-parameters of the differential attenuators are then characterized based on differential (d) signals.



Measured data is de-embedded from fixture using AFR.

Mechanical Data

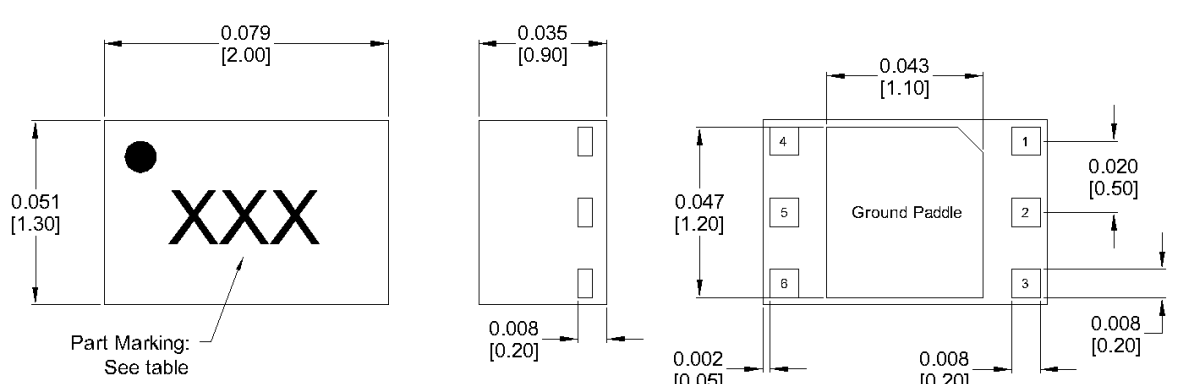
Outline Drawing

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

Pad #	Function
1	RF In 1
2	GND
3	RF In 2
4	RF Out 1
5	GND
6	RF Out 2

PROJECTION		REVISIONS		
REV.	DESCRIPTION	DATE	APPROVALS	
A	Initial Release	03-13-2026	AT	

All dimensions are typical



Surface Mount PN	XXX
ATD00-0040PSM	RDX
ATD01-0040PSM	REX
ATD03-0040PSM	RFX
ATD06-0040PSM	RGX
ATD10-0040PSM	RHX
ATD20-0040PSM	RIX

Notes (unless otherwise specified):

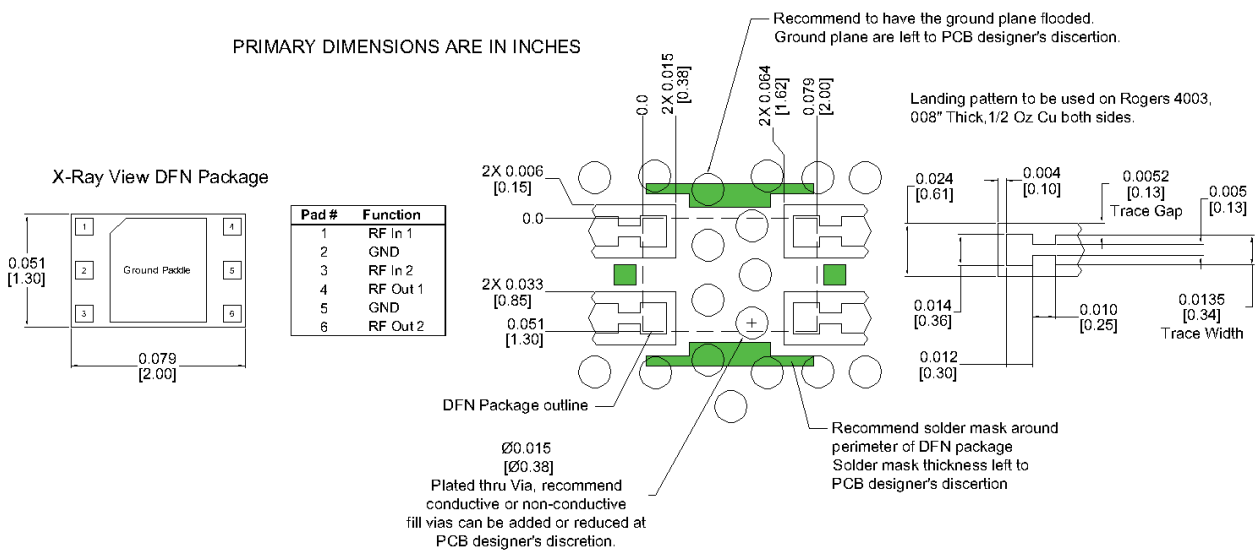
- Substrate material is LCP.
- I/O Leads and Die Paddle are 0.05 micron Au over 0.02 microns Pd over 0.5 microns Ni.
- All unconnected pins should be connected to PCB RF ground.

NOTES:		Marki microwave www.markimicrowave.com	
MATERIAL:		DRAWN BY:	DATE:
FINISH:		TNN	09-22-2025
		OAS, AC	11-03-2025
		SIZE:	CAGE CODE
		A	0UC32
			DWG. NO.
			ATD##-0040PSM
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Footprint Image

Download : [Footprint Drawing](#)

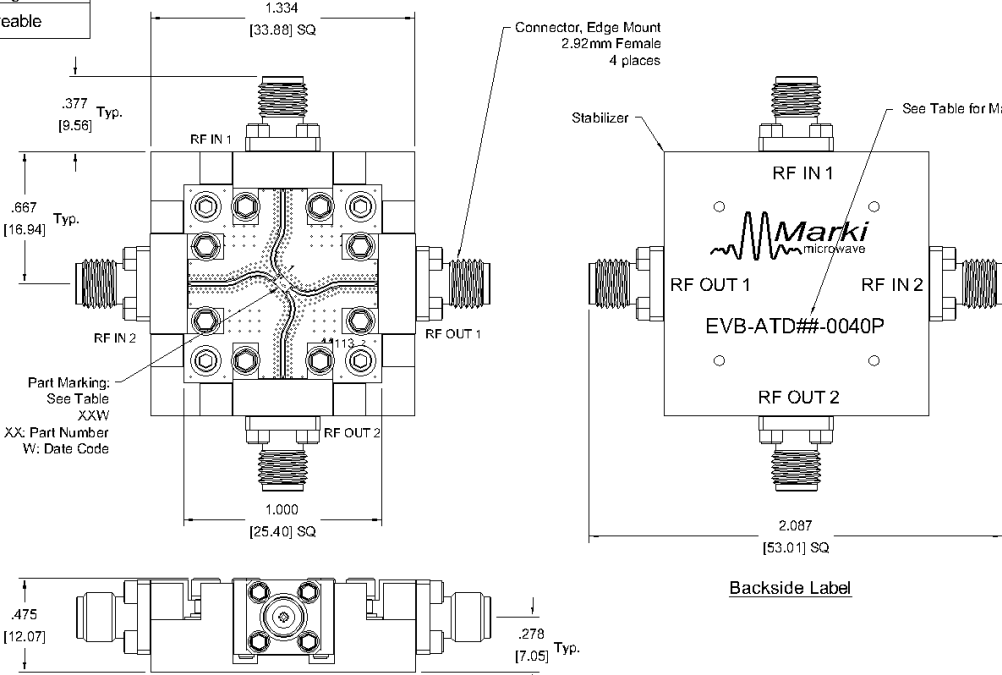


Evaluation Board - Outline Drawing

Port	Connector Type
Pin 1-RF in 1	2.92 mm F Edge Mount
Pin 3-RF in 2	2.92 mm F Edge Mount
Pin 4-RF out 1	2.92 mm F Edge Mount
Pin 6-RF out 2	2.92 mm F Edge Mount

Connectors are not removable

All measurements are typical



Connector, Edge Mount
2.92mm Female
4 places

Stabilizer

See Table for Marking

RF IN 1

RF IN 2

RF OUT 1

RF OUT 2

Backside Label

Part Marking:
See Table
XXW
XX: Part Number
W: Date Code

PROJECTION		REVISIONS			
INCH	(MM)	REV	DESCRIPTION	DATE	APPROVALS
		A	Initial Release	03-13-2026	AT

EVB-ATD##-0040P	Surface Mount PN	XXW
EVB-ATD01-0040P	ATD01-0040PSM	REW
EVB-ATD03-0040P	ATD03-0040PSM	RFW
EVB-ATD06-0040P	ATD06-0040PSM	RGW
EVB-ATD10-0040P	ATD10-0040PSM	RHW
EVB-ATD20-0040P	ATD20-0040PSM	RIW

NOTES:	
DRAWN BY	DATE
Tnn	09-22-2025
AC	11-03-2025
OAS	01-05-2026

Marki microwave		www.markimicrowave.com	
Outline ATD PSM Eval Board			
SIZE	CAGE CODE	DWG. NO.	
A	0UC32	EVB-ATD##-0040P	

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