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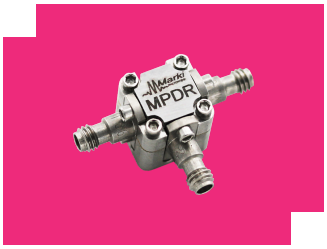
MPDR-00110M2

DC – 110 GHz MMIC 2-way Power Divider/Combiner

DEVICE OVERVIEW

General Description

The MPDR-00110M2 is a mmWave 2-way resistive power divider in our connectorized miniature M2-package enabling operation from DC to 110 GHz. Passive GaAs MMIC technology allows production of smaller constructions that replace larger form factor circuit board constructions. Tight fabrication tolerances result in less unit-to-unit variation than traditional power divider technologies, allowing for accurate simulations using the provided S3P file taken from measured production units. Resistive power dividers are not recommended for use as power combiners due to the lack of isolation. The MPDR-00110M2 is available as a 1.0mm connectorized module.



Download s-parameters here

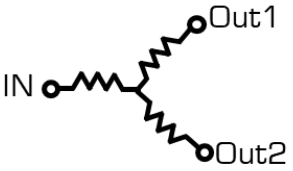
Features

- DC to 110 GHz In-phase power splitting
- Outstanding phase and amplitude balance
- RoHS Compliant

Applications

- Radar and satellite communications
- Electronic warfare equipment
- Test Equipment

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
MPDR-00110M2	DC – 110 GHz MMIC 2-way Power Divider/Combiner	M2	Standard	REACH RoHS	Released	EAR99

Table Of Contents

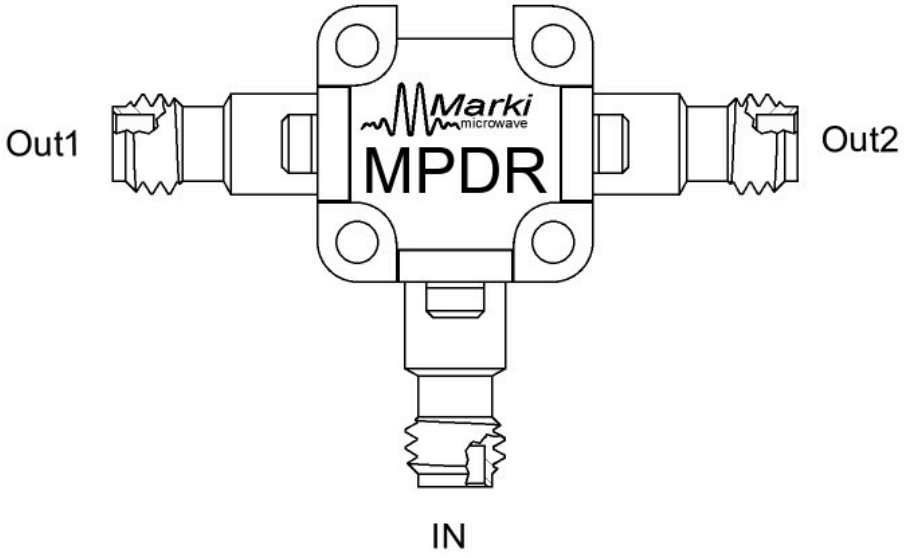
Revision History

Revision Code	Revision Date	Comment
-	2023-06-01	Initial Datasheet Release

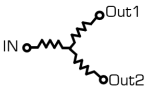
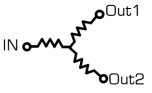
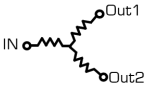
Port Configuration and Functions

Port Diagram

A top-down view of the MPDR-00110M2's M2 package outline drawing is shown below. The MMIC Power dividers are passive reciprocal devices allowing either power splitting or power combining. Additionally, any port can be used as an input or an output.



Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
GND	Ground	-	M2 package ground provided through metal housing and outer coax conductor.	
In	Input/common	1.0F	The common port is DC short to the other two ports through a resistive network and open to ground.	
Out1	Output 1	1.0F	The output 1 port is DC short to the other two ports through a resistive network and open to ground.	
Out2	Output 2	1.0F	The output 2 port is DC short to the other two ports through a resistive network and open to 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	56	mA
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Power Handling, at any Port	1	W

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	27.62 x 19.37 mm

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Min and Max limits are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	Configuration A, Temp = 25°C	0	110	-	0.3	-	dB
Common Port Return Loss	Configuration A, Temp = 25°C	0	110	-	21	-	dB
Excess Insertion Loss [1]	Configuration A, Temp = 25°C	0	110	-	1.3	-	dB
Impedance	Configuration A, Temp = 25°C	-	-	-	50	-	Ω
Isolation	Configuration A, Temp = 25°C	0	110	-	7	-	dB
Nominal Phase Shift	Configuration A, Temp = 25°C	-	-	-	0	-	°
Nominal Power Splitting	Configuration A, Temp = 25°C	-	-	-	3	-	dB
Output Return Loss	Configuration A, Temp = 25°C	0	110	-	21	-	dB
Phase Balance	Configuration A, Temp = 25°C	0	110	-	0.5	-	°
VSWR	Configuration A, Temp = 25°C	0	110	-	1.20	-	

[1] Excess Insertion Loss = (Common Port to Output Port Insertion Loss) – 6 dB

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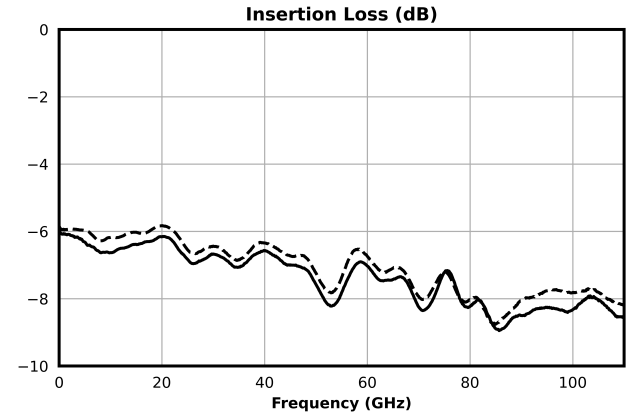
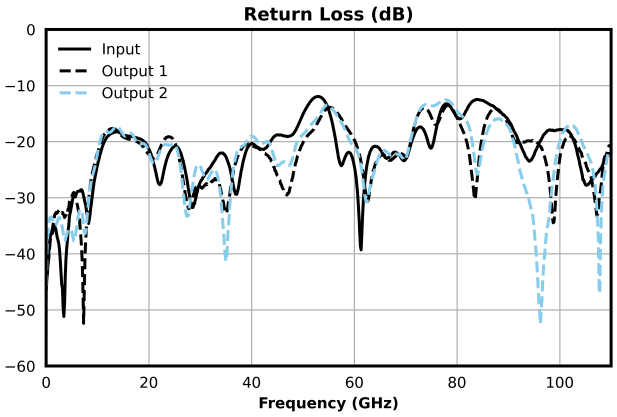
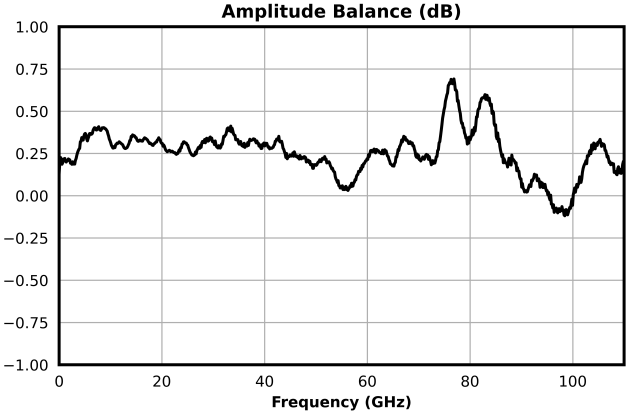
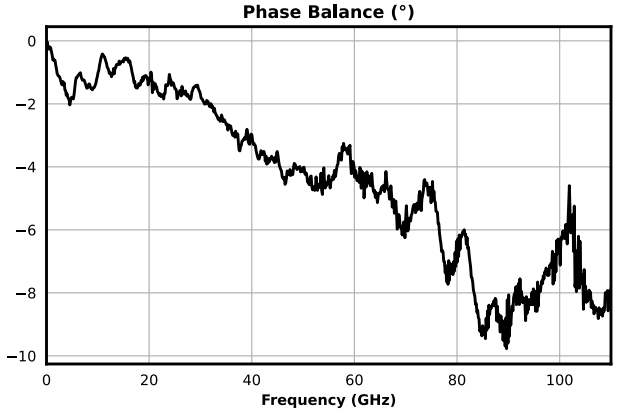
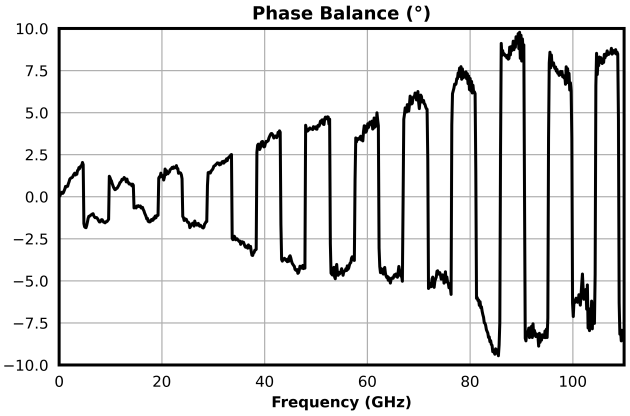
Typical Performance Plot

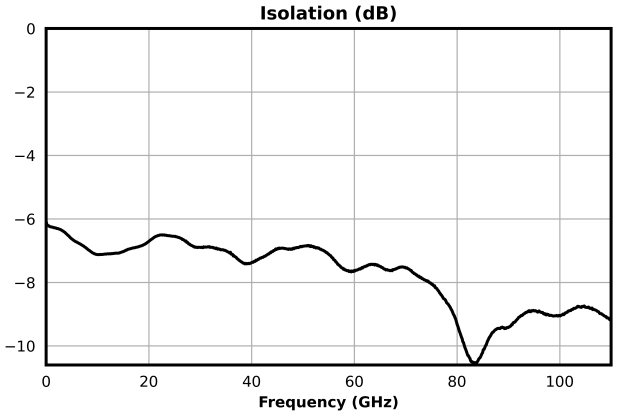












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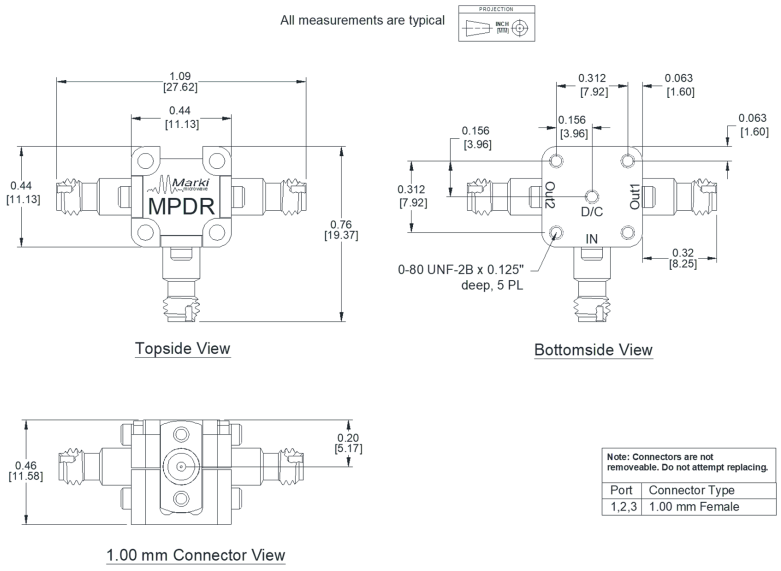
Mechanical Data

Outline Drawing

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



Note: Connectors are not removeable. Do not attempt replacing.

Port	Connector Type
1,2,3	1.00 mm Female

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