

MPDR-0070CSP2

DC – 70 GHz MMIC 2-way Resistive Power Divider, Front Ports

DEVICE OVERVIEW

General Description

The MPDR-0070CSP2 is a small footprint mmWave MMIC DC-70 GHz 2-Way resistive power divider/power splitter featuring low 1.5 dB insertion loss in our compact CSP2 chip scale package. It is much smaller than a printed PCB Power Divider/Combiner. 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. The MPDR-0070CSP2 features front port outputs. The 2.5 mm CSP2 package enables extreme miniaturization of SMT footprint making the MPDR-0070CSP2 ideal for applications prioritizing low SWaP.



[Download s-parameters here](#)

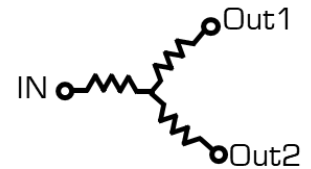
Features

- 2-way resistive splitter in a compact 2.5mm package
- Wideband operation from DC to 70 GHz
- Front ports
- Low 1.5 dB typical insertion loss
- Excellent 5° phase and 0.3 dB amplitude balance
- RoHS Compliant
- This product embodies Marki Microwave's U.S. Pat. 11,869,858.

Applications

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

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
MPDR-0070CSP2	DC – 70 GHz MMIC 2-way Resistive Power Divider, Front Ports	CSP2	RoHS REACH	Released	EAR99
EVB-MPDR-0070	Evaluation Board, DC – 70 GHz MMIC 2-way Resistive Power Divider	EVB	REACH RoHS	Released	EAR99

MPDR-0070CSP2

DC – 70 GHz MMIC 2-way Resistive Power Divider, Front Ports

Table Of Contents

<ul style="list-style-type: none"> ■ Device Overview <ul style="list-style-type: none"> General Description Features Applications Functional Block Diagram ■ Port Configuration and Functions <ul style="list-style-type: none"> Port Diagram Port Functions ■ Revision History 	<ul style="list-style-type: none"> ■ Specifications <ul style="list-style-type: none"> Absolute Maximum Ratings Package Information Electrical Specifications Typical Performance Plots ■ Mechanical Data <ul style="list-style-type: none"> Outline Drawing ■ Footprint Image ■ Evaluation Board <ul style="list-style-type: none"> Evaluation Board Outline Drawing
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Revision History

Revision Code	Revision Date	Comment
-	2023-10-16	Datasheet Initial Release
B	2025-04-28	Updated Moisture Sensitivity from MSL3 to MSL1
C	2025-12-17	Power Handling Updated

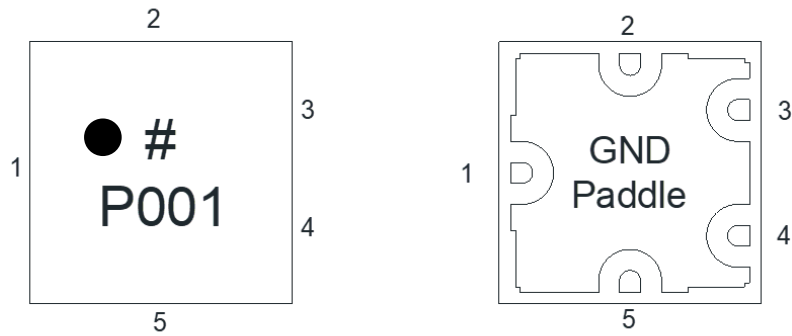
MPDR-0070CSP2

DC – 70 GHz MMIC 2-way Resistive Power Divider,
Front Ports

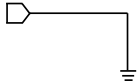
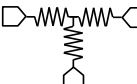
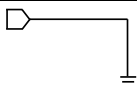
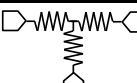

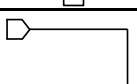
Port Configuration and Functions

Port Diagram

A top-down x-ray view of the MPDR-0070CSP2 package outline drawing is shown below.



Port Functions

Port	Function	Description	DC Equivalent Circuit
GND	Ground	CSP2 package ground provided through the substrate and ground paddle.	
Pin 1	Input/Output	The common port is DC connected to the other two ports through a resistive network and open to ground.	
Pin 2	Non-connect (NC)	Pin 2 is not connected internally and can be tied to RF ground.	
Pin 3	Input/Output	The output 1 port is DC connected to the other two ports through a resistive network and open to ground.	
Pin 4	Input/Output	The output 2 port is DC connected to the other two ports through a resistive network and open to ground.	
Pin 5	Non-connect (NC)	Pin 5 is not connected internally and can be tied to RF 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	50	mA
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling as a Power Divider	5	W

Package Information

Parameter	Details	Rating
Dimensions	-	2.50 x 2.50 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.

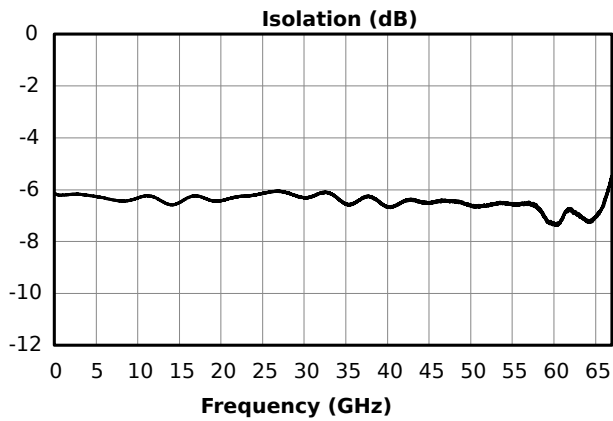
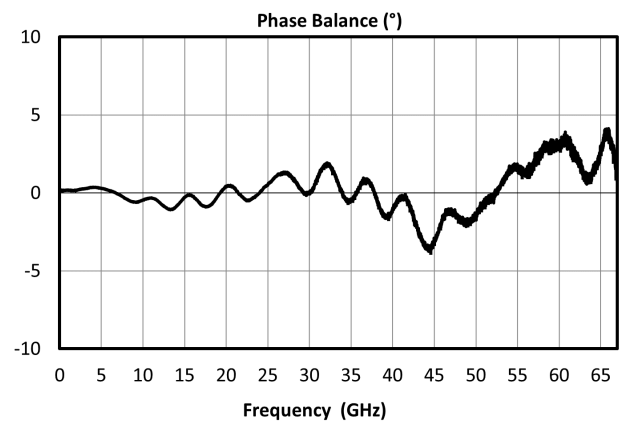
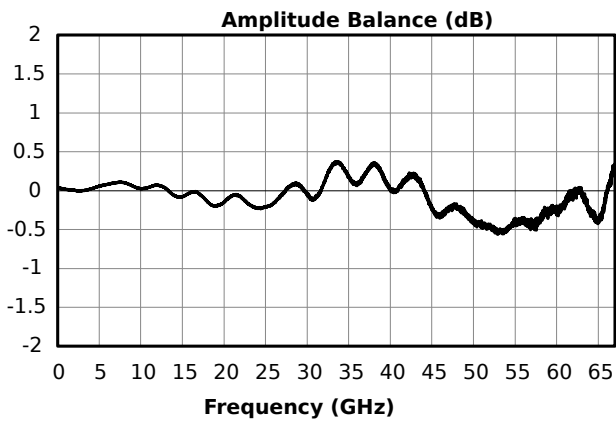
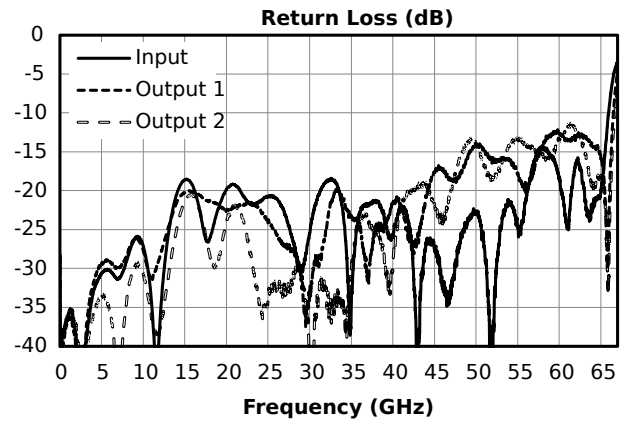
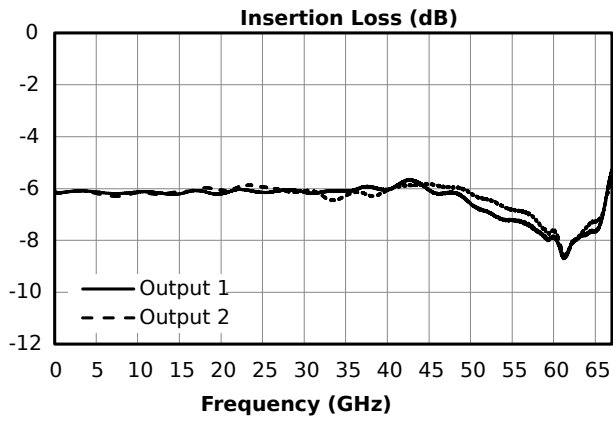
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	0	70	-	0.25	1	dB
Excess Insertion Loss (dB) ¹	-	0	70	-	1.5	3	dB
Impedance	-	0	70	-	50	-	Ω
Nominal Phase Shift	-	0	70	-	0	-	°
Nominal Power Splitting (dB)	-	0	70	-	6	-	dB
Phase Balance	-	0	70	-	5	10	°
Return Loss	-	45	70	-	10	-	dB
Return Loss	-	0	45	15	20	-	dB

^[1] Excess Insertion Loss = (Input Port to Common Port Insertion Loss) - 6dB

MPDR-0070CSP2

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Typical Performance Plots

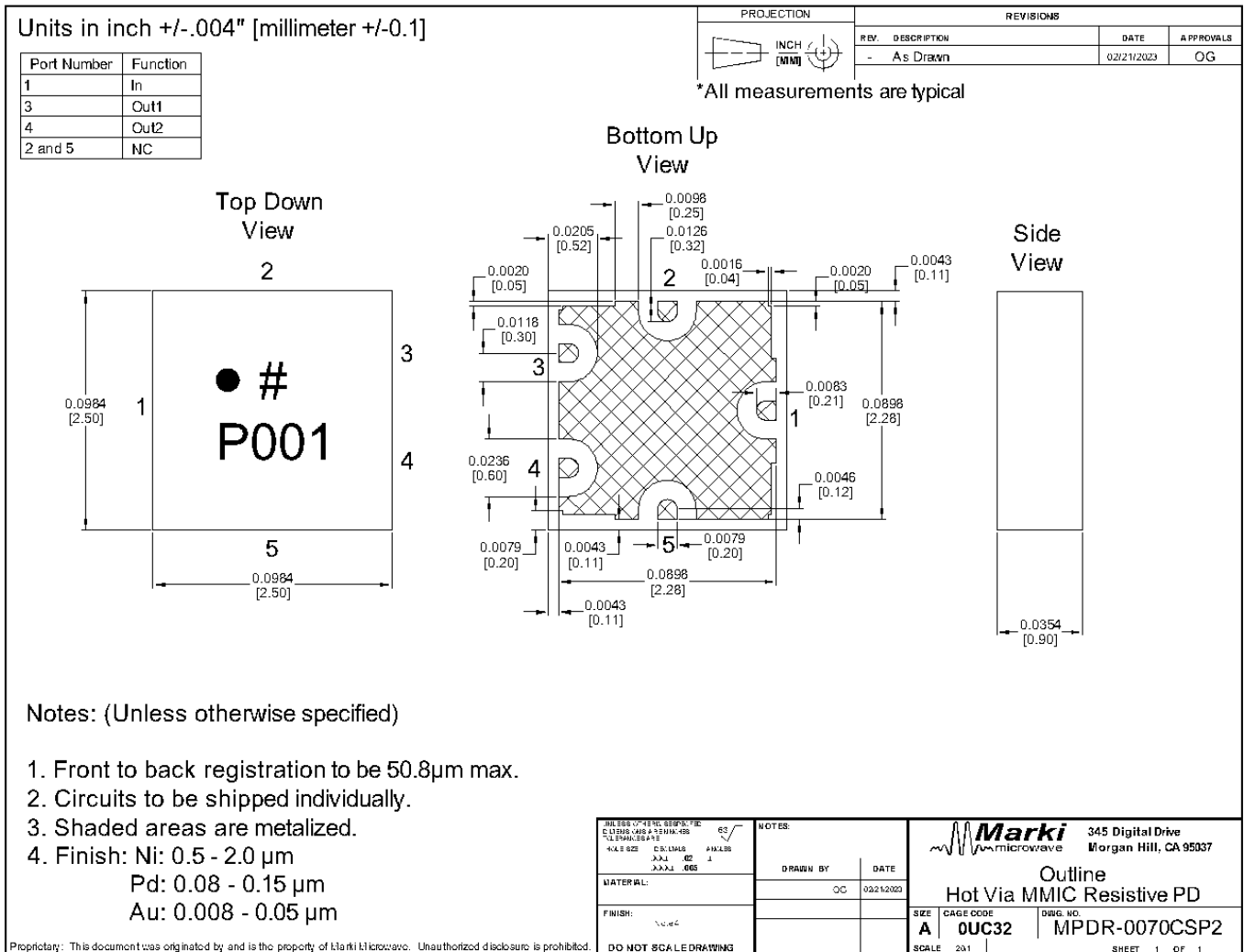


Measured data is de-embedded from fixture using AFR.

Mechanical Data

Outline Drawing

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

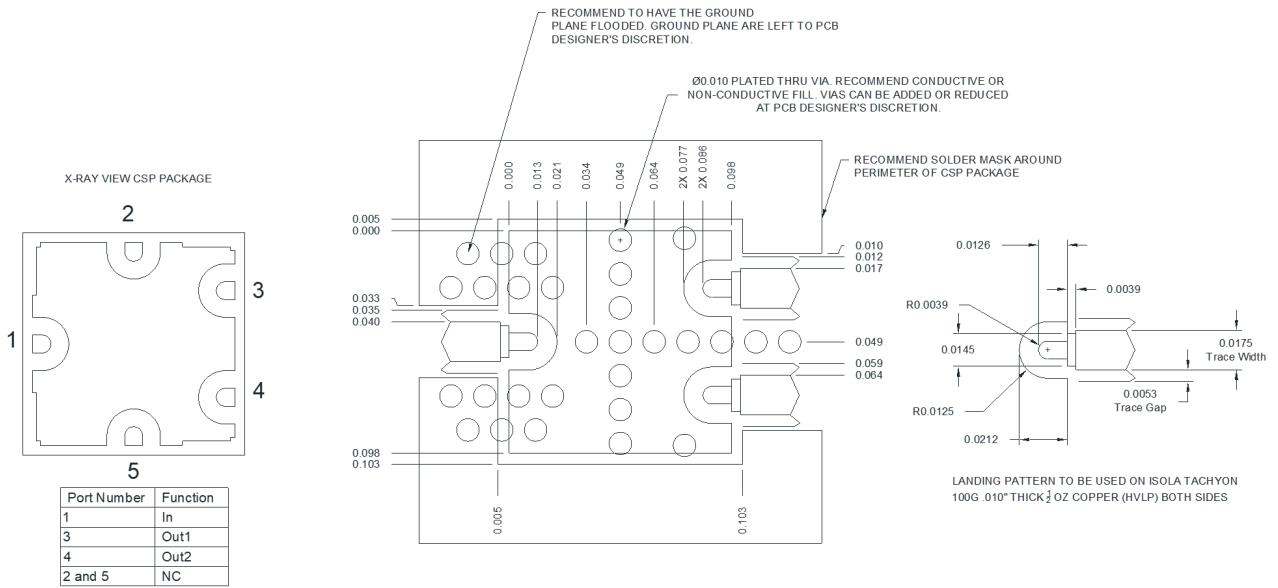


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Footprint Image

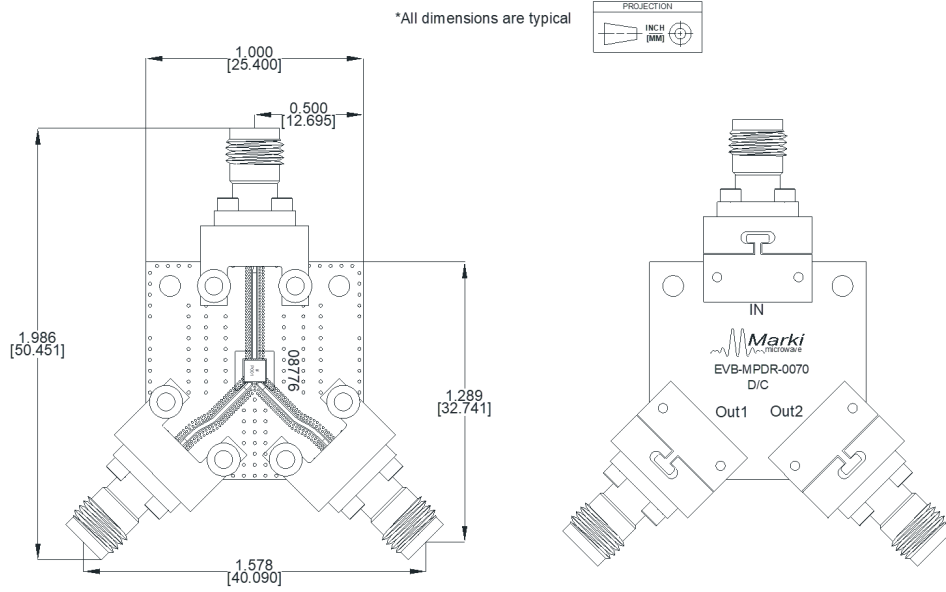
Download : [Footprint Drawing](#)



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Front Ports

Evaluation Board - Outline Drawing



Port	Connector Type
1, 2, 3	1.85mm Female

Note: Connectors are not removeable.

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