

MPDW-0670CSP2

6 - 70 GHz MMIC Power Divider

DEVICE OVERVIEW

General Description

The MPDW-0670CSP2 is a mmWave 2-way Wilkinson power divider featuring high isolation in our miniature CSP2 chip scale package enabling operation up to 70 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. The 2.5 x 2.5mm CSP2 package enables extreme miniaturization of SMT footprint while providing die-level performance making the MPDW-0670CSP2 ideal for applications prioritizing low SWaP. This product embodies Marki Microwave's U.S. Pat. 11,869,858.



[Download s-parameters here](#)

Features

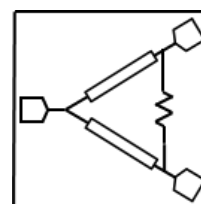
- Wideband operation from 6 to 70 GHz
- Excellent phase and amplitude balance
- RoHS compliant
- Miniature chip scale package

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
MPDW-0670CSP2	6 - 70 GHz MMIC Power Divider	CSP2	REACH RoHS	Released	EAR99
EVB-MPDW-0670	6 - 70 GHz MMIC Power Divider	EVB	RoHS	Released	EAR99



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Revision History

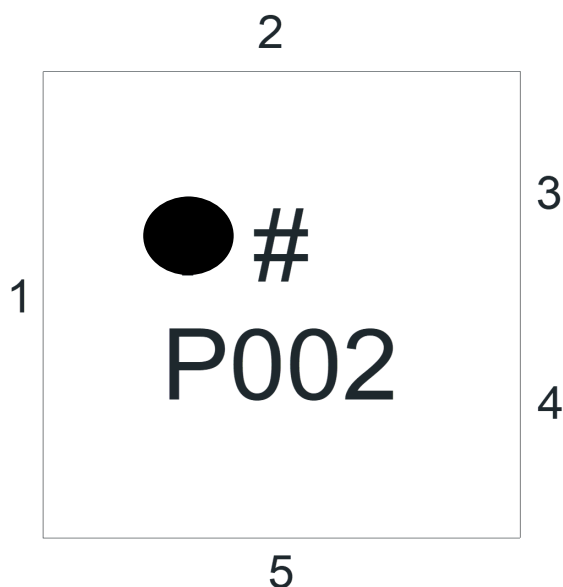
Revision Code	Revision Date	Comment
-	2024-02-14	Datasheet Initial Release



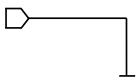
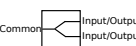
Port Configuration and Functions

Port Diagram

A top-down view of the MPDW-0670CSP2 package outline drawing is shown below. The MMIC Power dividers are passive reciprocal devices allowing either power splitting or power combining.



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Paddle	Ground	Ground paddle should be connected to RF ground	
Pin 1	Common	Pin 1 is the common input/output port. It is DC short to the other two ports and open to ground.	
Pin 2	Input/Output 1	Pin 2 is an input/output port. It is DC short to the other two ports and open to ground.	
Pin 3	Non-connect (NC)	Pin 3 is not connected internally and should be tied to RF ground	-
Pin 4	Non-connect (NC)	Pin 4 is not connected internally and should be tied to RF ground	-
Pin 5	Input/Output 2	Pin 5 is an input/output port. It is DC short to the other two ports 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
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	2.50 x 2.50 mm
Moisture Sensitivity Level	-	MSL 3



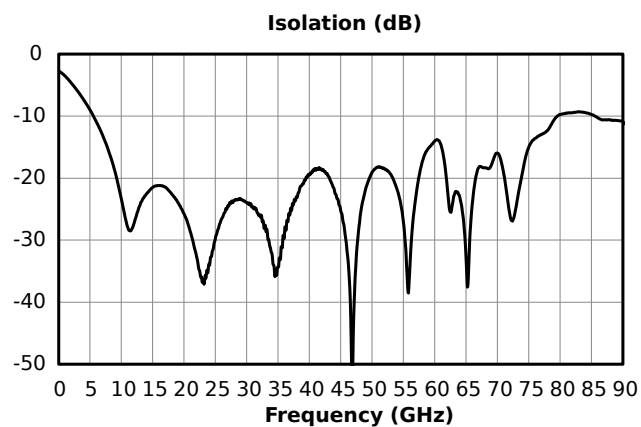
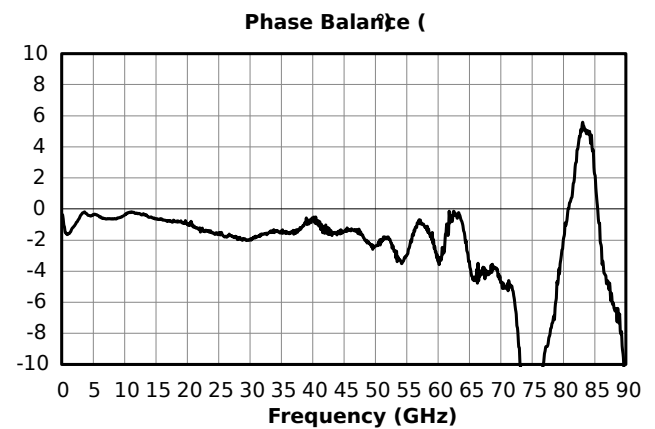
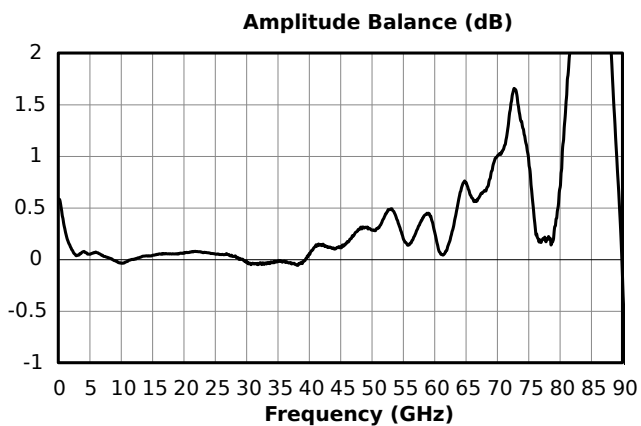
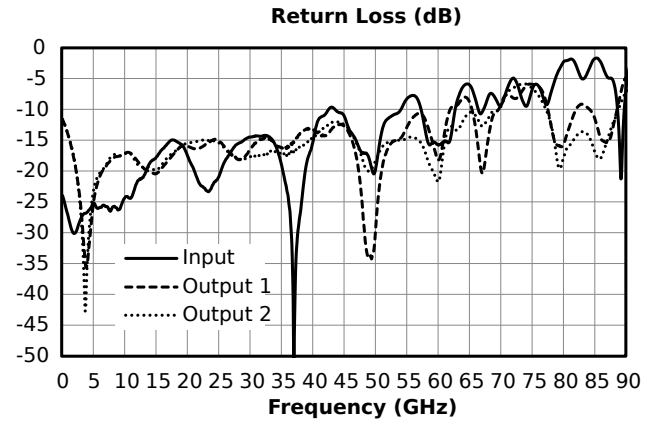
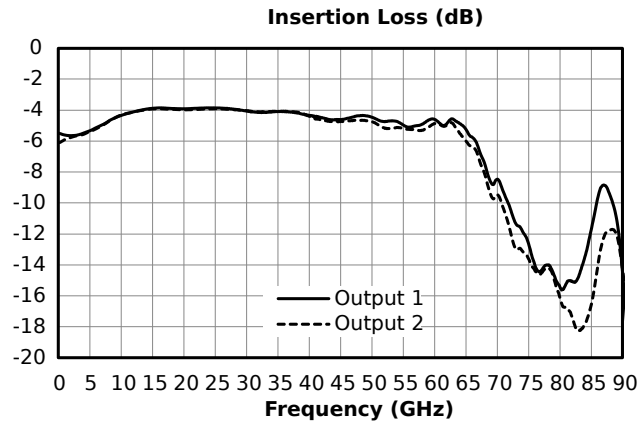
Electrical Specifications

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
Nominal Phase Shift	-	6	70	-	0	-	°
Phase Balance	-	6	40	-	1	5	°
Phase Balance	-	40	-	-	2	8	°
Excess Insertion Loss	-	6	65	-	1	4	dB
Excess Insertion Loss	-	65	70	-	3	8	dB
Isolation	-	10	50	15	24	-	dB
Isolation	-	50	70	10	20	-	dB
Return Loss	-	6	40	10	17	-	dB
Return Loss	-	40	70	4	14	-	dB
Amplitude Balance	-	6	50	-	0.1	0.8	dB
Impedance	-	6	70	-	50	-	Ω
Nominal Power Splitting (dB)	-	6	70	-	3	-	dB
Amplitude Balance	-	50	70	-	0.5	2	dB



Typical Performance Plots

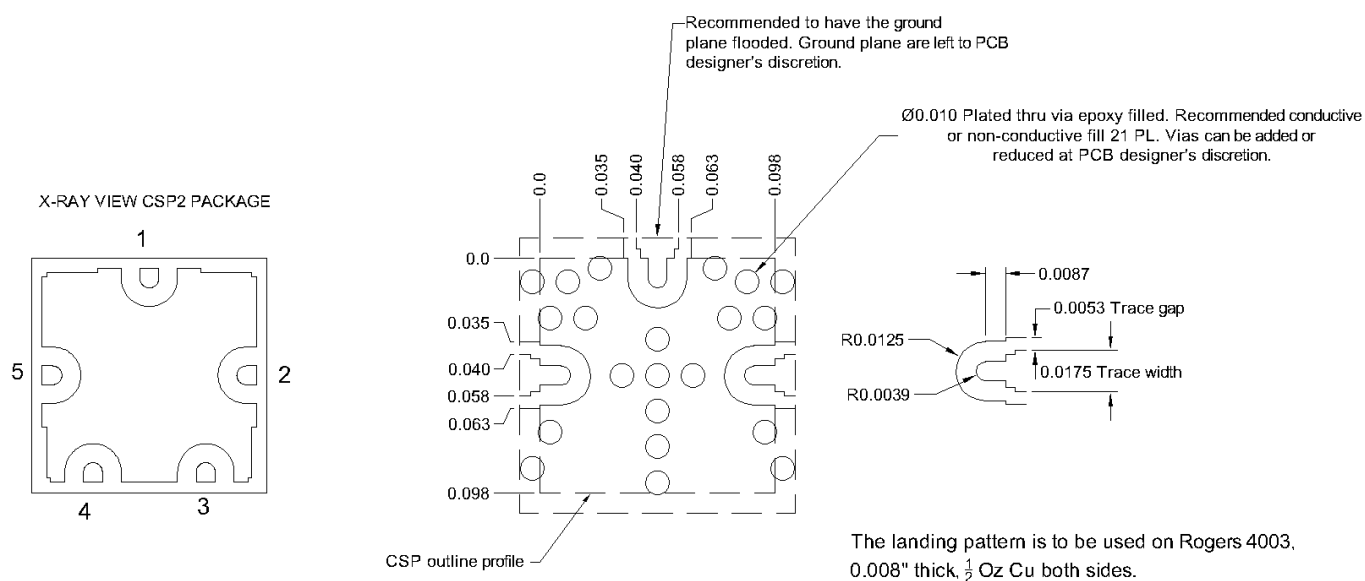


Measured data is de-embedded from fixture using AFR.



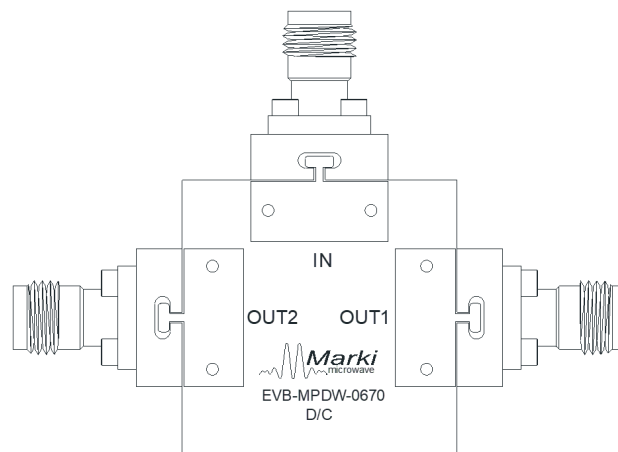
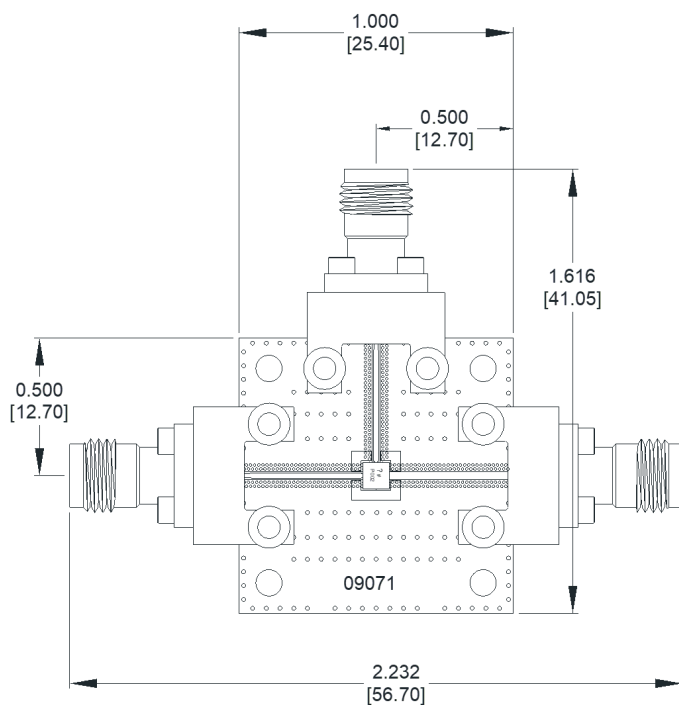
Footprint Image

Download : [Footprint Drawing](#)



Evaluation Board - Outline Drawing

*All dimensions are typical



Port	Connector Type
1, 2, 3	1.85mm Female
Note: Connectors are not removeable.	



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