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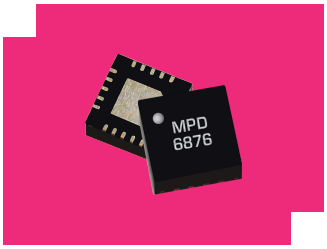
MPD-0226SM

2-26.5 GHz MMIC 2-way Wilkinson Power Divider/Combiner

DEVICE OVERVIEW

General Description

MPD-0226SM is a MMIC 2-way Wilkinson power divider. 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. Power dividers are passive reciprocal devices that can be used either as power combiners or as power dividers. Applications include Radar, Satcom, EW and test equipment. The MPD-0226SM is available as a 4 X 4 mm QFN package. Evaluation boards are also available.



Download s-parameters here

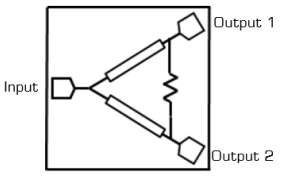
Features

- 2 GHz to 26.5 GHz In-phase Power splitting
- 20 dB Typical Output to Output Isolation
- Outstanding phase and amplitude balance
- RoHS Compliant

Applications

N/A

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
MPD-0226SM	2-26.5 GHz MMIC 2-way Wilkinson Power Divider/Combiner	QFN	-	REACH RoHS	Released	EAR99
EVAL-MPD-0226	Evaluation Board, 2-26.5 GHz MMIC 2-way Power Divider/Combiner	EVAL	-	REACH RoHS	Released	EAR99
MPD-0226-TR	Tape and Reel, 2-26.5 GHz MMIC 2-way Wilkinson Power Divider/Combiner	QFN	7"	REACH RoHS	Released	EAR99

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Table Of Contents

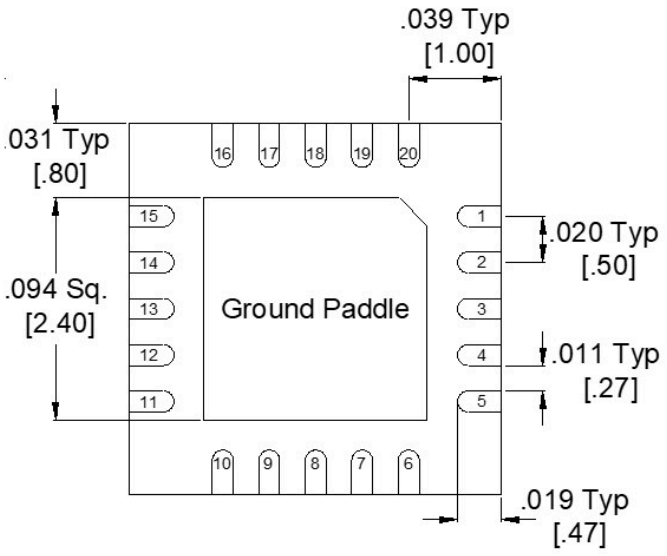
Revision History

Revision Code	Revision Date	Comment
-	2020-06-01	Initial Datasheet Release
A	2021-01-01	Specs table update
B	2022-03-01	Power Handling Specs Updated
C	2025-12-17	Power Handling Updated

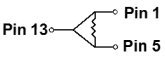
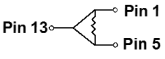
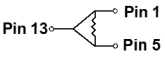
Port Configuration and Functions

Port Diagram

A bottom-up view of the MPD-0226SM's SM 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	DC Equivalent Circuit
Pad	Ground	SM package ground path is provided through the ground paddle.	
Pin 1	Output 1	The output 1 port is DC short to the other two ports and open to ground.	
Pin 13	Input/common	The common port is DC short to the other two ports and open to ground.	
Pin 5	Output 2	The output 2 port 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
DC Current	60	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 Combiner [1]	2	W
RF Power Handling as a Power Divider [2]	20	W

[1] Based on 3W failure with out of phase signals at room temperature at 2.5GHz with matched loads.
[2] Based >40W Power handling test as a splitter without failure at room temperature at 2.5GHz with matched loads.

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	4 x 4 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. All measured data is taken from the eval board without de-embedding of the connectors and traces.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Amplitude Balance	-	2	26.5	-	0.2	0.8	dB
Impedance	-	-	-	-	50	-	Ω
Insertion Loss [1]	-	2	20	-	1.5	4	dB
Insertion Loss [2]	-	20	26.5	-	3	6	dB
Isolation	-	2	26.5	-	20	-	dB
Nominal Phase Shift	-	2	26.5	-	0	-	°
Nominal Power Splitting (dB)	-	2	26.5	-	3	-	dB
Phase Balance	-	2	26.5	-	2	8.5	°
VSWR	-	2	26.5	-	1.25	-	

[1][2] Excess Insertion Loss = (Input Port to Common Port Insertion Loss) - 3dB

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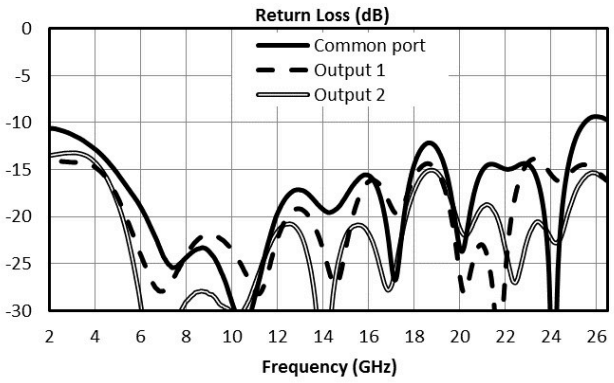
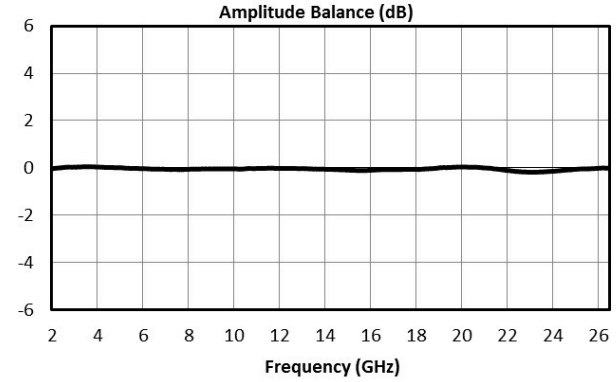
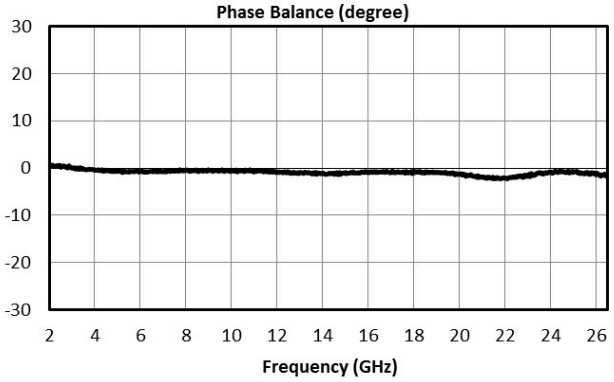
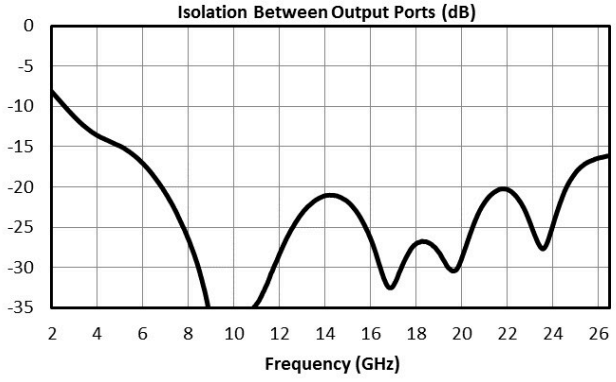
Typical Performance Plots









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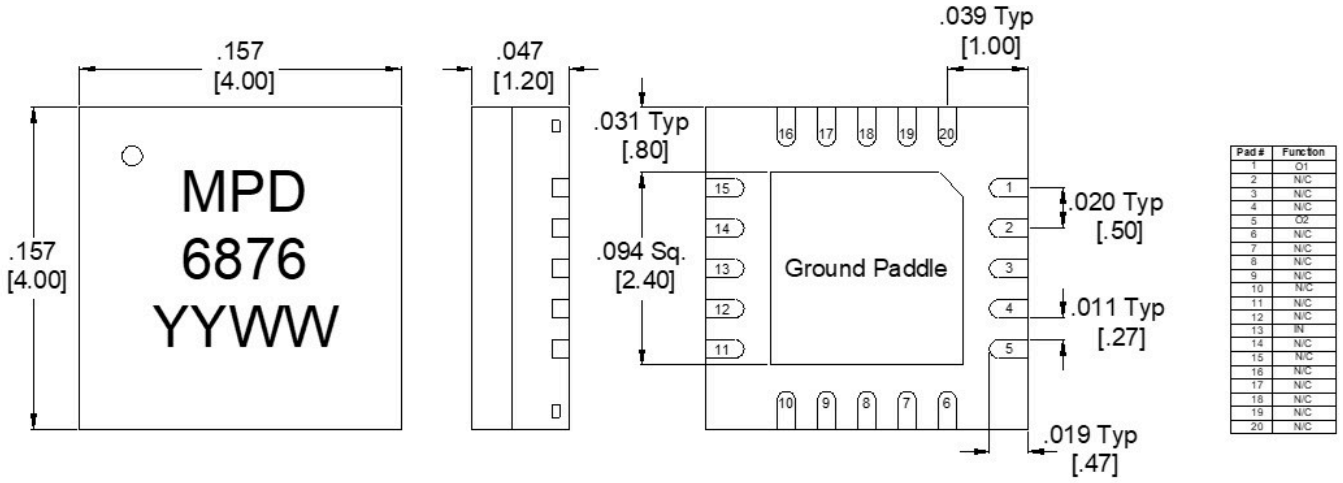
Mechanical Data

Outline Drawing

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



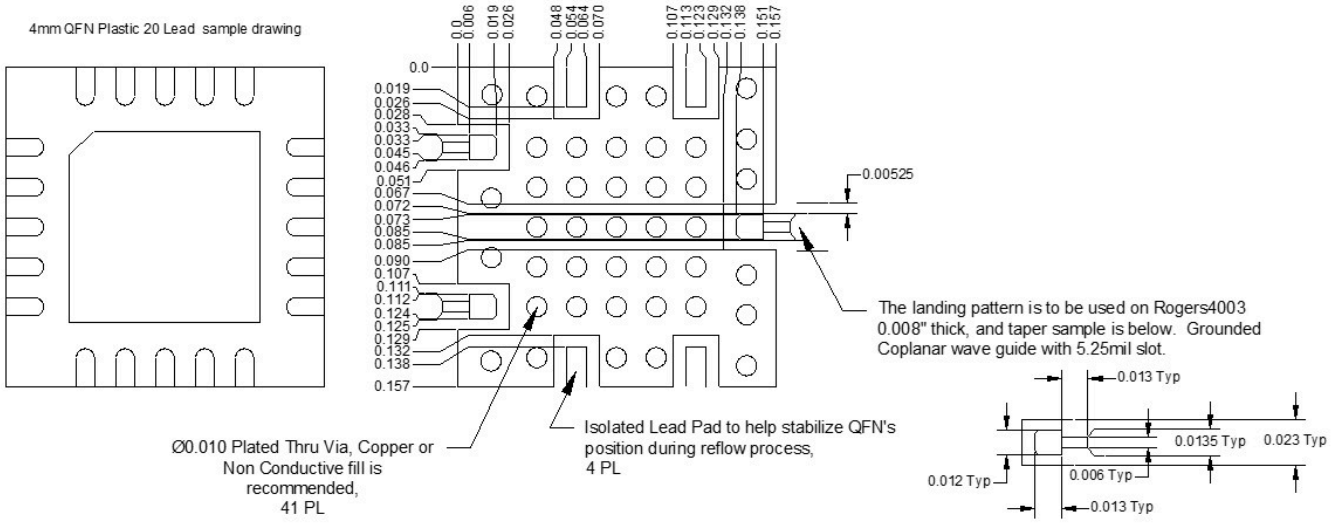
Pad #	Function
1	O1
2	N/C
3	N/C
4	N/C
5	O2
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	N/C
13	IN
14	N/C
15	N/C
16	N/C
17	N/C
18	N/C
19	N/C
20	N/C

Notes:

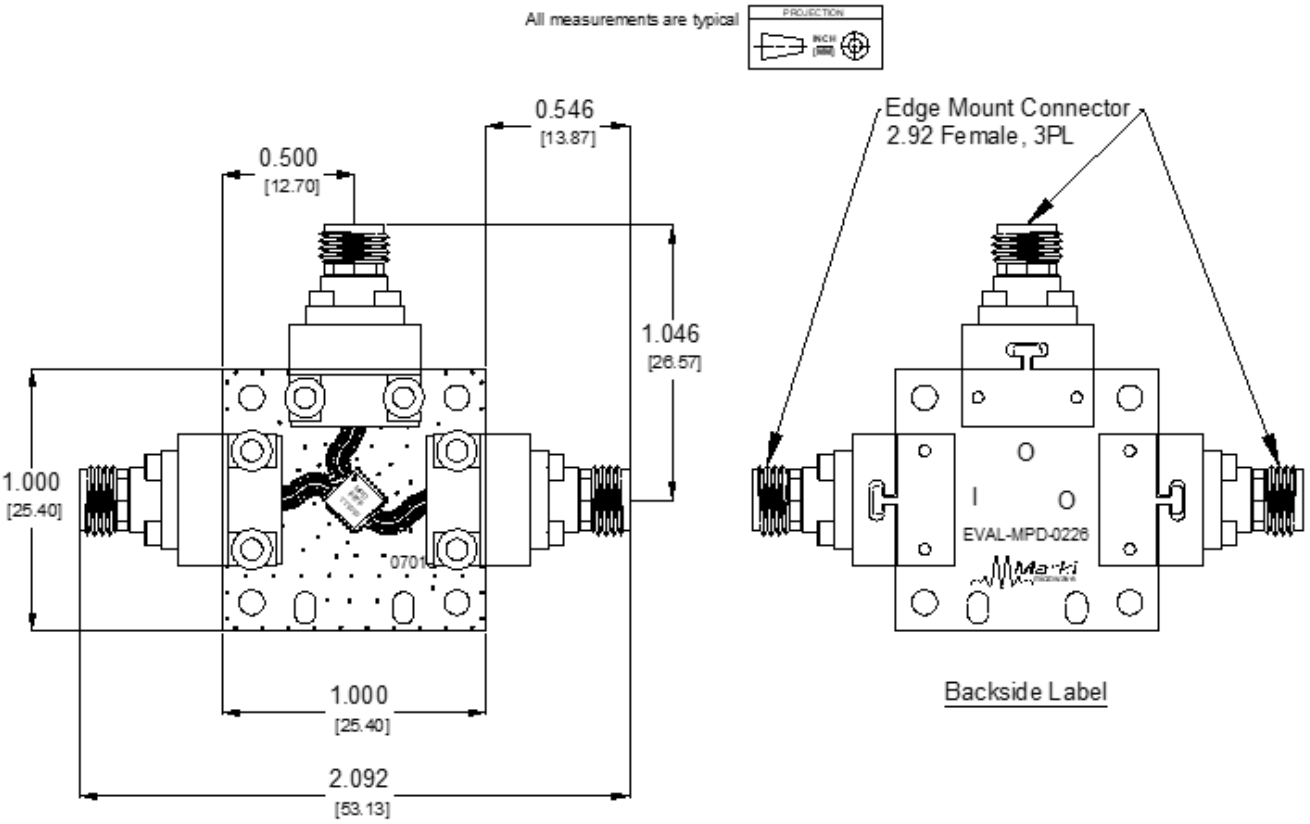
1. Substrate material is LCP.
2. I/O Leads and Ground Paddle plating is (from base to finish):
   Ni: 0.5um MIN
   Pd: 0.02um MIN
   Au: 0.05um MAX
3. All unconnected pins should be connected to PCB RF ground.

Footprint Image

Download : Footprint Drawing



Evaluation Board - Outline Drawing



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