Power Divider: Two Way, Zero Degree
5 - 3250 MHz

MAPD-011058
Rev. V1

Features

- Wide Bandwidth
- Low Insertion Loss
- Excellent Amplitude balance
- Small Surface Mount assembly
- Available on Tape & Reel
- RoHS* Compliant and Lead Free
- 260°C Reflow Compatible

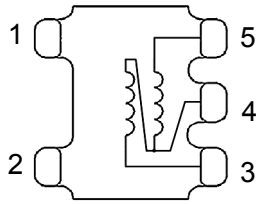
Applications

- CATV Broadband

Description

The MAPD-011058 is a two way, zero degree power divider covering a wide bandwidth

Functional Schematic



Pin Configuration[3]

Pin #	Function	Pin #	Function
1,2	Not used (Ground)	4	Input
3	Output 1	5	Output 2

3. The exposed pad centered on the package bottom must be connected to RF, DC and thermal ground.

Electrical Specifications: Freq. = 5 - 3250 MHz, T_A = 25°C, Z_0 = 75 Ω, P_{IN} = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Insertion Loss	5 - 1000 1000 - 2400 2400 - 3250	dB	—	0.6 0.8 0.8	1.0 1.3 1.6
Amplitude Balance	5 - 1000 1000 - 2400 2400 - 3250	dB	-0.4 -0.8 -1.0	0.0 0.0 0.0	0.4 0.8 1.0
Phase Balance	5 - 2400 2400 - 3250	°	-5.0 -7.0	0.1 0.2	5.0 7.0
Input Return Loss	5 - 2400 2400 - 3250	dB	7 6	9.2 8.5	—
Output Return Loss	5 - 2400 2400 - 3250	dB	4 3	8.0 5.5	—
Isolation	5 - 50 50 - 2400 2400 - 3250	dB	7 13 9	13 20 14	—

Ordering Information[1,2]

Part Number	Package
MAPD-011058	2000 piece reel
MAPD-011058-TB	Sample Board

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

Absolute Maximum Ratings[4,5]

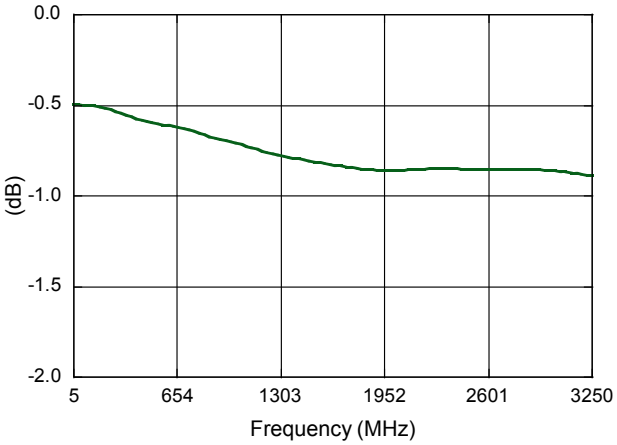
Parameter	Absolute Maximum
Input RF Power[6]	1 W
DC Current	0.5 A
Operating Temperature	-40°C to +85°C

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

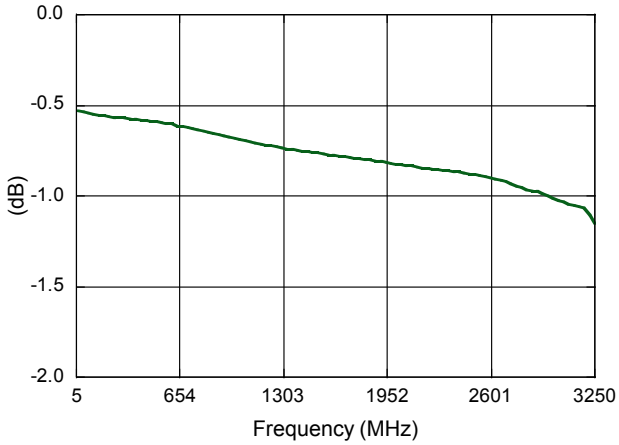
* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Typical Performance Curves[7]: Freq. = 5 - 3250 MHz, T_A = +25°C, Z_0 = 75 Ω, P_{IN} = 0 dBm

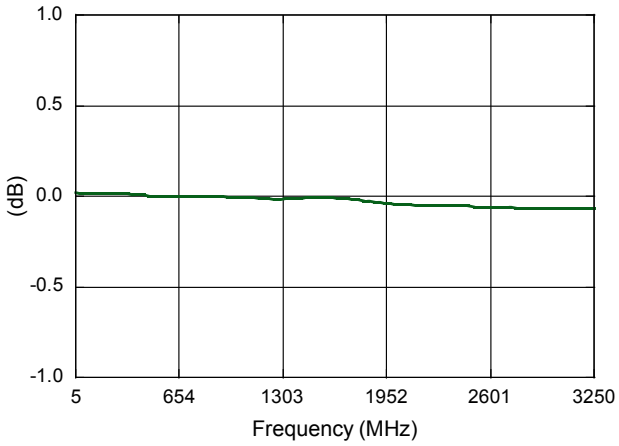
Insertion Loss 1 (pin 4-3)



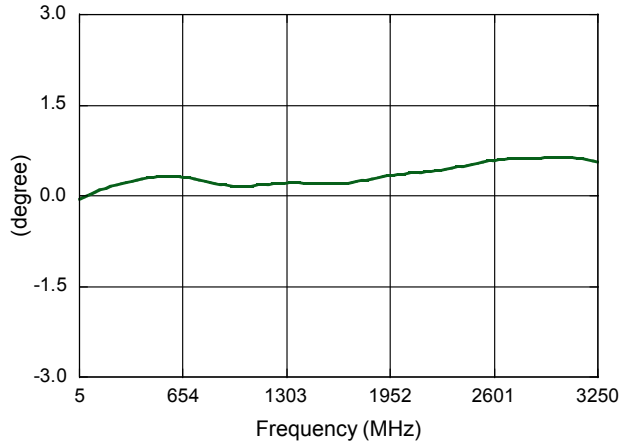
Insertion Loss 2 (pin 4-5)



Amplitude Balance



Phase Balance



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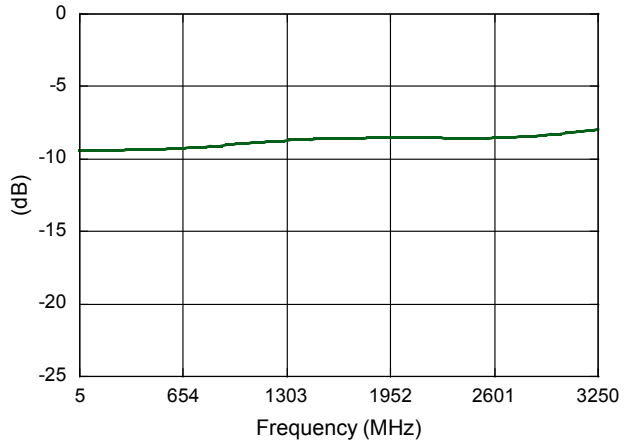
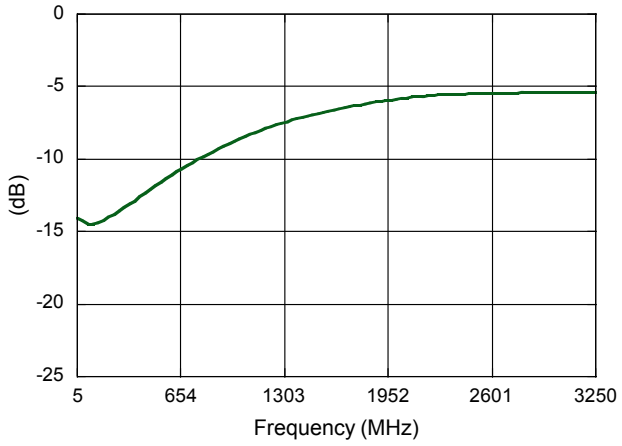
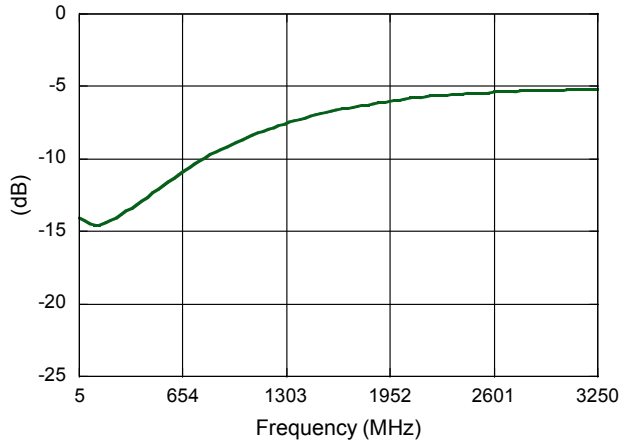
Input Return Loss (pin 4)



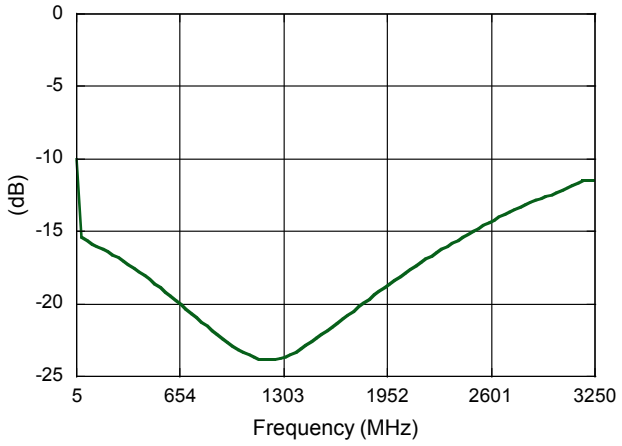
Output Return Loss 1 (pin 3)



Output Return Loss (pin 5)

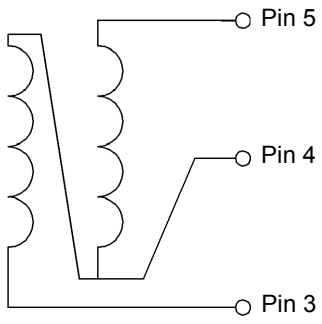


Isolation (pin 3-5)

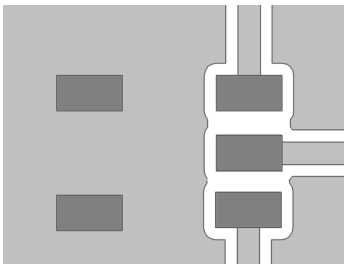


7. Temperature plots available on request.

Application Schematic

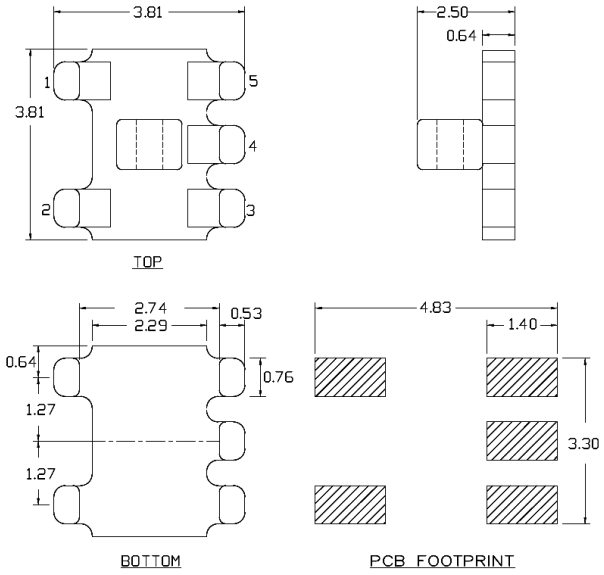


Recommended Board Layout[8,9]



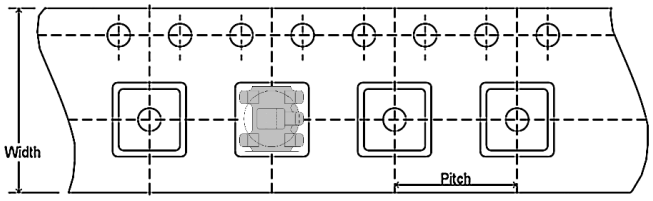
8. Recommended PCB layout shown above uses Rogers RO4350B substrate, thickness 0.254 mm.
9. Grounded coplanar wave guide trace, width 0.48 mm and Gap 0.25 mm.

Outline Drawing[10,11,12,13]



10. Dimensions in mm.
11. Tolerance: ±0.2 mm unless otherwise noted.
12. Model number and lot code are printed on the reel.
13. Plating finish: ENIG.

Carrier Tape Orientation



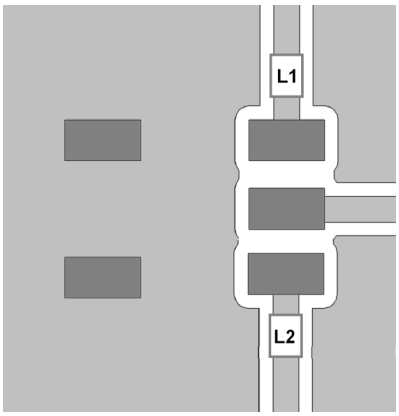
Tape & Reel Information[14]

Parameter	Units	Value
Qty per Reel	—	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	—	F33

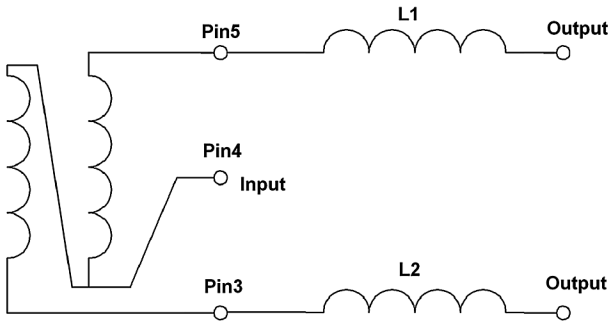
14. Reference Application Note ANI-019 for orientation.

Recommended External Matching for Improved Performance

PCB Layout



Schematic Including off Chip Components



Parts List

Component	Value	Package
L1 & L2	3.3 nH	0402

Electrical Specifications: Freq. = 5 - 3250 MHz, T_A = 25°C, Z_0 = 75 Ω, P_{IN} = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Insertion Loss	5 - 1000 1000 - 2400 2400 - 3250	dB	—	0.6 0.5 0.4	—
Amplitude Balance	5 - 1000 1000 - 2400 2400 - 3250	dB	—	0.0 0.1 0.2	—
Phase Balance	5 - 2400 2400 - 3250	°	—	0.8 0.2	—
Input Return Loss	5 - 2400 2400 - 3250	dB	—	10 17	—
Output Return Loss	5 - 2400 2400 - 3250	dB	—	10 14	—
Isolation	5 - 50 50 - 2400 2400 - 3250	dB	—	13 20 14	—

Recommended External Matching for Improved Performance

Typical Performance Curves[7]: Freq. = 5 - 3250 MHz, T_A = +25°C, Z_0 = 75 Ω, P_{IN} = 0 dBm

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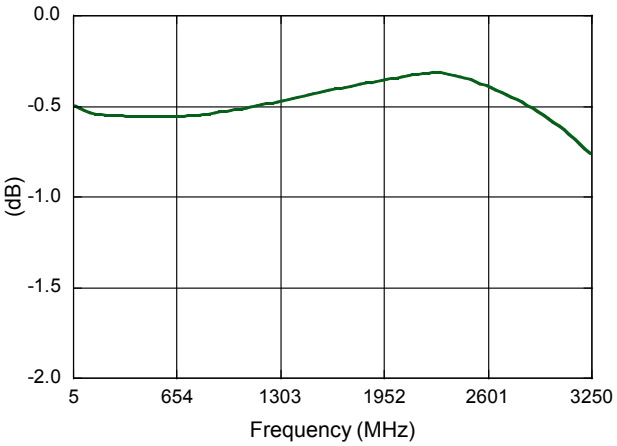
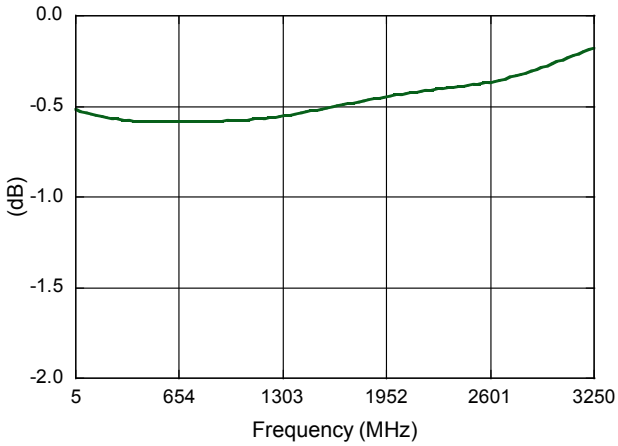
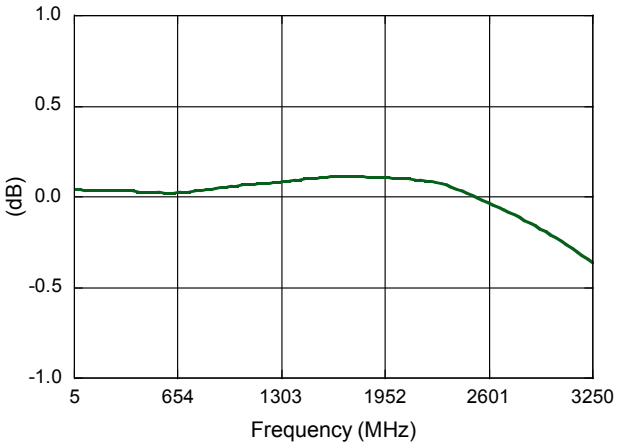


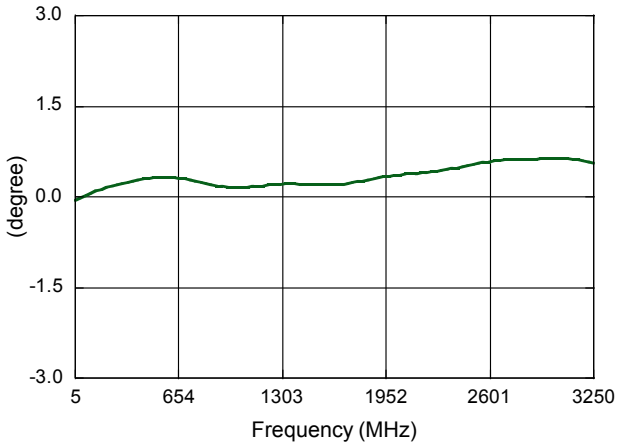
Insertion Loss 2 (pin 4-5)



Amplitude Balance



Phase Balance



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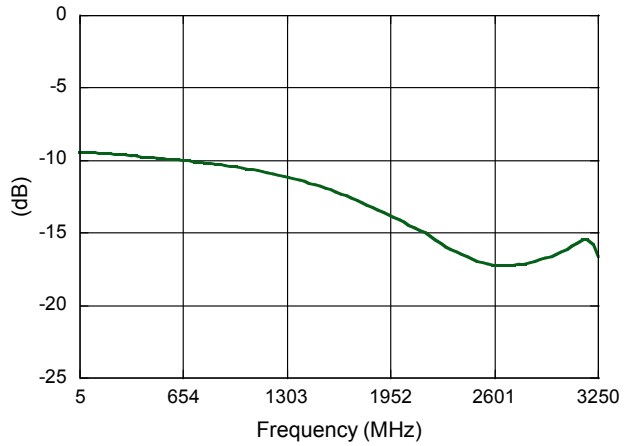
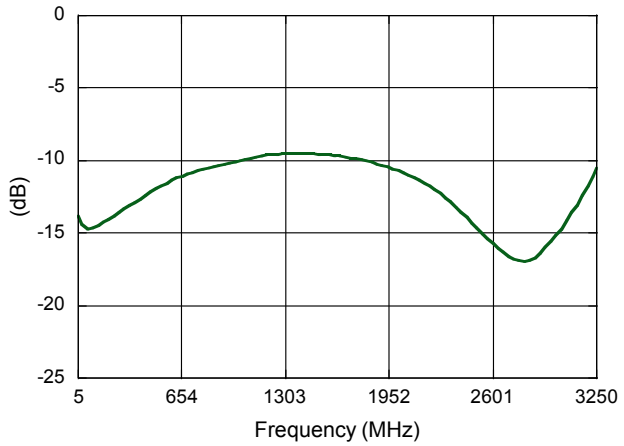
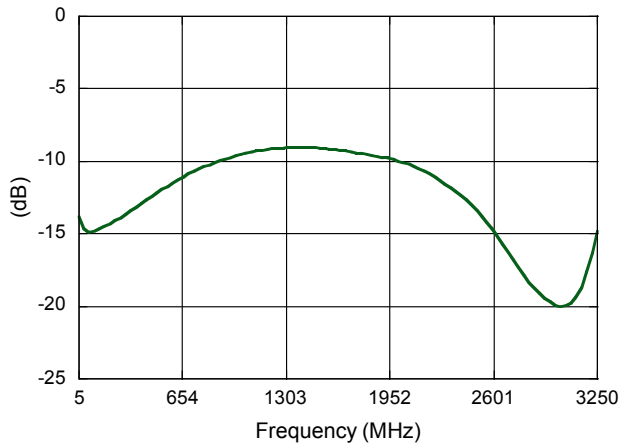
Input Return Loss (pin 4)



Output Return Loss 1 (pin 3)



Output Return Loss (pin 5)



Isolation (pin 3-5)