

Coupler, 17.3 dB 5 - 1800 MHz



MACP-011108

Rev. V1

Features

- 17.3 dB Coupling Ratio
- Surface Mount Package
- Excellent Temperature Stability
- Available on Tape & Reel
- RoHS* Compliant

Applications

- CATV / Broadband

Description

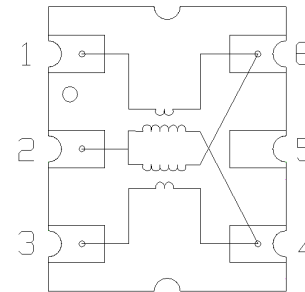
The MACP-011108 is a 17.3 dB broadband coupler in a surface mount package. It offers low loss, good isolation, good input/output matching and exceptional matching in return loss.

Ordering Information^{1,2}

Part Number	Package
MACP-011108	900 piece reel
MACP-011108-TB	Sample Board

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

Functional Schematic



Pin Configuration³

Pin #	Function
1	Input
2	Ground
3	Coupled
4	Isolated
5	Not connected
6	Output

3. MACOM recommends connecting unused package pins to ground.

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

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Electrical Specifications: Freq. = 5 - 1800 MHz, $T_A = +25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

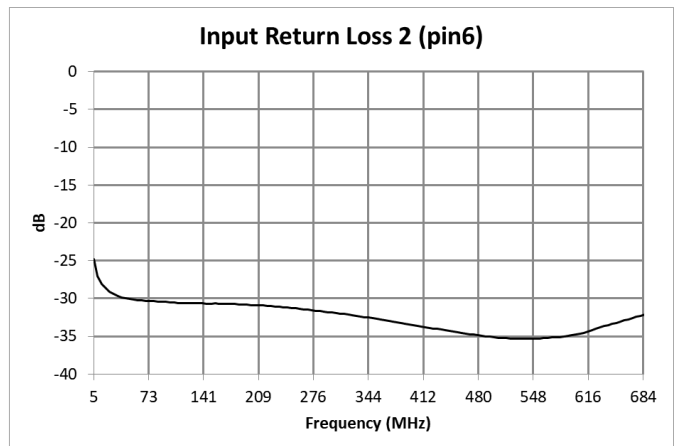
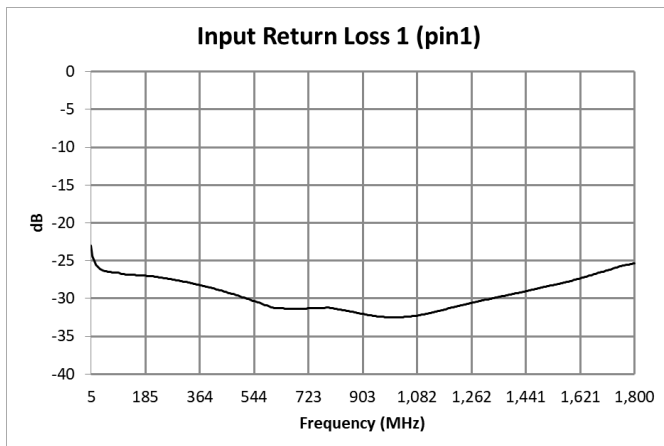
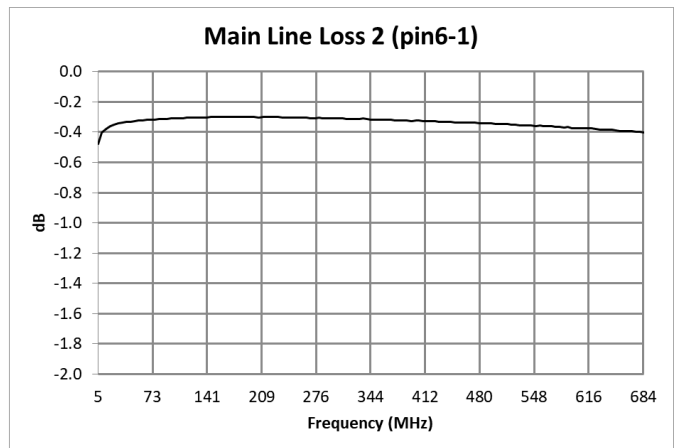
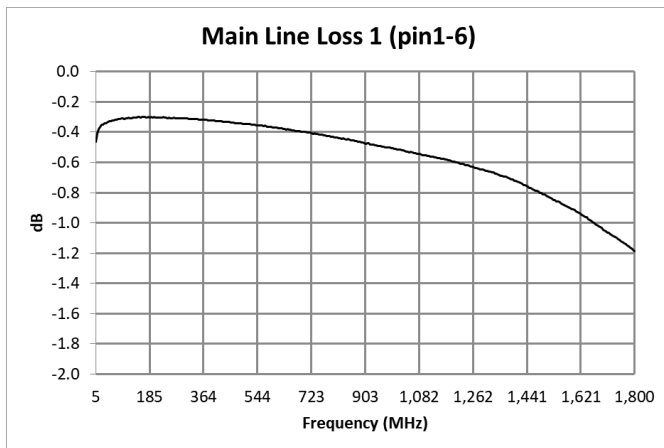
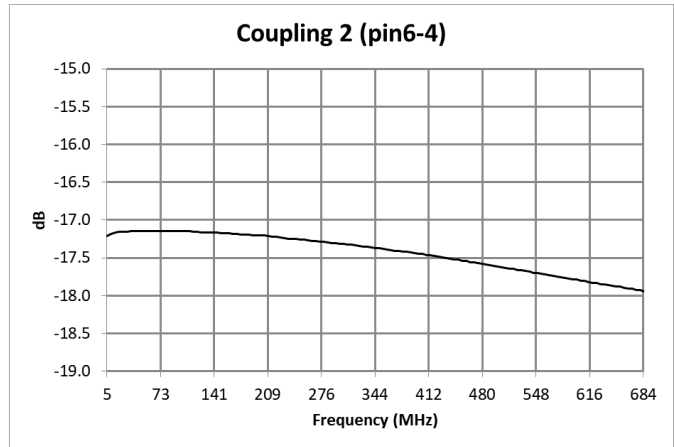
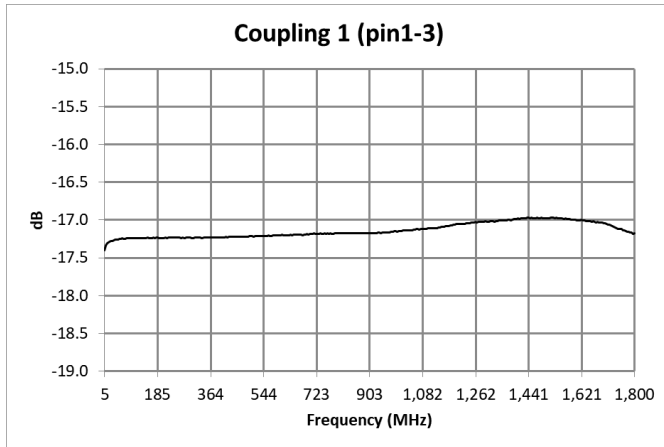
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Coupling 1 (pin1-3)	5 - 1800 MHz	dB	16.8	17.3	17.8
Coupling 2 (pin6-4)	5 - 684 MHz	dB	17.0	17.6	18.6
Main Line Loss 1 (pin1-6)	5 - 1225 MHz 1225 - 1800 MHz	dB	—	0.5 1.1	0.7 1.25
Main Line Loss 2 (pin6-1)	5 - 684 MHz	dB	—	0.4	0.7
Input Return Loss 1 (pin1)	5 - 1225 MHz 1225 - 1800 MHz	dB	20 18	26 20	—
Input Return Loss 2 (pin6)	5 - 684 MHz	dB	20	26	—
Output Return Loss 1 (pin6)	5 - 1225 MHz 1225 - 1800 MHz	dB	18 15	26 20	—
Output Return Loss 2 (pin1)	5 - 684 MHz	dB	18	26	—
Coupled Return Loss 1 (pin3)	5 - 1225 MHz 1225 - 1800 MHz	dB	20 20	27 25	—
Coupled Return Loss 2 (pin4)	5 - 684 MHz	dB	20	27	—
Isolation 1 (pin1-4)	5 - 1225 MHz 1225 - 1800 MHz	dB	26 21	34 24	—
Isolation 2 (pin6-3)	5 - 684 MHz	dB	26	34	—

Absolute Maximum Ratings^{4,5}

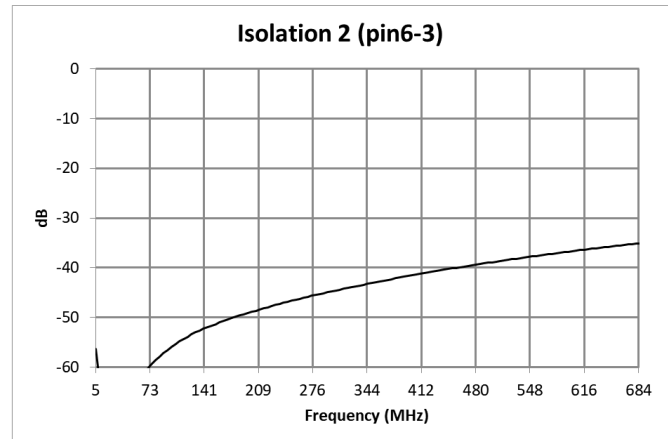
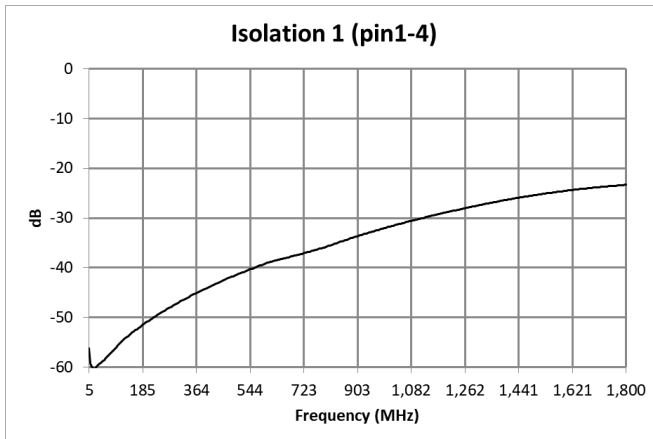
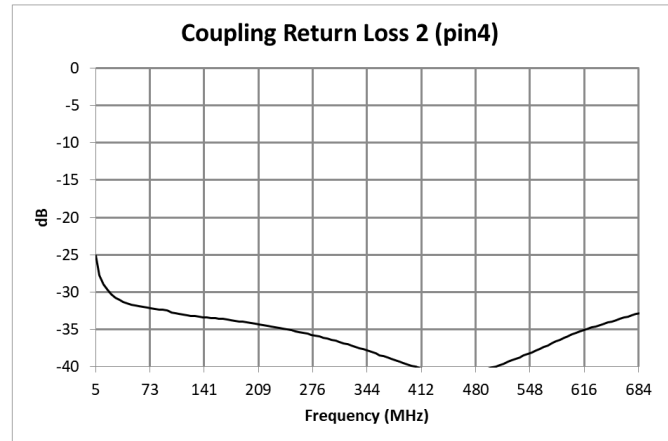
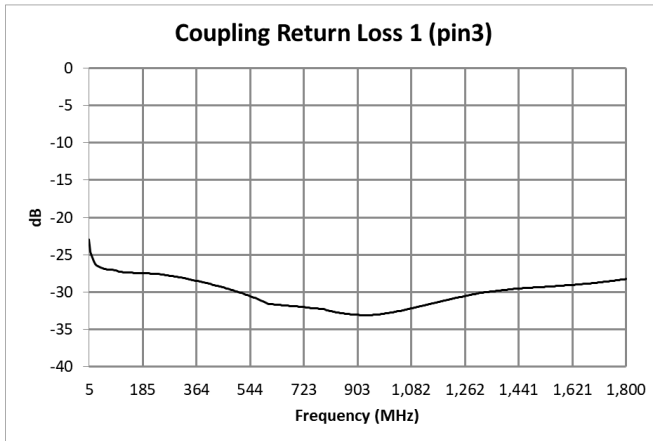
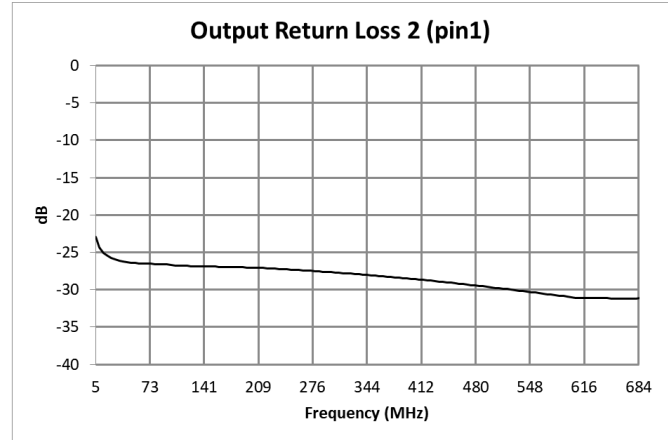
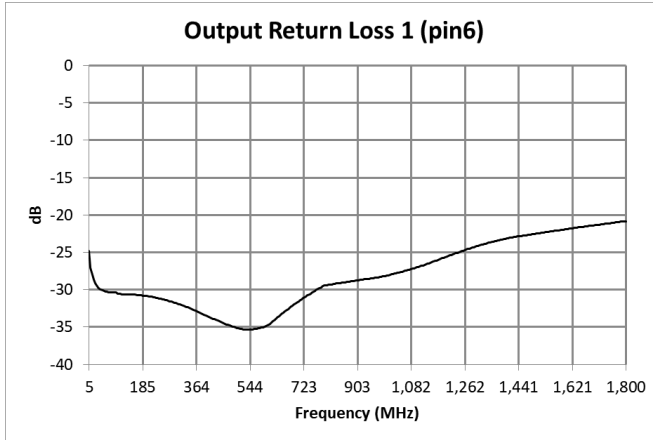
Parameter	Absolute Maximum
Input Power	2 W
DC Current	500 mA
Operating Temperature	-40°C to +85°C

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

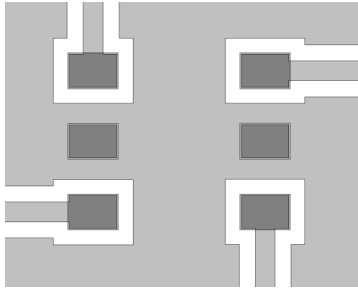
Typical Performance Curves



Typical Performance Curves

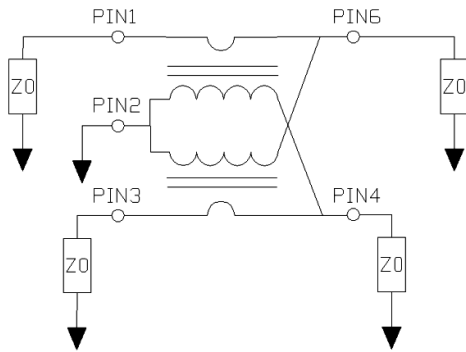


Recommended Board Layout⁶

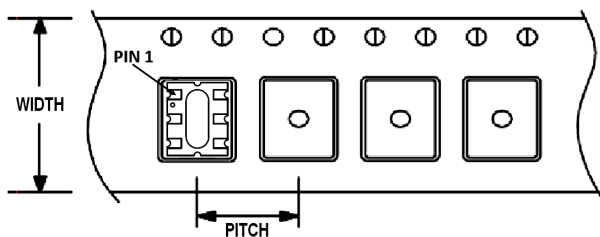


6. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

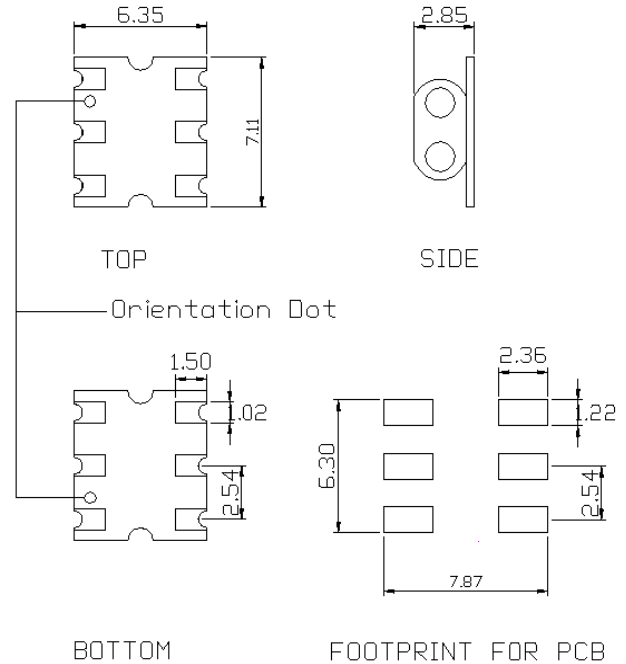
Application Schematic



Carrier Tape Orientation



Outline Drawing^{7,8,9,10}



- 7. Dimensions in mm.
- 8. Tolerance: ± 0.2 mm unless otherwise noted.
- 9. Model number and lot code printed on reel.
- 10. Finish: Electroless Nickel Immersion Gold.

Tape & Reel Information

Parameter	Units	Value
Qty per reel	—	900
Reel Size	mm	330
Tape Width	mm	16.0
Pitch	mm	12.0
Orientation	—	F33
Reference Application Note ANI-019 for orientation		

Rev	Date	Change Description
V1	2023-December-15	Production Release

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