

12 dB Coupler 5 - 1250 MHz

Rev. V4

Features

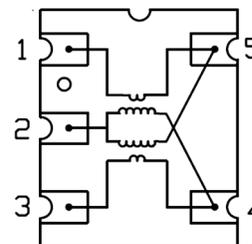
- 12 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description

The MACP-011059 is a 12 dB coupler in a low cost, surface mount package.

Ideally suited for CATV, Full Duplex and DOCSIS 3.1 applications.

Functional Schematic



Pin Configuration³

Pin #	Function	Pin #	Function
1	Input	4	External 75 Ω
2	Ground	5	Output
3	Coupled		

3. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 5 - 1250 MHz, $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

Parameter	Conditions	Units	Min.	Typ.	Max.
Coupling Ratio	—	dB	—	12	—
Coupling (Pin 1- Pin 3)	5 - 1250 MHz	dB	11.5	12	12.5
Main Line Loss (Pin 1- Pin 5)	5 - 700 MHz 700 - 1250 MHz	dB	—	0.75 0.95	0.9 1.2
Isolation (Pin 5- Pin 3)	5 - 700 MHz 700 - 1250 MHz	dB	28 20	32 23	—
Input Return Loss (Pin 1)	5 - 1250 MHz	dB	18	22	—
Output Return Loss (Pin 5)	5 - 1250 MHz	dB	18	26	—
Coupling Return Loss (Pin 3)	5 - 1250 MHz	dB	18	25	—

Ordering Information^{1,2}

Part Number	Package
MACP-011059	900 piece reel
MACP-011059-TB	Sample Board

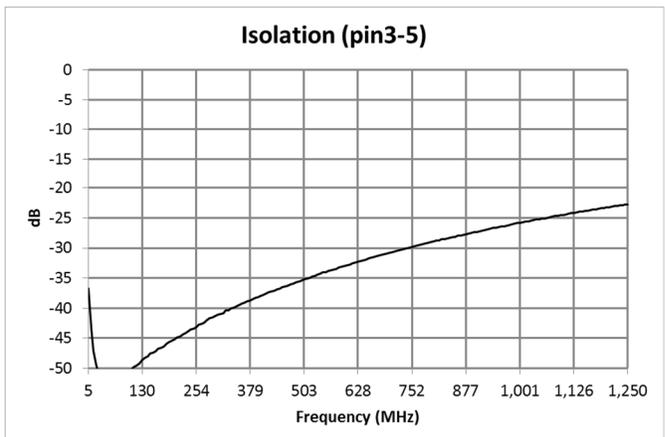
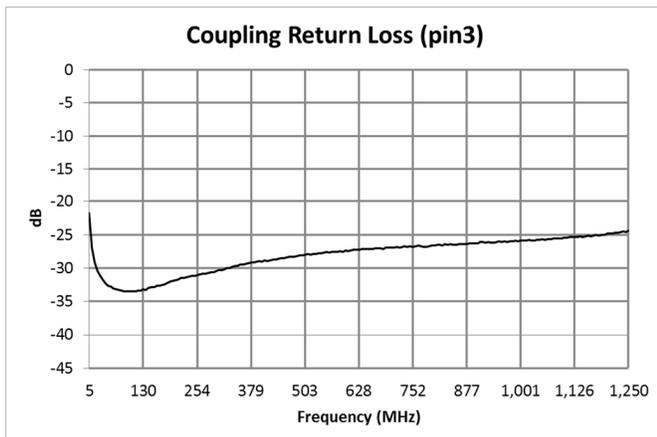
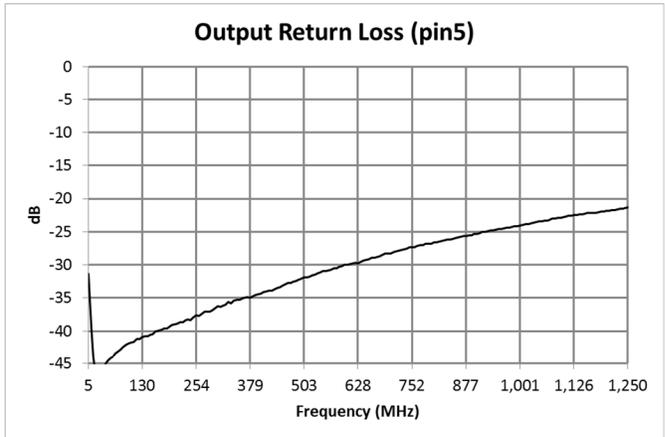
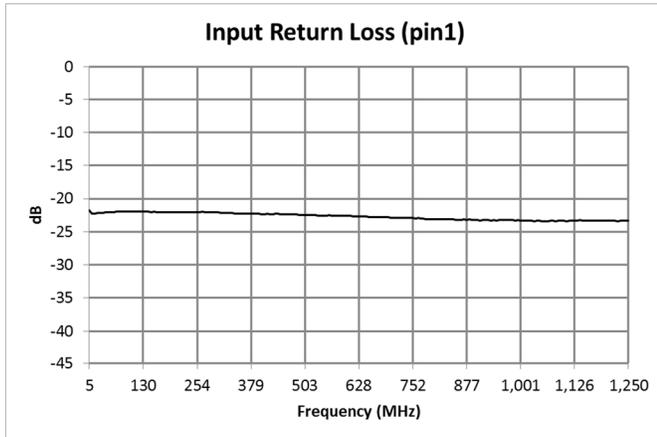
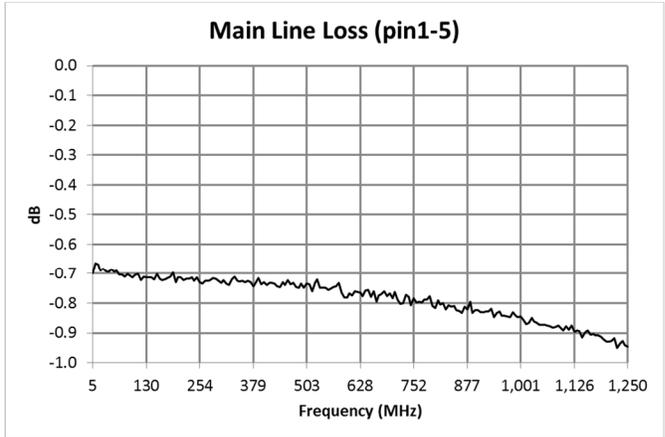
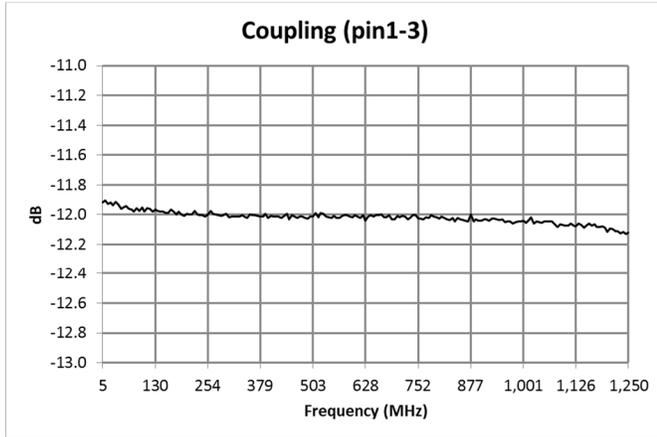
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

Absolute Maximum Ratings^{4,5}

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

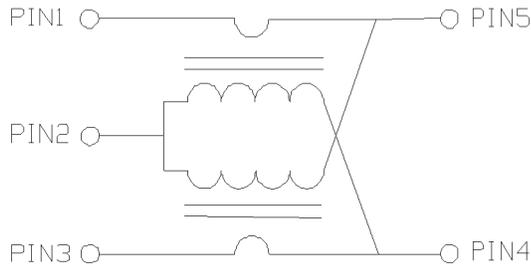
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

Typical Performance Curves⁶

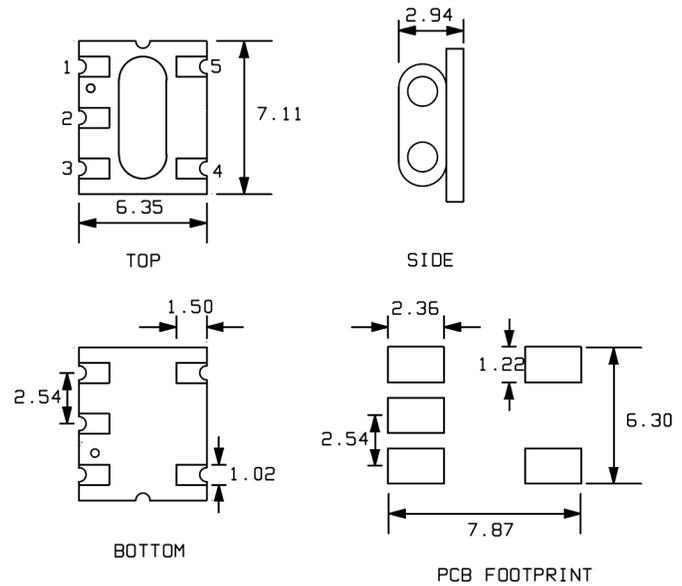


6. Full temperature plots available on request.

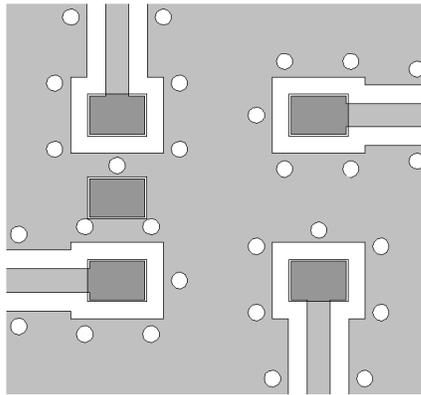
Application Schematic



Outline Drawing^{8,9,10,11}



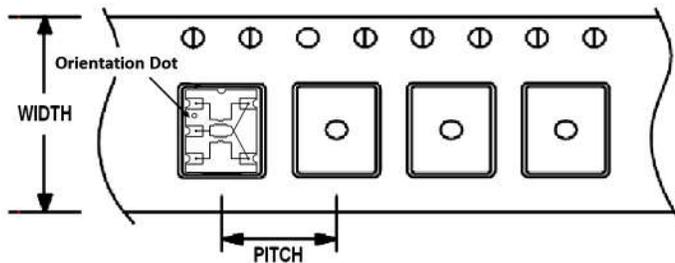
Recommended Board Layout⁷



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

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

Carrier Tape Orientation



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		

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