

## Features

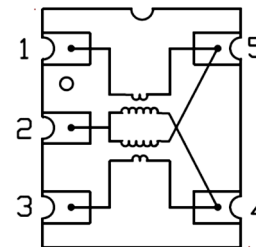
- 12 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

## 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 Configuration<sup>3</sup>

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<sub>A</sub> = 25°C, Z<sub>0</sub> = 75 Ω, P<sub>IN</sub> = 0 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<sup>1,2</sup>

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

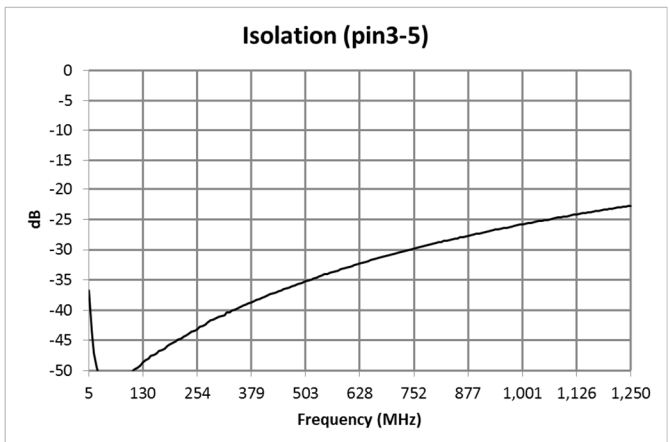
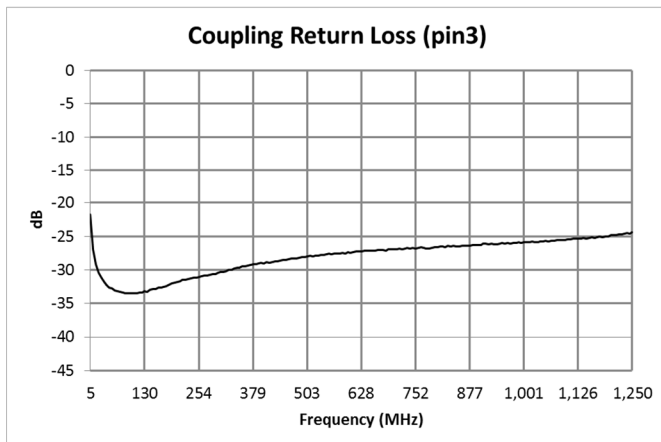
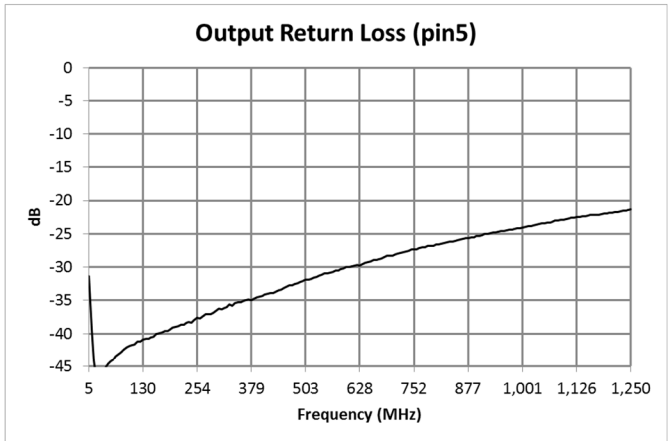
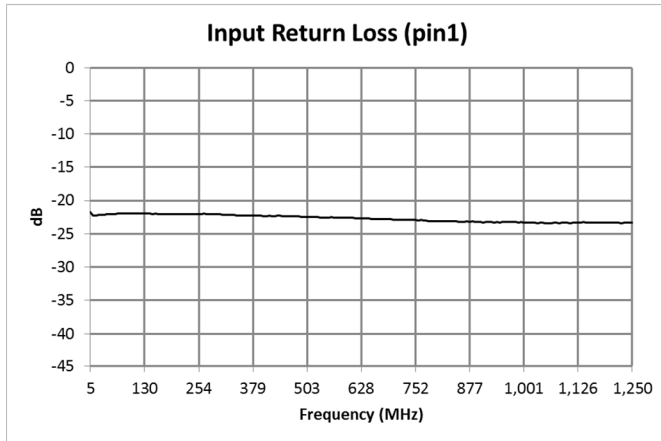
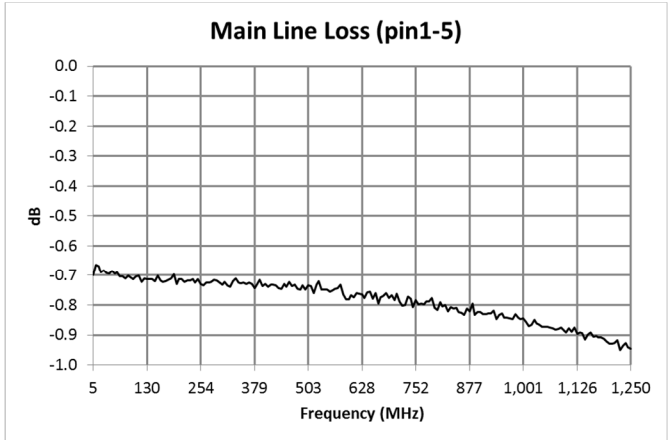
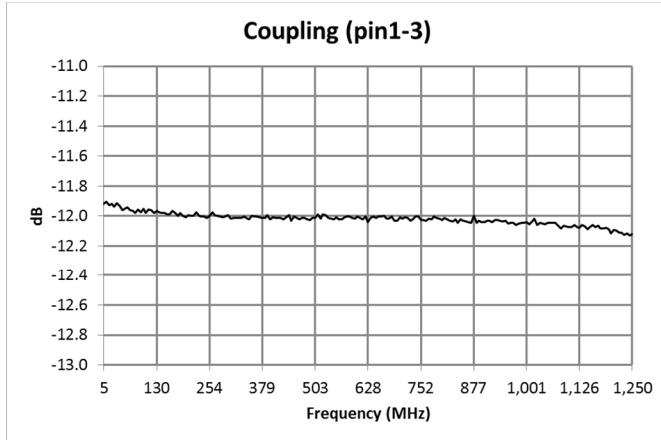
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

## Absolute Maximum Ratings<sup>4,5</sup>

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

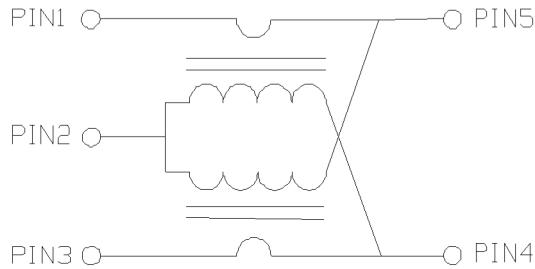
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

## Typical Performance Curves<sup>6</sup>

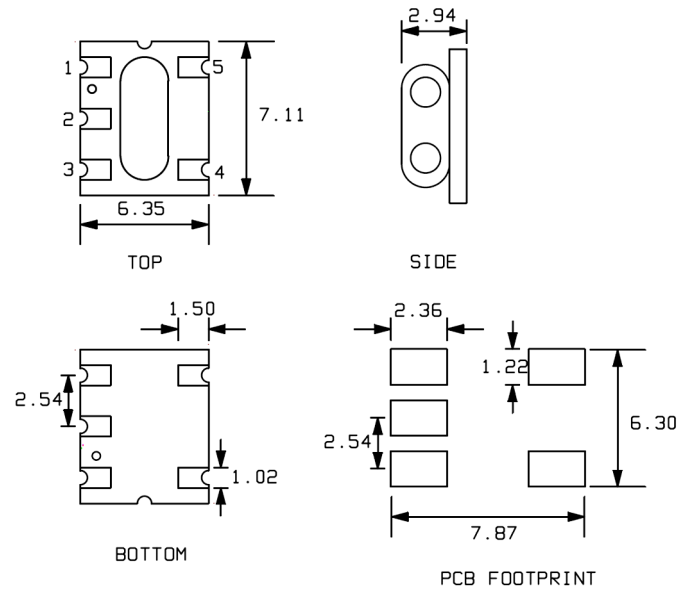


6. Full temperature plots available on request.

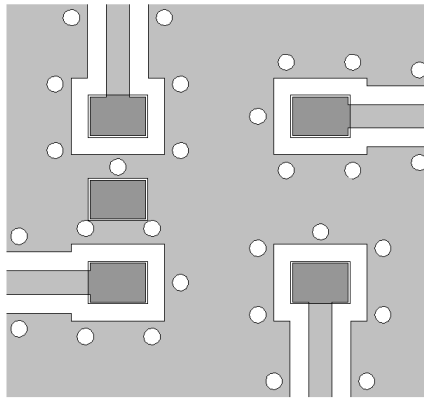
## Application Schematic



## Outline Drawing<sup>8,9,10,11</sup>



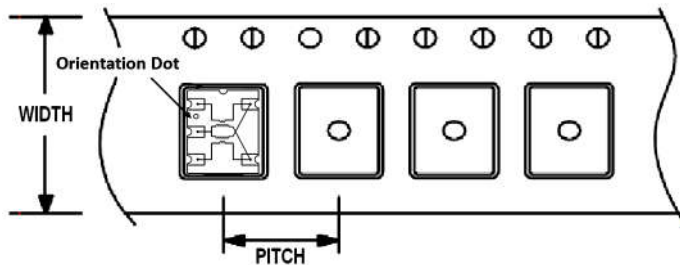
## Recommended Board Layout<sup>7</sup>



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:  $\pm 0.2$  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		