

## 16 dB Coupler 5 - 1225 MHz

Rev. V1

### Features

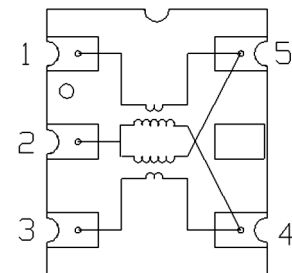
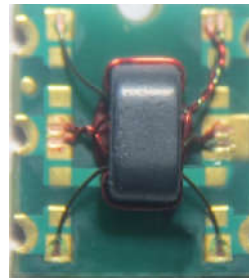
- 16 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- High isolation from 100 - 700 MHz
- Low insertion loss
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

### Description

The MACP-011056 is a 16 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 $\Omega$
2	Ground	5	Output
3	Coupled		

3. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq. = 5 - 1225 MHz, $T_A = 25^\circ\text{C}$ , $Z_0 = 75 \Omega$ , $P_{IN} = 0 \text{ dBm}$

Parameter	Frequency Test Conditions (MHz)	Units	Min.	Typ.	Max.
Coupling Ratio	-	dB	—	16	—
Coupling (pin 1 - pin 3)	5 - 1225	dB	15.5	16	16.5
Main Line Loss (pin 1 - pin 5)	5 - 700 700 - 1225	dB	—	0.55 0.70	0.65 0.90
Isolation (pin 5 - pin 3)	5 - 100 100 - 700 700 - 1225	dB	37 40 28	40 43 33	—
Input Return Loss (pin 1)	5 - 700 700 - 1225	dB	18 15	23 18	—
Output Return Loss (pin 5)	5 - 700 700 - 1225	dB	19 15	24 18	—
Coupling Return Loss (pin 3)	5 - 700 700 - 1225	dB	14 11	19 13	—

### Ordering Information<sup>1,2</sup>

Part Number	Package
MACP-011056	900 piece reel
MACP-011056-TB	Sample Board

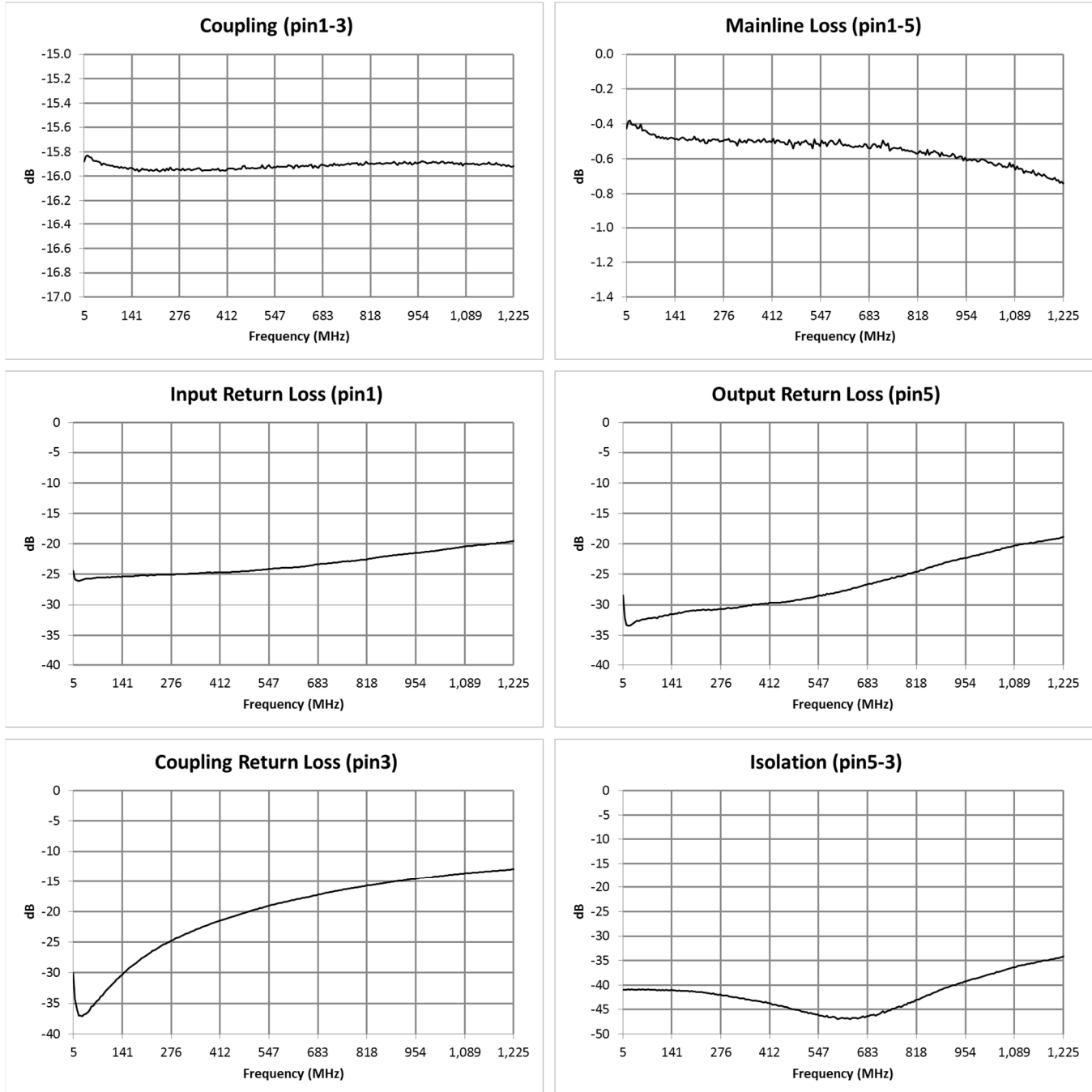
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

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

Parameter	Absolute Maximum
Input Power <sup>6</sup>	2 W
DC Current	500 mA
Operating Temperature	-40°C to +85°C

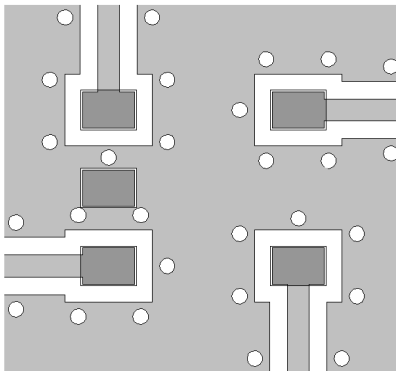
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at +25°C only.

## Typical Performance Curves<sup>7</sup>



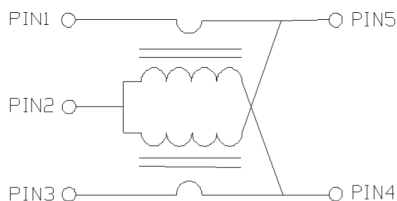
7. Full temperature plots available on request.

## PCB Layout<sup>8</sup>

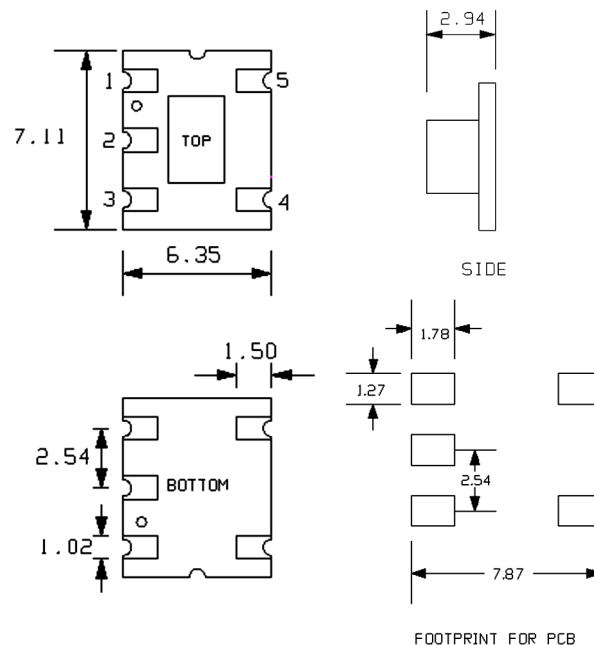


8. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

## Application Schematic

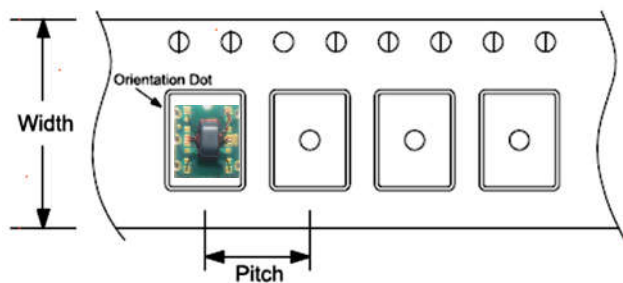


## Outline Drawing<sup>9,10,11,12</sup>



9. Dimensions in mm.  
10. Tolerance:  $\pm 0.2$  mm unless otherwise noted.  
11. Model number and lot code printed on reel.  
12. 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	-	F62
Reference Application Note ANI-019 for orientation		

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