

7.5 dB Coupler 5 - 1225 MHz

Rev. V3

Features

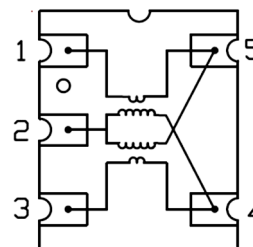
- 7.5 dB Coupling Ratio
- Surface Mount Package
- Available on Tape & Reel
- High isolation from 100 - 700 MHz
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description

The MACP-011051 is a 7.5 dB coupler in a 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 - 1225 MHz, $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Coupling Ratio	—	dB	—	7.5	—
Coupling (Pin 1 - Pin 3)	5 - 1225	dB	7.0	7.5	8.0
Main Line Loss (Pin 1 - Pin 5)	5 - 700 700 - 1225	dB	—	1.8 2.0	2.0 2.2
Isolation (Pin 5 - Pin 3)	5 - 100 100 - 700 700 - 1225	dB	28 40 26	35 42 29	—
Input Return Loss (Pin 1)	5 - 700 700 - 1225	dB	15 15	17 16	—
Output Return Loss (Pin 5)	5 - 700 700 - 1225	dB	18 18	26 20	—
Coupling Return Loss (Pin 3)	5 - 700 700 - 1225	dB	15 15	18 16	—

Ordering Information^{1,2}

Part Number	Package
MACP-011051	900 piece reel
MACP-011051-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.

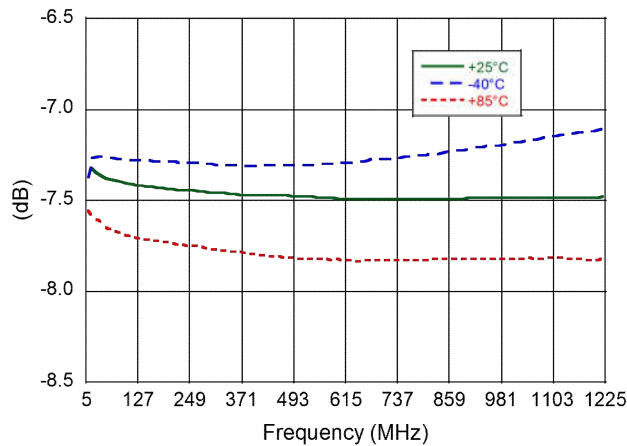
5. MACOM does not recommend sustained operation near these survivability limits.

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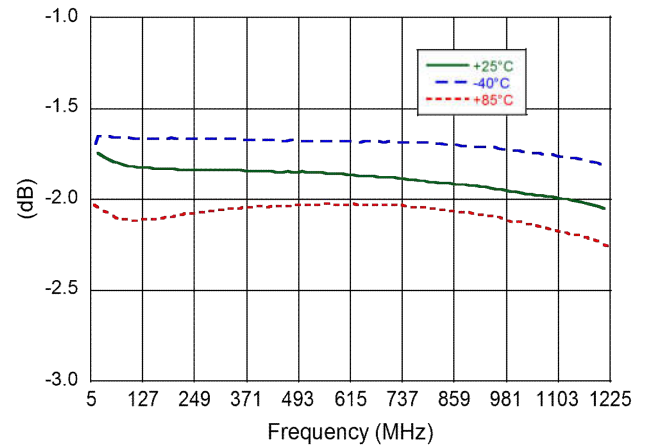
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Typical Performance Curves

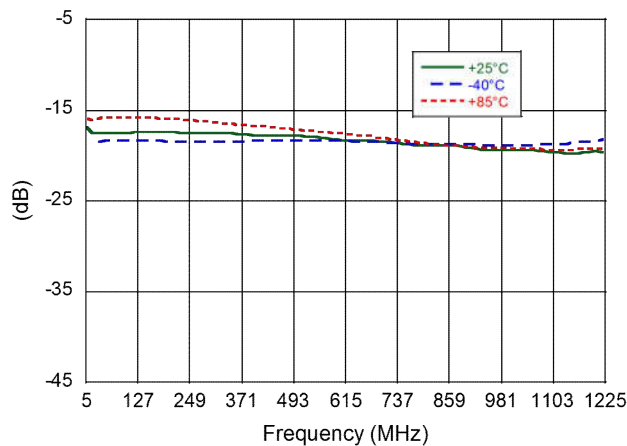
Coupling (pin 1 - 3)



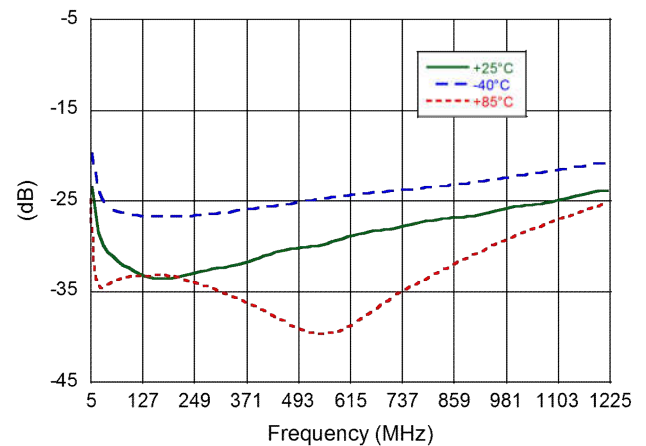
Mainline Loss (pin 1 - 5)



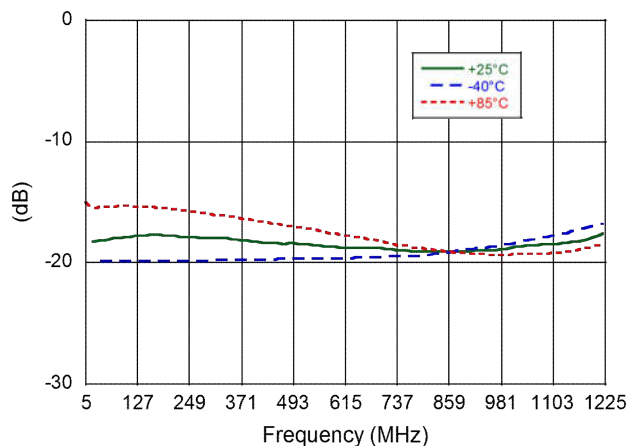
Input Return Loss (pin 1)



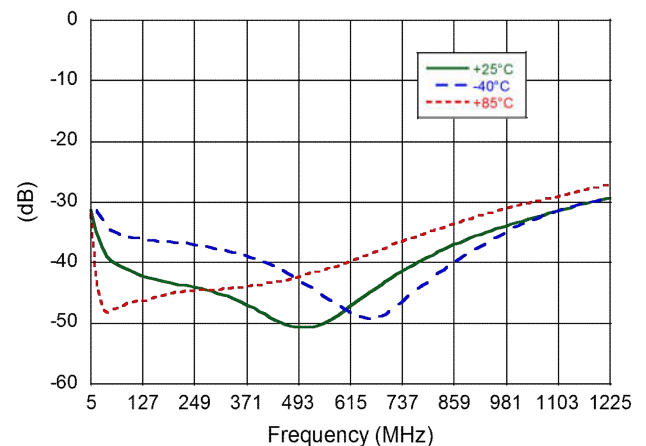
Output Return Loss (pin 5)



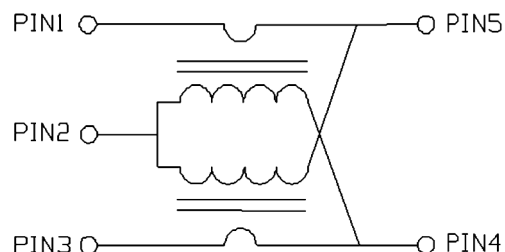
Coupling Return Loss (pin 3)



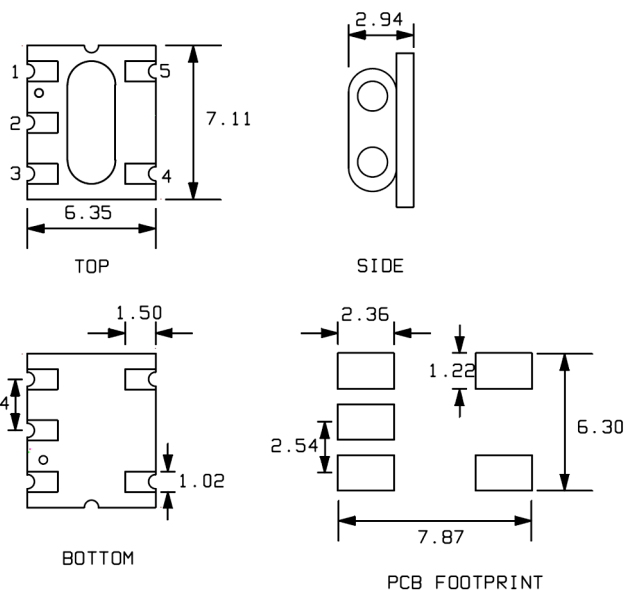
Isolation (pin 3 - 5)



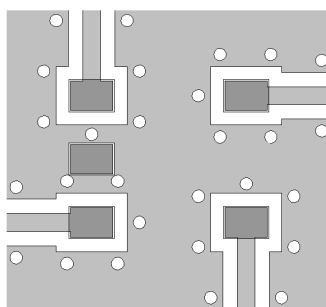
Application Schematic



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



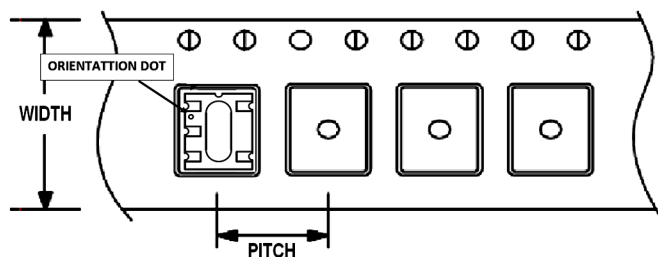
Recommended Board Layout⁶



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.

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.

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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