

7.5 dB Coupler 5 - 1225 MHz

Rev. V3

Features

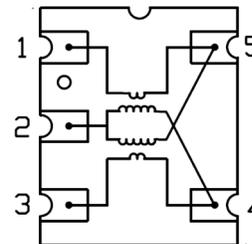
- 7.5 dB Coupling Ratio
- Surface Mount Package
- Available on Tape & Reel
- High isolation from 100 - 700 MHz
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

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.

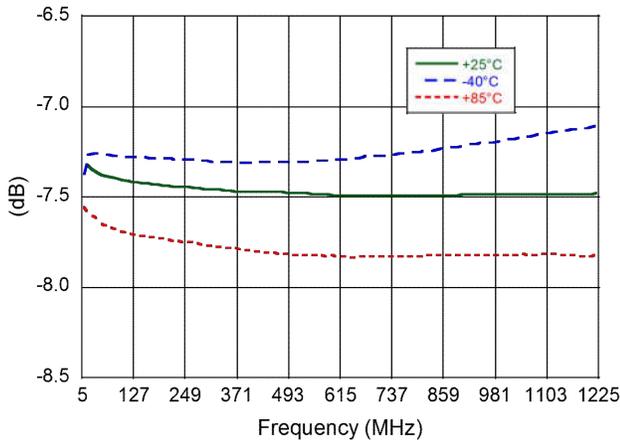
Absolute Maximum Ratings^{4,5}

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

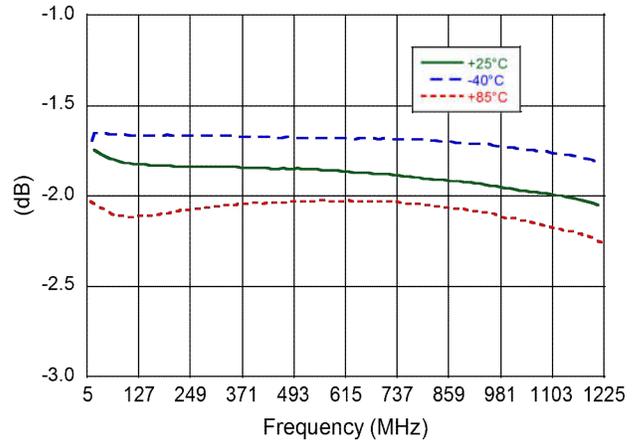
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

Typical Performance Curves

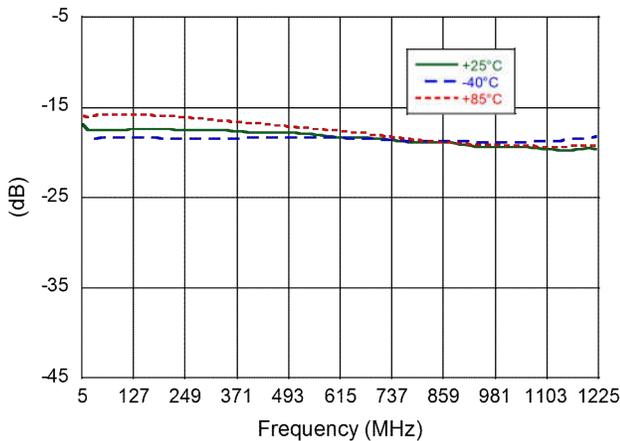
Coupling (pin 1 - 3)



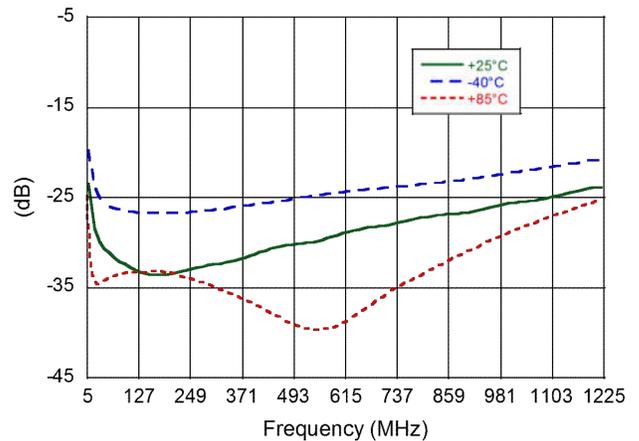
Mainline Loss (pin 1 - 5)



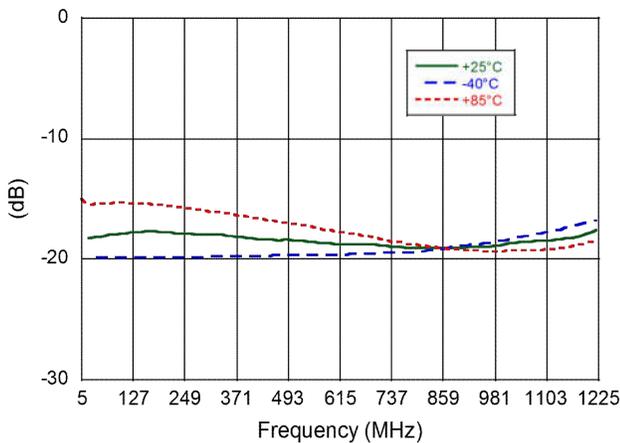
Input Return Loss (pin 1)



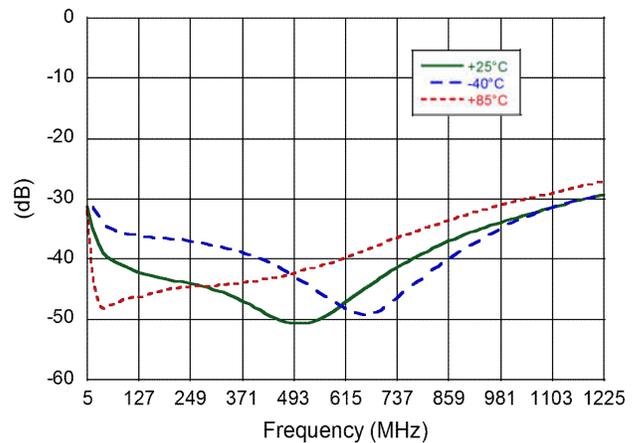
Output Return Loss (pin 5)



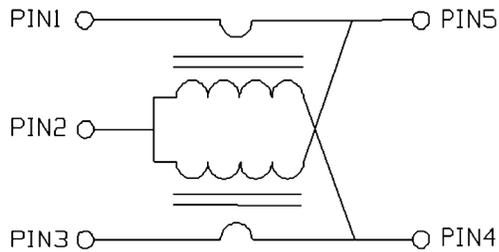
Coupling Return Loss (pin 3)



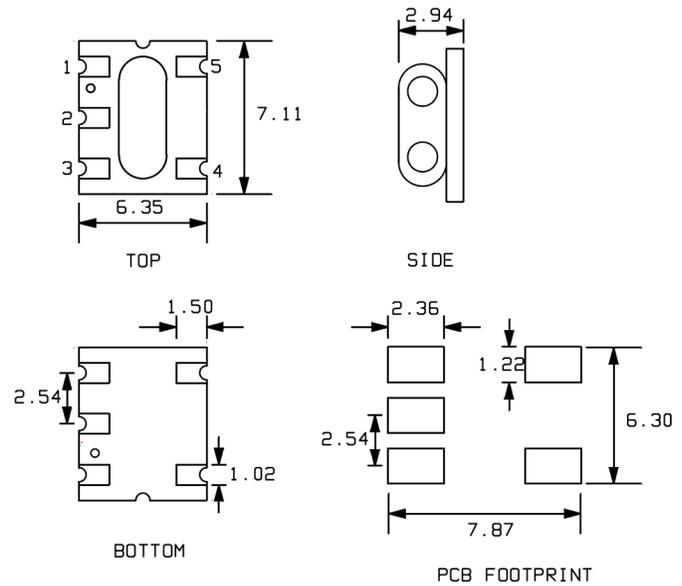
Isolation (pin 3 - 5)



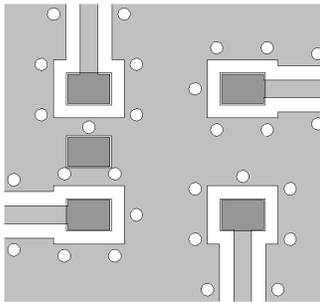
Application Schematic



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



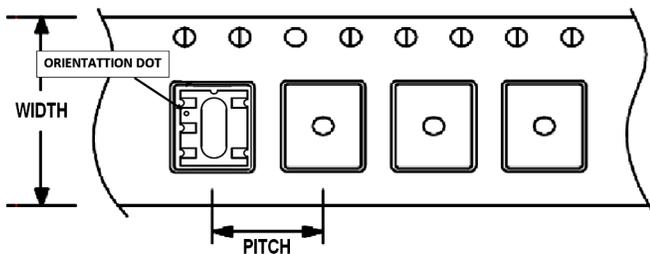
Recommended Board Layout⁶



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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