

Coupler, 7.5 dB 5 - 1800 MHz



MACP-011138
Rev. V1

Features

- 7.5 dB Coupling Ratio
- Surface Mount Package
- High Isolation from 100 - 834 MHz
- Excellent Temperature Stability
- Available on Tape & Reel
- RoHS* Compliant

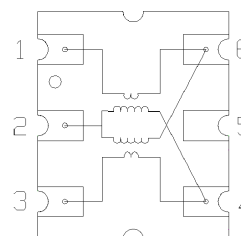
Applications

- CATV, Unified DOCSIS 4.0, Full Duplex and DOCSIS 3.1

Description

The MACP-011138 is a 7.5 dB coupler in a surface mount package.

Functional Schematic



Pin Configuration³

Pin #	Function	Pin #	Function
1	Input	4	External 90 Ω
2	Ground	5	Not Connected
3	Coupled	6	Output

3. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 5 - 1800 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	—	7	—
Coupling (pin 1 - pin 3)	5 - 1225 1225 - 1800	dB	7.0 7.0	7.5 7.8	8.0 8.25
Main Line Loss (pin 1 - pin 6)	5 - 700 700 - 1225 1225 - 1800	dB	—	1.5 2.0 3.0	1.9 2.4 3.7
Isolation (pin 6 - pin 3)	5 - 100 100 - 834 834 - 1225 1225 - 1800	dB	28 38 25 21	35 42 32 25	—
Input Return Loss (pin 1)	5 - 1225 1225 - 1800	dB	17 15	22 18	—
Output Return Loss (pin 6)	5 - 700 700 - 1225 1225 - 1800	dB	17 13 11	20 16 14	—
Coupling Return Loss (pin 3)	5 - 700 700 - 1225 1225 - 1800	dB	15 13 11	18 16 14	—

Ordering Information^{1,2}

Part Number	Package
MACP-011138	900 piece reel
MACP-011138-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

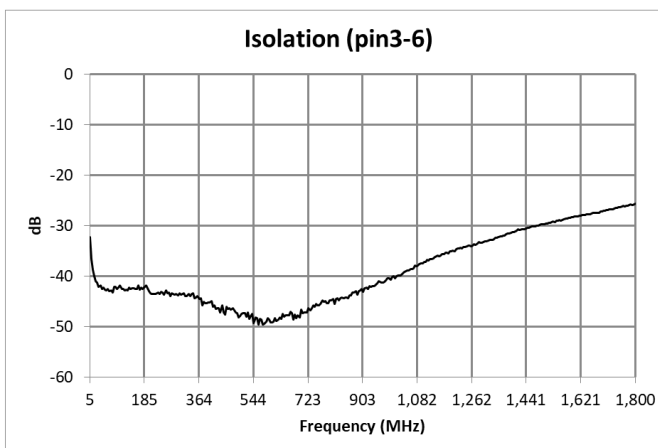
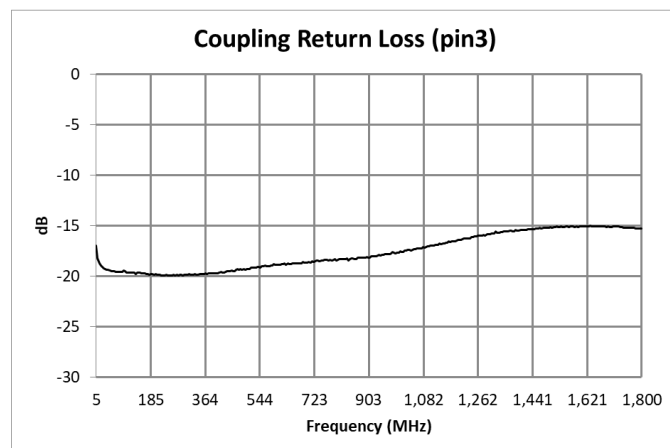
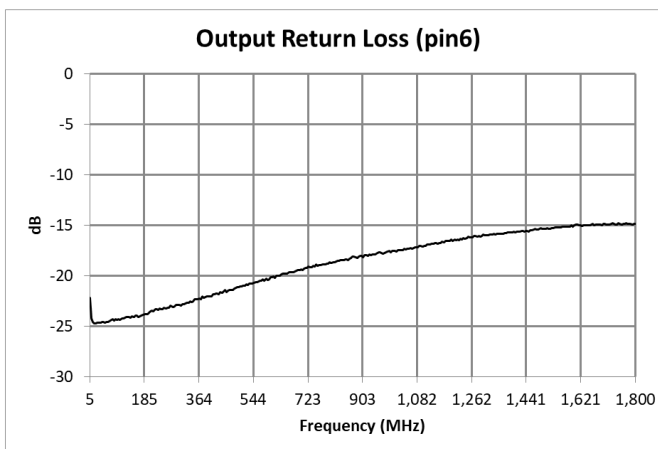
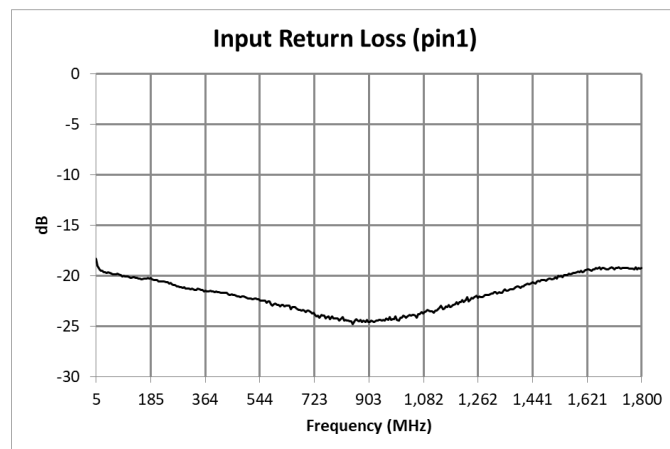
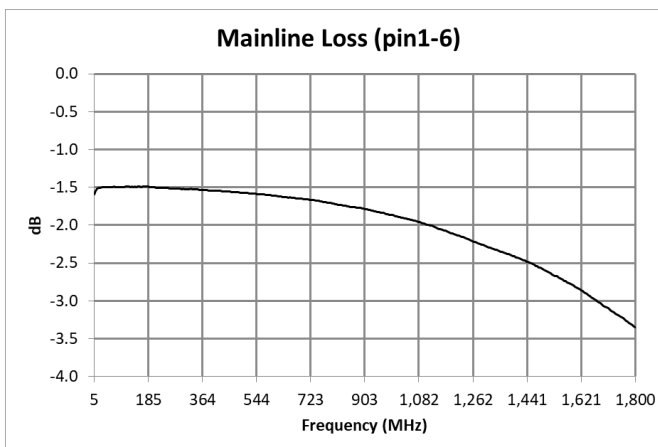
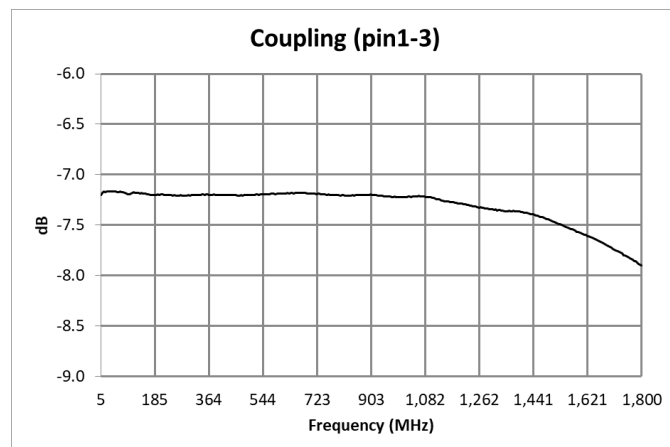
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

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Typical Performance Curves

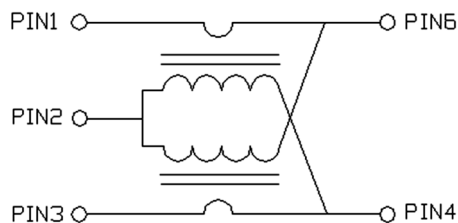


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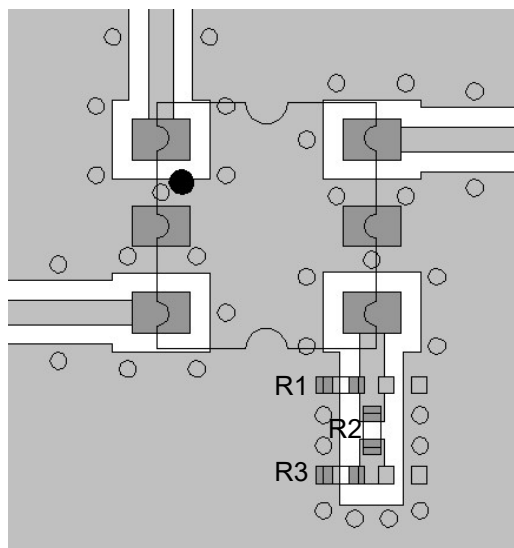


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Application Schematic

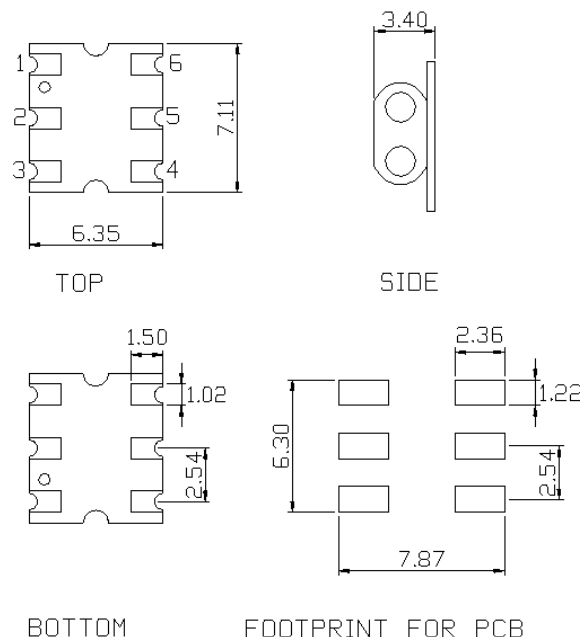


Recommended Board Layout⁶



6. 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.

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

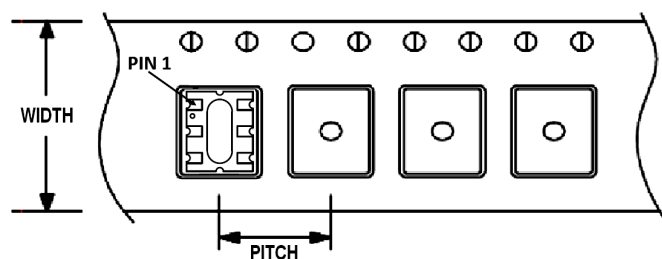


- 7. Dimensions in mm.
- 8. Tolerance: ± 0.2 mm unless otherwise noted.
- 9. Model number and lot code printed on reel.
- 10. Finish: Electroless Nickel Immersion Gold.

Component List

Ref. Des.	Value	Tolerance	Size
R1	180 Ω	1%	0402
R2	0 Ω	1%	0402
R3	180 Ω	1%	0402

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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