

15.2 dB Coupler 5 - 1225 MHz

Rev. V1

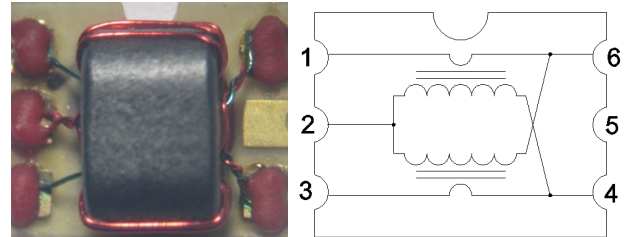
Features

- 15.2 dB Coupling Ratio
- Surface Mount
- Bi-directional
- Similar performance in both configurations
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and lead free
- 260°C Reflow Compatible

Description

The MACP-011055 is a 15.2 dB coupler in a surface mount package. Ideally suited for broadband CATV applications. The bi-directional flexibility to use in either direction with similar performance.

Functional Schematic



Pin Configuration²

Pin #	Function	Pin #	Function
1	Input	4	Isolation
2	Center Tap (Ground)	5	Not Used
3	Coupling	6	Output

2. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Coupling Ratio	-	dB	—	15.2	—
Coupling (Pin 1 - Pin 3)	5 - 1225 MHz	dB	14.8	15.2	15.8
Main Line Loss (Pin 1 - Pin 6)	5 - 1000 MHz 1000 - 1225 MHz	dB	—	0.7 0.9	1.0 1.2
Isolation (Pin 1 - Pin 4)	5 - 1225 MHz	dB	30	37	—
Input Return Loss (Pin 1)	5 - 1000 MHz 1000 - 1225 MHz	dB	19 18	23 22	—
Output Return Loss (Pin 6)	5 - 1000 MHz 1000 - 1225 MHz	dB	18 18	24 20	—
Coupling Return Loss (Pin 3)	5 - 1000 MHz 1000 - 1225 MHz	dB	18 18	23 22	—

Ordering Information¹

Part Number	Package
MACP-011055	900 piece reel
MACP-011055-TB	Sample Board

1. All sample boards include 5 loose parts.

Absolute Maximum Ratings^{3,4}

Parameter	Absolute Maximum
Input Power	1.5 W
DC Current	500 mA
Operating Temperature	-40°C to +85°C

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

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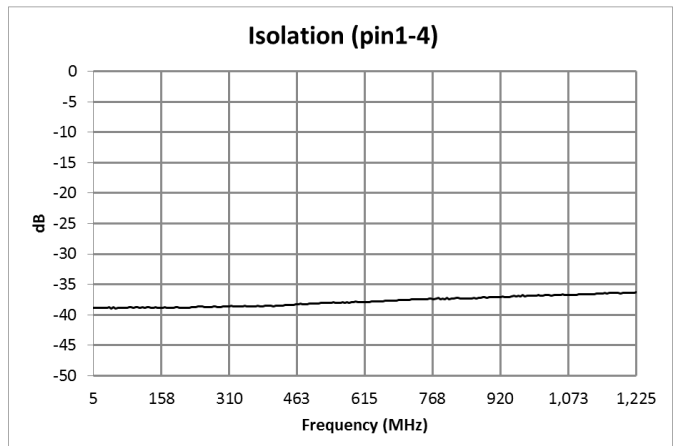
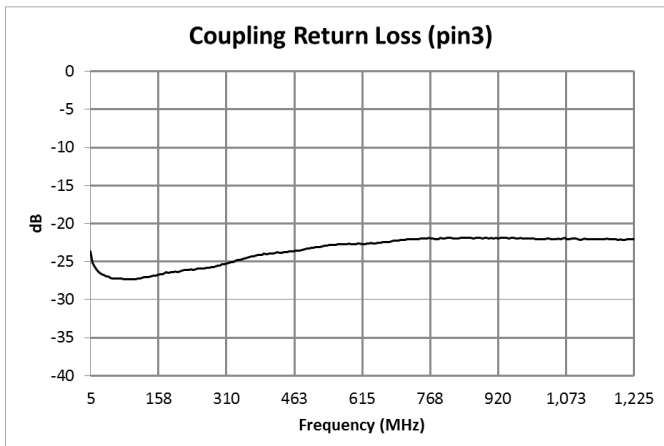
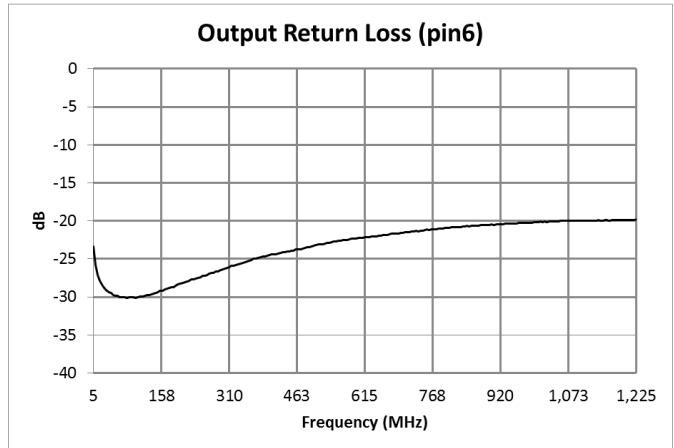
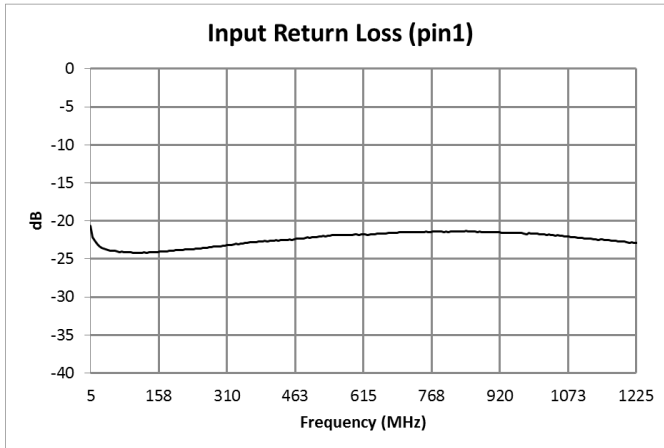
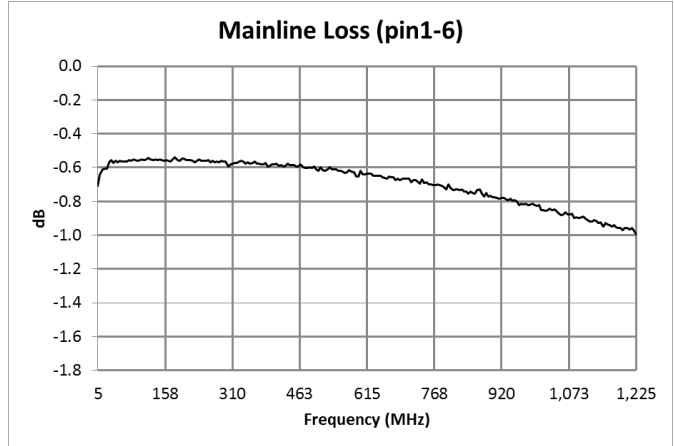
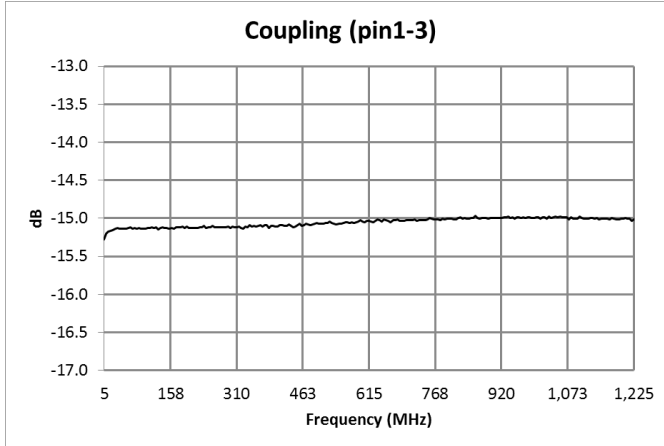
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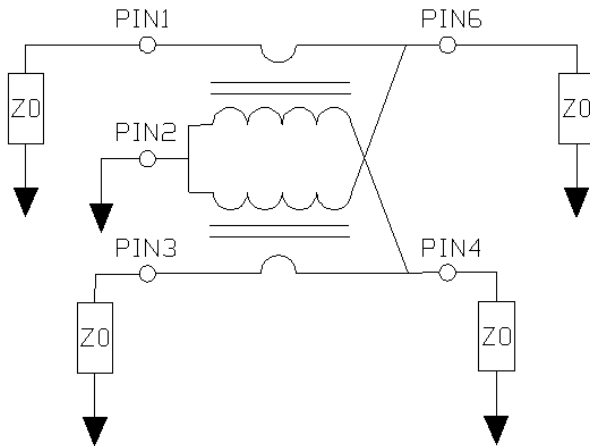
DC-0017762

Typical Performance Curves⁵

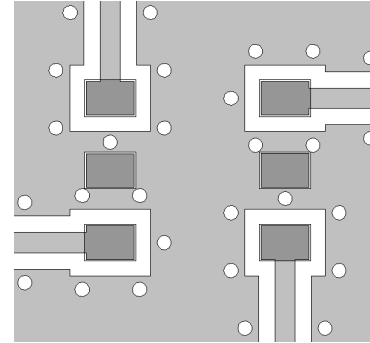


5. Full temperature plots available on request.

Application Schematic

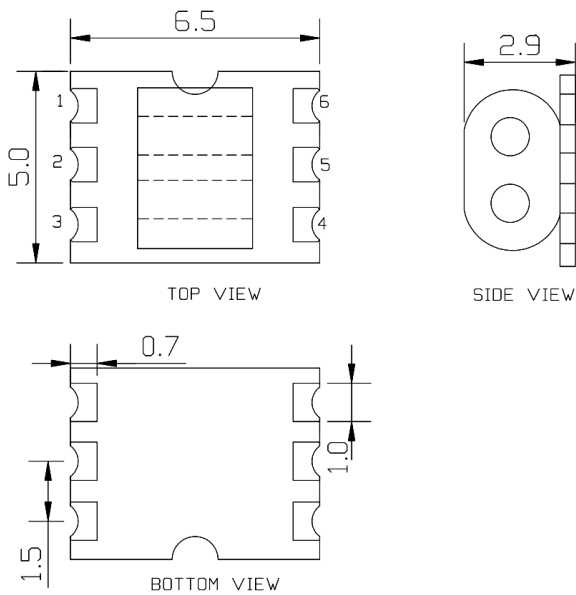


Recommended Board Layout¹⁰

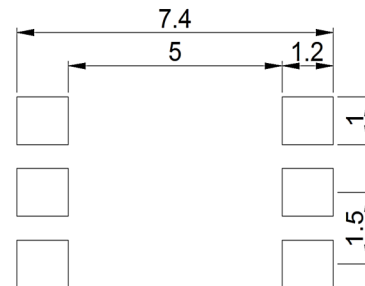


10. Recommended PCB layout shown above uses 1.6 mm FR4, rounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Outline Drawing^{6,7,8,9}



Recommended Footprint

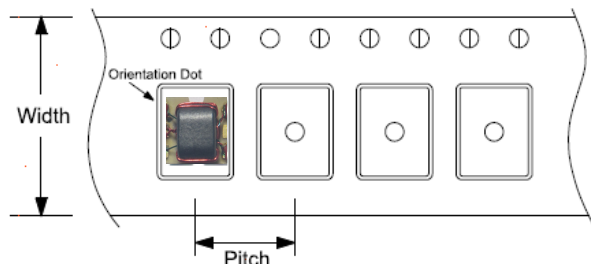


Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	900
Reel Size	mm	330
Tape Width	mm	16.00
Pitch	mm	12.00
Orientation	-	F45
Reference Application Note ANI-019 for orientation		

6. Dimensions in mm.
7. Tolerance: ± 0.2 mm unless otherwise noted.
8. Model number and lot code printed on reel.
9. Plating finish: ENIG on both sides, 0.05 to 0.1 μm gold over 3 to 6 μm nickel.

Carrier Tape Orientation



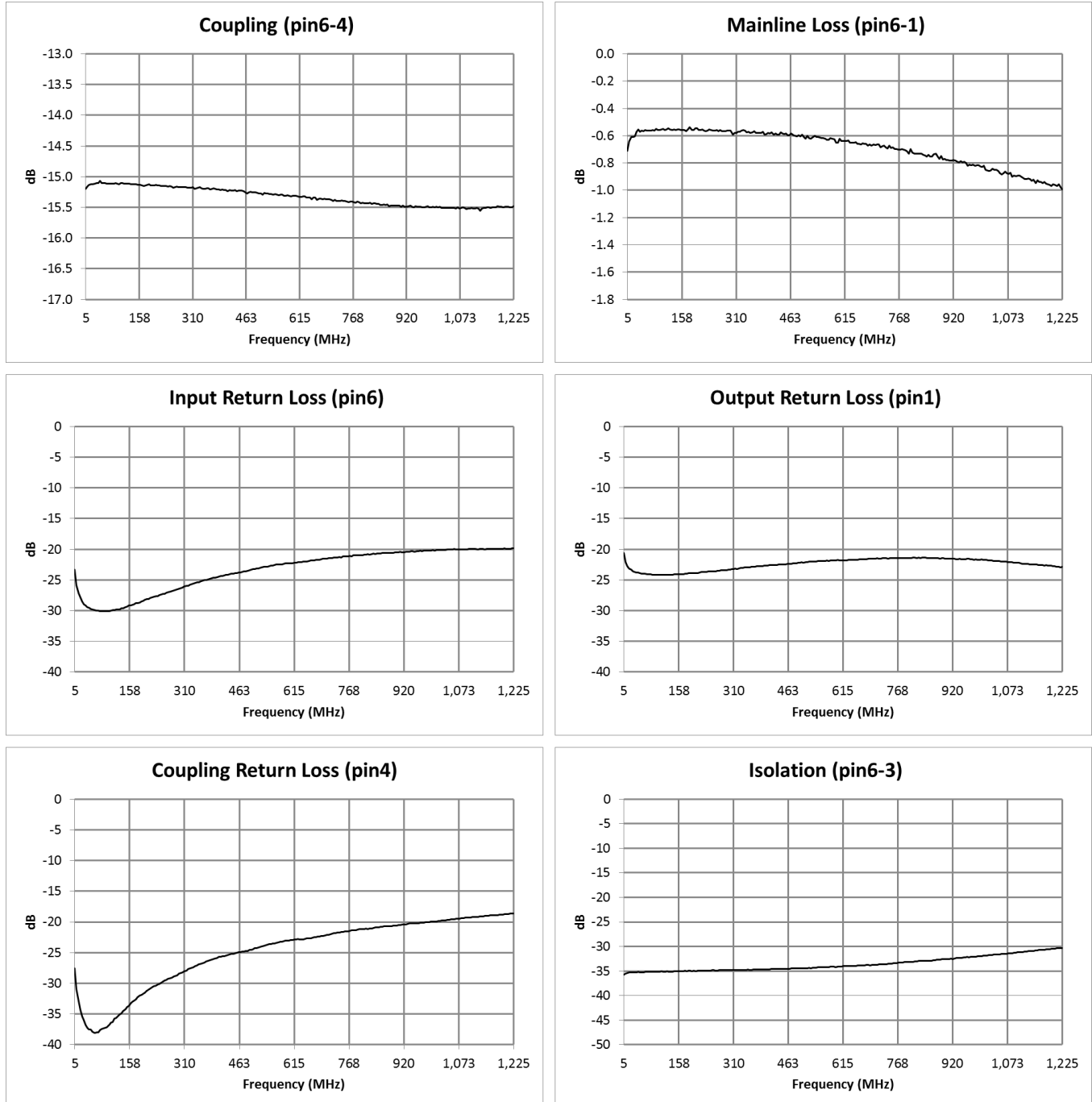
Alternate Configuration

Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{in} = 0 \text{ dBm}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Coupling Ratio	-	dB	—	15.2	—
Coupling (Pin 6 - Pin 4)	5 - 1225 MHz	dB	14.8	15.2	16.0
Main Line Loss (Pin 6 - Pin 1)	5 - 1000 MHz 1000 - 1225 MHz	dB	—	0.7 0.9	1.0 1.2
Isolation (Pin 6 - Pin 3)	5 - 1000 MHz 1000 - 1225 MHz	dB	29 27	34 31	—
Input Return Loss (Pin 6)	5 - 1000 MHz 1000 - 1225 MHz	dB	18 18	24 20	—
Output Return Loss (Pin 1)	5 - 1000 MHz 1000 - 1225 MHz	dB	19 18	23 22	—
Coupling Return Loss (Pin 4)	5 - 1000 MHz 1000 - 1225 MHz	dB	18 17	24 19	—

Alternate Configuration

Typical Performance Curves¹¹



11. Full temperature plots available on request.

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