

# Coupler, 10 dB

## 5 - 870 MHz



MACP-010252-CA0370

Rev. V2

### Features

- Coupling 10dB Typical
- Surface mount
- low profile
- 260°C reflow compatible
- Excellent Return Loss
- Available on Tape & Reel
- RoHS compliant, lead free

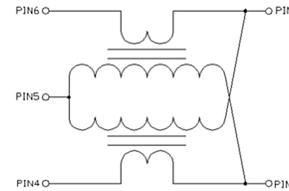
### Applications

- CATV

### Description

MACP-010252-CA0370 is a high performance 75  $\Omega$  coupler, surface mount package. This coupler is designed for use in high volume CATV applications. Typical applications include Set top Boxes, Network Interface Units, Line Amplifiers and Head end equipment.

### Functional Schematic



### Pin Configuration<sup>3</sup>

Pin #	Function	Pin #	Function
1	Output	4	Coupled
2	Not Connected	5	Ground
3	Isolated	6	Input

3. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq. = 5 - 1800 MHz, T<sub>A</sub> = 25°C, Z<sub>0</sub> = 75 $\Omega$ , P<sub>IN</sub> = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Main Line Loss	5 - 500 500 - 870	dB	—	0.9 1.0	1.3 1.5
Coupling	5 - 870	dB	—	10	±0.5
Coupling Flatness	-	dB	—	—	1.0
Directivity	5 - 500 500 - 870	dB	23 21	20 17	—
Input Return Loss	5 - 870	dB	20	18	—
Output Return Loss	5 - 870	dB	20	18	—
Coupling Return Loss	5 - 870	dB	20	18	—

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

Part #	Description
MACP-010252-CA0370	900 piece reel
MACP-010252-CA03TB	Customer test 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 RF Power	250 mW
DC Current	30 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.

\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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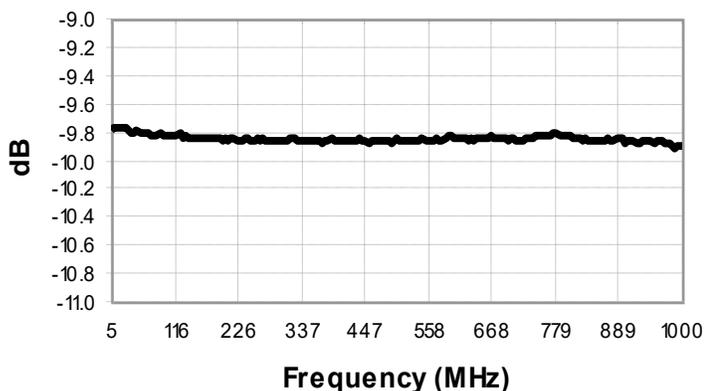


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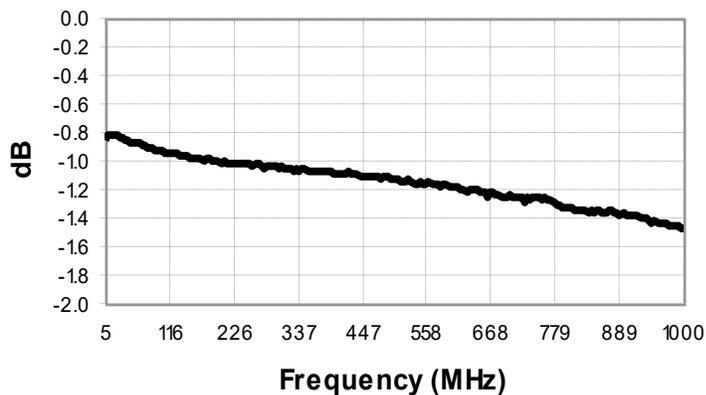
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## Typical Performance Curves<sup>6</sup>

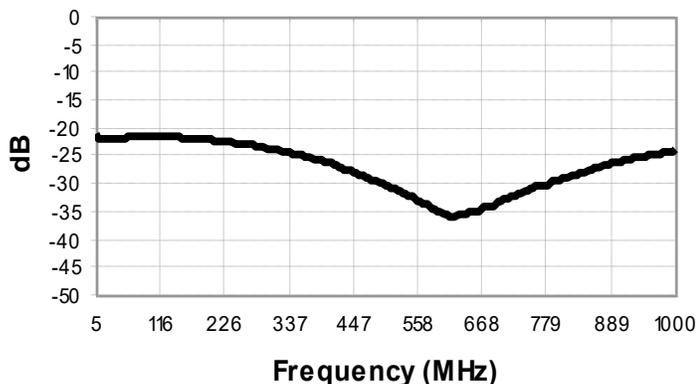
**Coupling:**



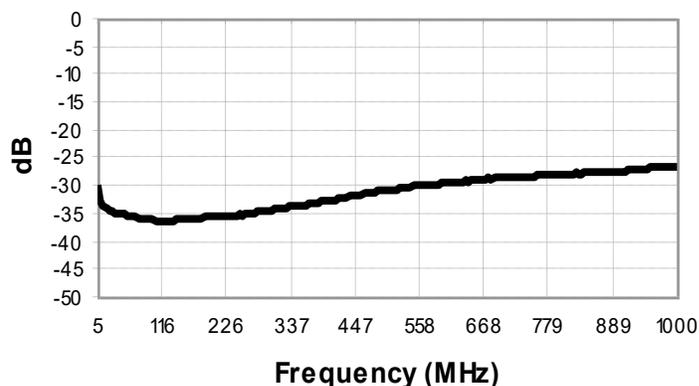
**Main Line Loss:**



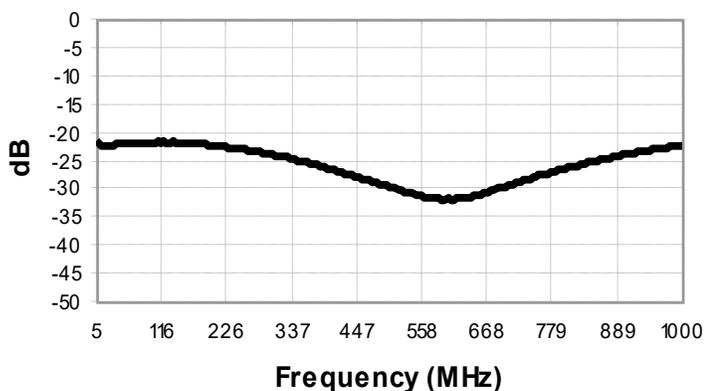
**Input Return Loss:**



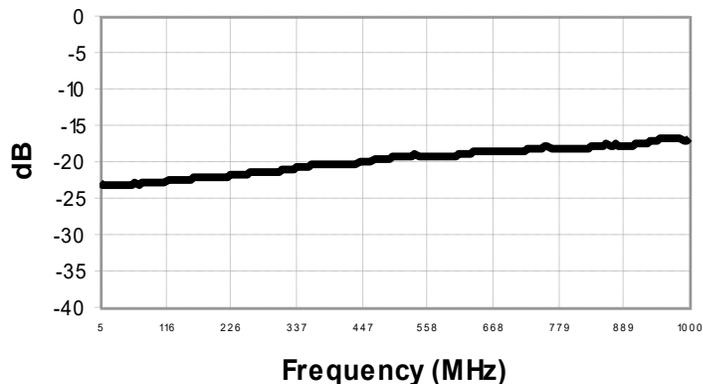
**Output Return Loss**



**Coupled Return Loss:**

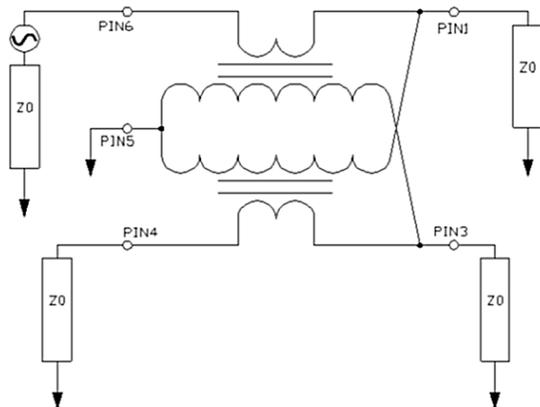


**Directivity:**

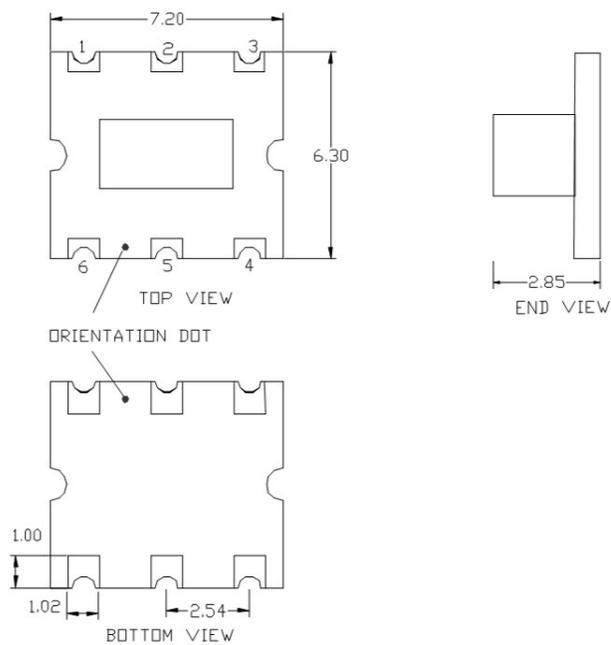


6. Full temperature plots available on request.

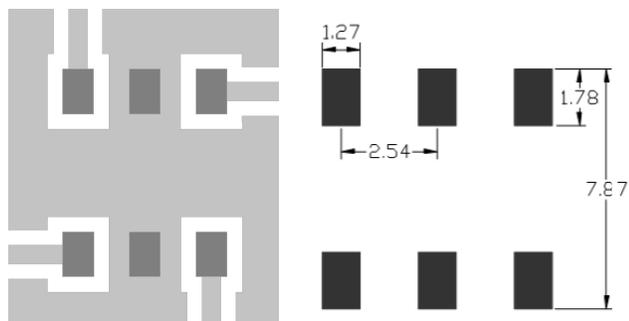
### Application Schematic



### Outline Drawing<sup>8,9,10,11</sup>



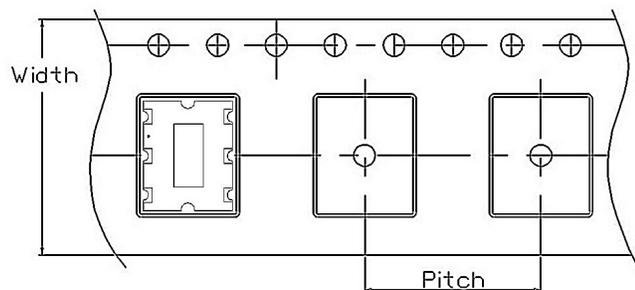
### Recommended Board Layout<sup>7</sup>



7. 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.

- 8. Dimensions in mm.
- 9. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
- 10. Model number and lot code are printed on the reel.
- 11. Plating finish: ENIG.

### Carrier Tape Orientation



### Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	900
Reel Size	mm	330
Tape Width	mm	16.00
Pitch	mm	12.00
Orientation	-	F33
Reference Application Note ANI-019 for orientation		

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