

## 14 dB Coupler 5 - 300 MHz

Rev. V1

### Features

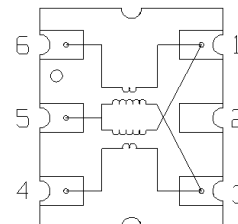
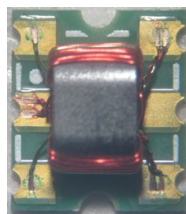
- 14 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

### Description

The MACP-011047 is a 14 dB coupler featuring excellent temperature stability assembled in a surface mount package.

Ideally suited for CATV applications.

### Functional Schematic



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

| Pin # | Function             | Pin # | Function |
|-------|----------------------|-------|----------|
| 1     | Output               | 4     | Coupled  |
| 2     | Not Connected        | 5     | Ground   |
| 3     | External 75 $\Omega$ | 6     | Input    |

3. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq. = 5 - 300 MHz, $T_A = 25^\circ\text{C}$ , $Z_0 = 75 \Omega$ , $P_{in} = 0 \text{ dBm}$

| Parameter                     | Test Conditions | Units | Min. | Typ. | Max. |
|-------------------------------|-----------------|-------|------|------|------|
| Coupling<br>(pin6-pin4)       | 5 - 300 MHz     | dB    | 13.6 | 14.0 | 14.4 |
| Main Line Loss<br>(pin6-pin1) | 5 - 300 MHz     | dB    | —    | 0.35 | 0.45 |
| Main Line Loss<br>(pin4-pin3) | 5 - 300 MHz     | dB    | —    | 0.35 | 0.45 |
| Input Return Loss<br>(pin6)   | 5 - 300 MHz     | dB    | 25   | 28   | —    |
| Output Return Loss<br>(pin1)  | 5 - 300 MHz     | dB    | 28   | 30   | —    |
| Coupled Return Loss<br>(pin4) | 5 - 300 MHz     | dB    | 25   | 27   | —    |
| Isolation<br>(pin6-3)         | 5 - 300 MHz     | dB    | 27   | 30   | —    |

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

| Part Number    | Package        |
|----------------|----------------|
| MACP-011047    | 900 piece reel |
| MACP-011047-TB | Sample 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>

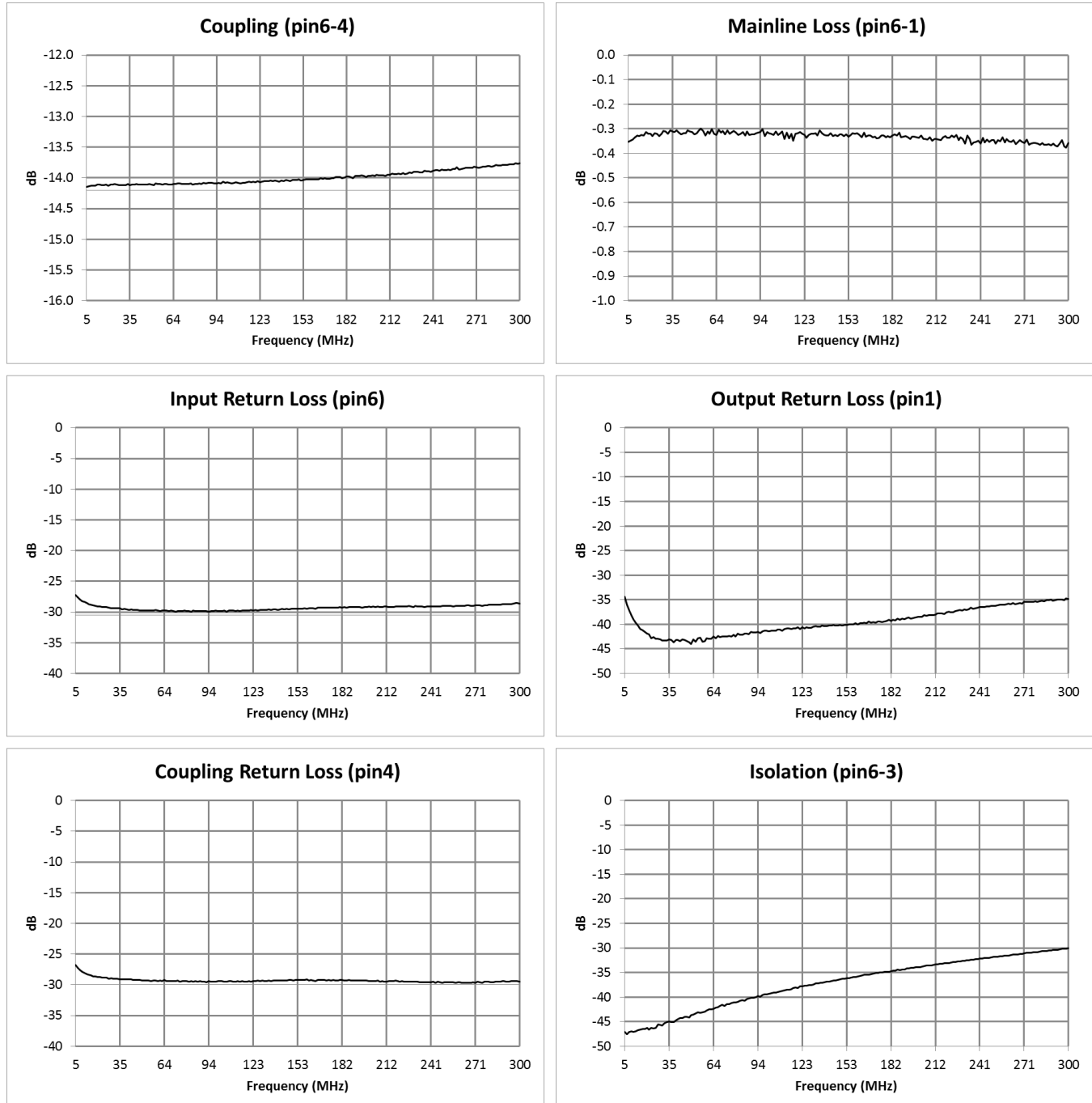
| Parameter             | Absolute Maximum |
|-----------------------|------------------|
| Input Power           | 0.5 W            |
| DC Current            | 500 mA           |
| Operating Temperature | -40°C to +85°C   |

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.

## 14 dB Coupler 5 - 300 MHz

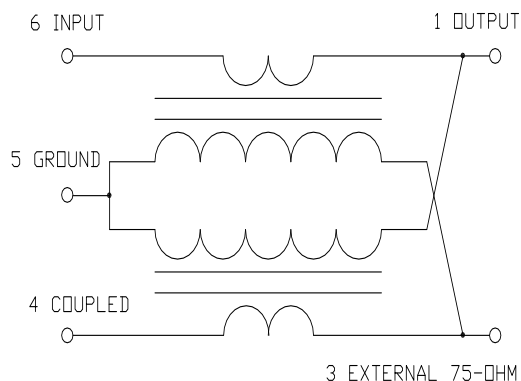
Rev. V1

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

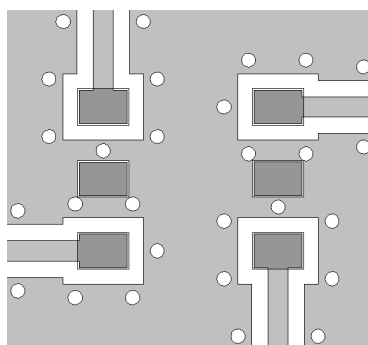


6. Full temperature plots available on request.

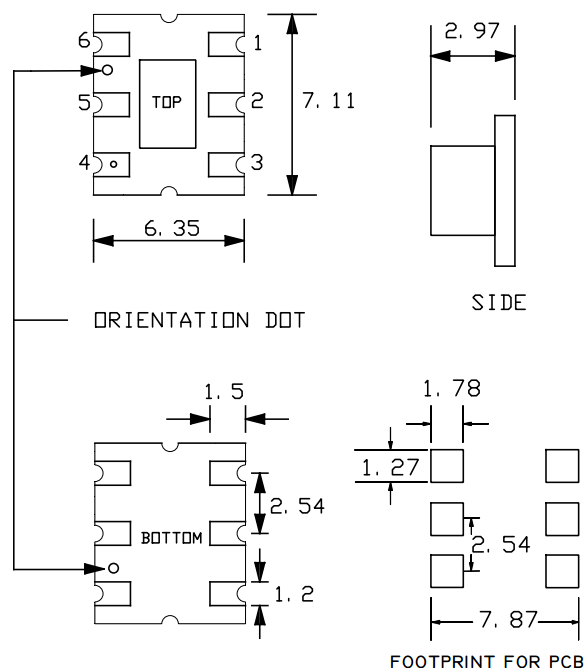
## Application Schematic



## Recommended Board Layout

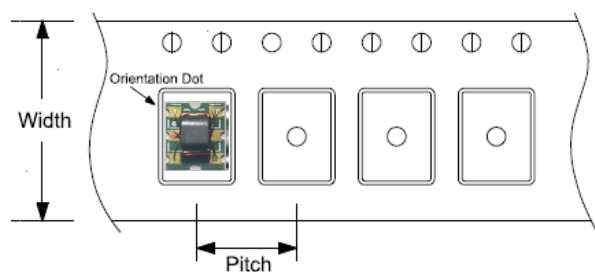


## Outline Drawing<sup>7,8,9,10,11</sup>



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

## 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  |
| Ao                                                 | mm    | 6.7   |
| Bo                                                 | mm    | 7.4   |
| Ko                                                 | mm    | 3.3   |
| Orientation                                        | -     | F15   |
| Reference Application Note ANI-019 for orientation |       |       |

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