

Coupler, 14.5 dB 5 - 1800 MHz



MACP-011081

Rev. V3

Features

- 14.5 dB Coupling Ratio
- Mirrored version of MACP-011099
- Surface Mount Package
- Available on Tape & Reel
- Excellent Temperature Stability
- RoHS* Compliant

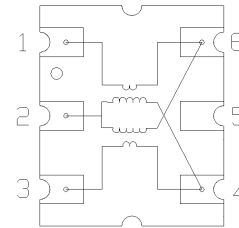
Applications

- CATV/Broadband

Description

The MACP-011081 is a 14.5 dB broadband coupler in a surface mount package. It offers low loss, good isolation, good input/output matching and exceptional matching in return loss.

Functional Schematic



Pin Configuration³

| Pin # | Function | Pin # | Function |
|-------|----------|-------|---------------|
| 1 | Input | 4 | External 75 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°C, Z₀ = 75 Ω, P_{IN} = 0 dBm

| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|----------------------------|---------------------------------|-------|----------|------------|------------|
| Coupling (pin1-3) | 5 - 1800 MHz | dB | 14 | 14.5 | 15 |
| Main Line Loss (pin1-6) | 5 - 1225 MHz 1225 - 1800 MHz | dB | — | 0.6 1.0 | 0.9 1.3 |
| Input Return Loss (pin1) | 5 - 1225 MHz 1225 - 1800 MHz | dB | 18 17 | 24 22 | — |
| Output Return Loss (pin6) | 5 - 1225 MHz 1225 - 1800 MHz | dB | 18 16 | 26 20 | — |
| Coupled Return Loss (pin3) | 5 - 1225 MHz 1225 - 1800 MHz | dB | 18 17 | 25 24 | — |
| Isolation (pin1-4) | 5 - 1225 MHz 1225 - 1800 MHz | dB | 28 24 | 35 27 | — |

Ordering Information^{1,2}

| Part Number | Package |
|----------------|--------------|
| MACP-011081 | 900 piece |
| MACP-011081-TB | Sample Board |

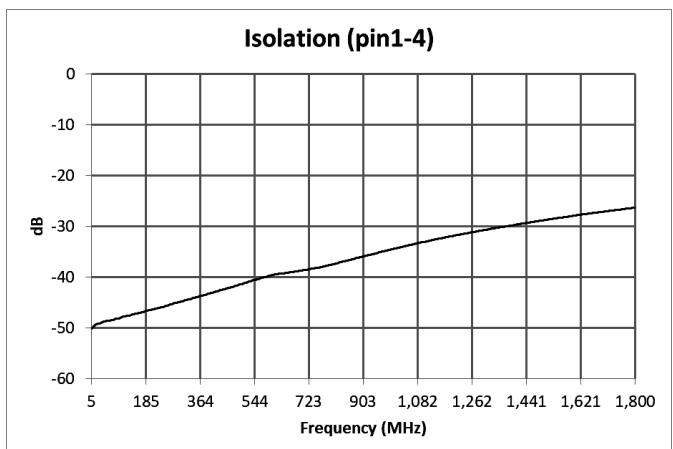
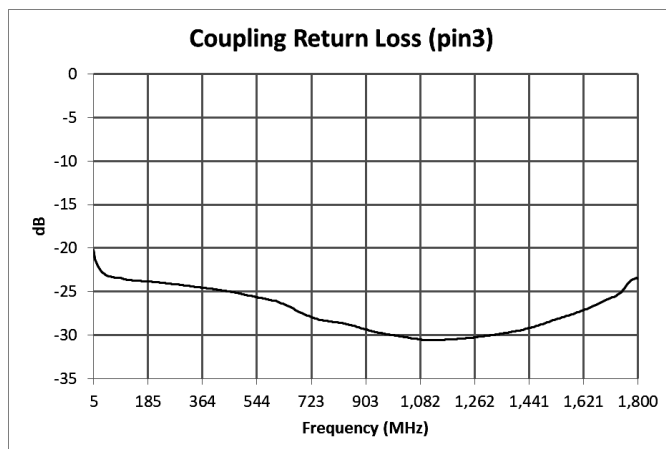
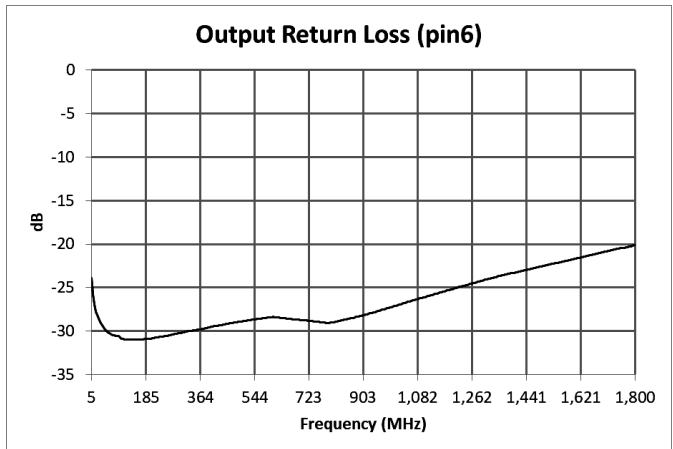
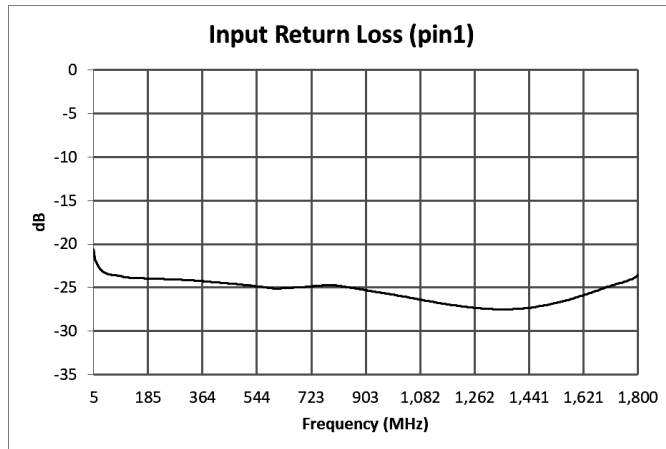
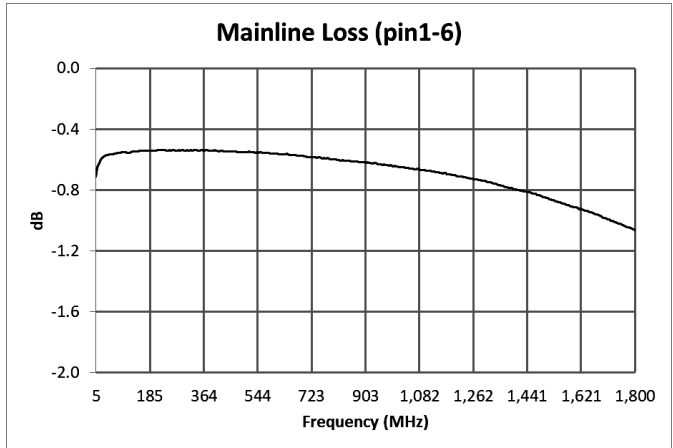
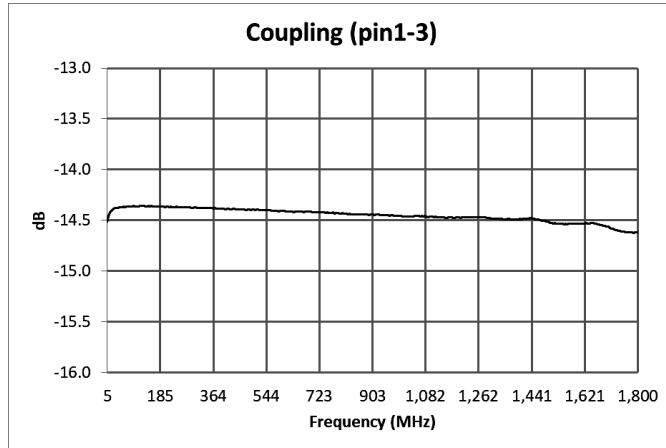
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

Absolute Maximum Ratings^{4,5}

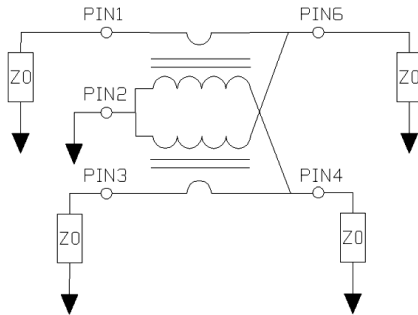
| Parameter | Absolute Maximum |
|-----------------------|------------------|
| Input Power | 2 W |
| DC Current | 500 mA |
| Operating Temperature | -40°C to +85°C |

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.

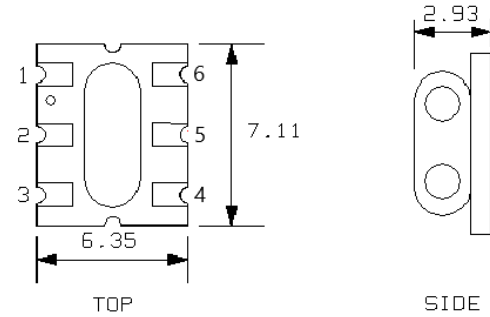
Typical Performance Curves



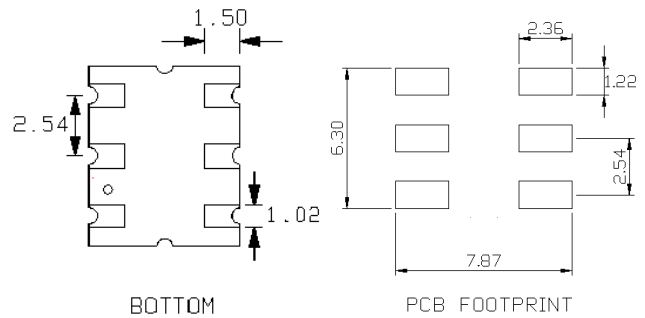
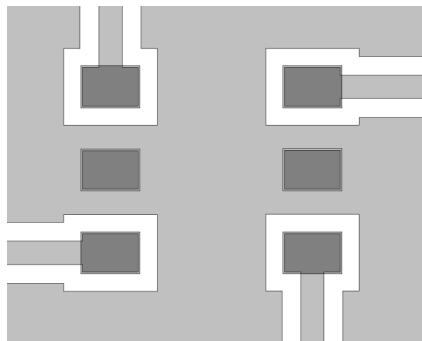
Application Schematic⁶



Outline Drawing^{8,9,10,11}



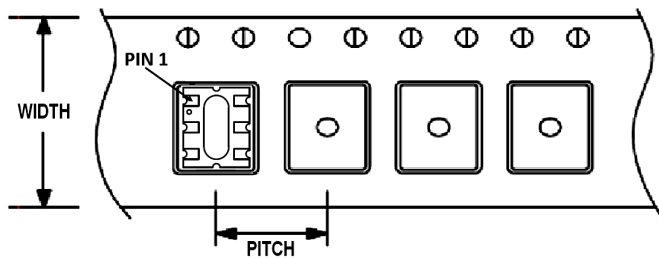
Recommended Board Layout⁷



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: ± 0.2 mm unless otherwise noted.
- 10. Model number and lot code printed on reel.
- 11. 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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