

Features

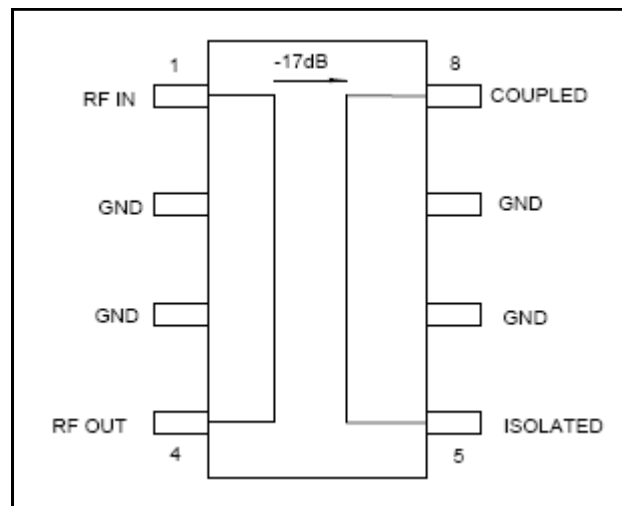
- Device is Bi-Directional
- Small Size and Low Profile
- Superior Repeatability
- Typical Insertion Loss 0.3 dB
- Typical Directivity 17 dB
- 2 Watt Power Handling
- Lead-Free SO-8 Package
- 100% Matte Tin Plating over Copper
- Halogen-Free “Green” Mold Compound
- 260°C Reflow Compatible
- RoHS* Compliant Version of CH20-0033-17G

Description

M/A-COM’s MACPCC0001 is an IC based monolithic bi-directional coupler in a low cost SO-8 plastic package. This 17 dB coupler is ideally suited for applications where power monitoring, small size, low insertion loss, superior repeatability, and low cost are required. Typical applications include personal communication systems and other communication applications where size and PCB real estate is a premium. Available in tape and reel.

The MACPCC0001 is fabricated using a passive-integrated circuit process. The process features passivation for increased performance and reliability.

Functional Diagram¹



1. Pins 2, 3, 6 and 7 must be RF and DC grounded.

Ordering Information

| Part Number | Package |
|---------------|-------------------|
| MACPCC0001 | Bulk Packaging |
| MACPCC0001-TR | 1000 piece reel |
| MACPCC0001-TB | Sample Test Board |

Note: Reference Application Note M513 for reel size information.

Pin Configuration

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1 | RF IN | 5 | ISOLATED |
| 2 | GND | 6 | GND |
| 3 | GND | 7 | GND |
| 4 | RF OUT | 8 | COUPLED |

¹ * Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

Low Cost SMT 17 dB Bi-Directional Coupler 1700 – 2000 MHz

Rev. V3

Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50\Omega$

| Parameter | Units | Min | Typ | Max |
|-------------------|-------|-----|-------|-------|
| Insertion Loss | dB | — | 0.3 | 0.5 |
| VSWR | — | — | 1.3:1 | 1.7:1 |
| Coupling | dB | — | 17±2 | — |
| Coupling Flatness | dB | — | 1.2 | 1.5 |
| Directivity | dB | 12 | 17 | — |

Absolute Maximum Ratings ^{2,3}

| Parameter | Absolute Maximum |
|-----------------------|------------------|
| Input Power | 2W CW |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -65°C to +150°C |

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- M/A-COM does not recommend sustained operation near these survivability limits.

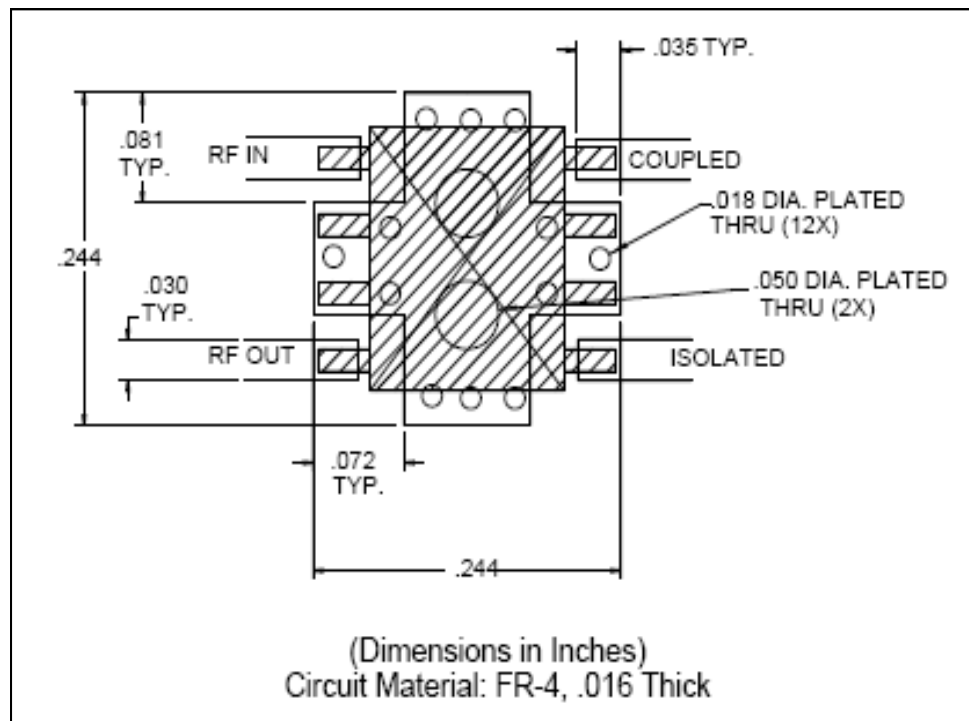
Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

GMIC Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Recommended PCB Configuration

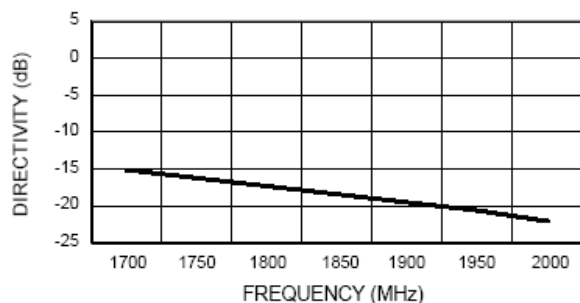


2

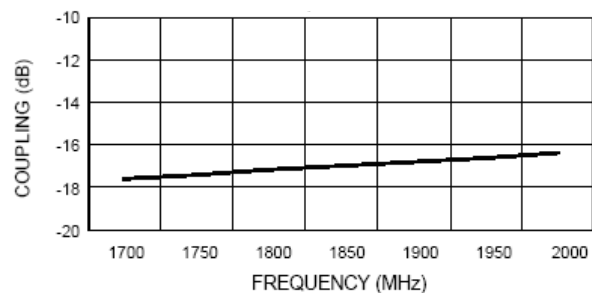
M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.macom.com for additional data sheets and product information.

Typical Performance Curves

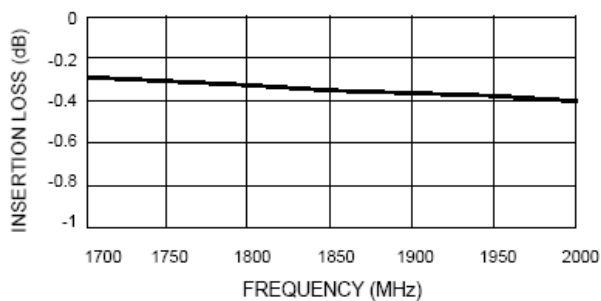
Directivity vs. Frequency



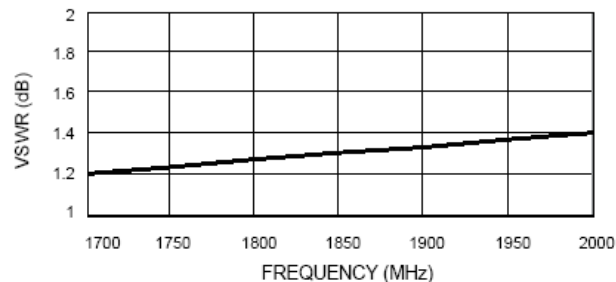
Coupling vs. Frequency



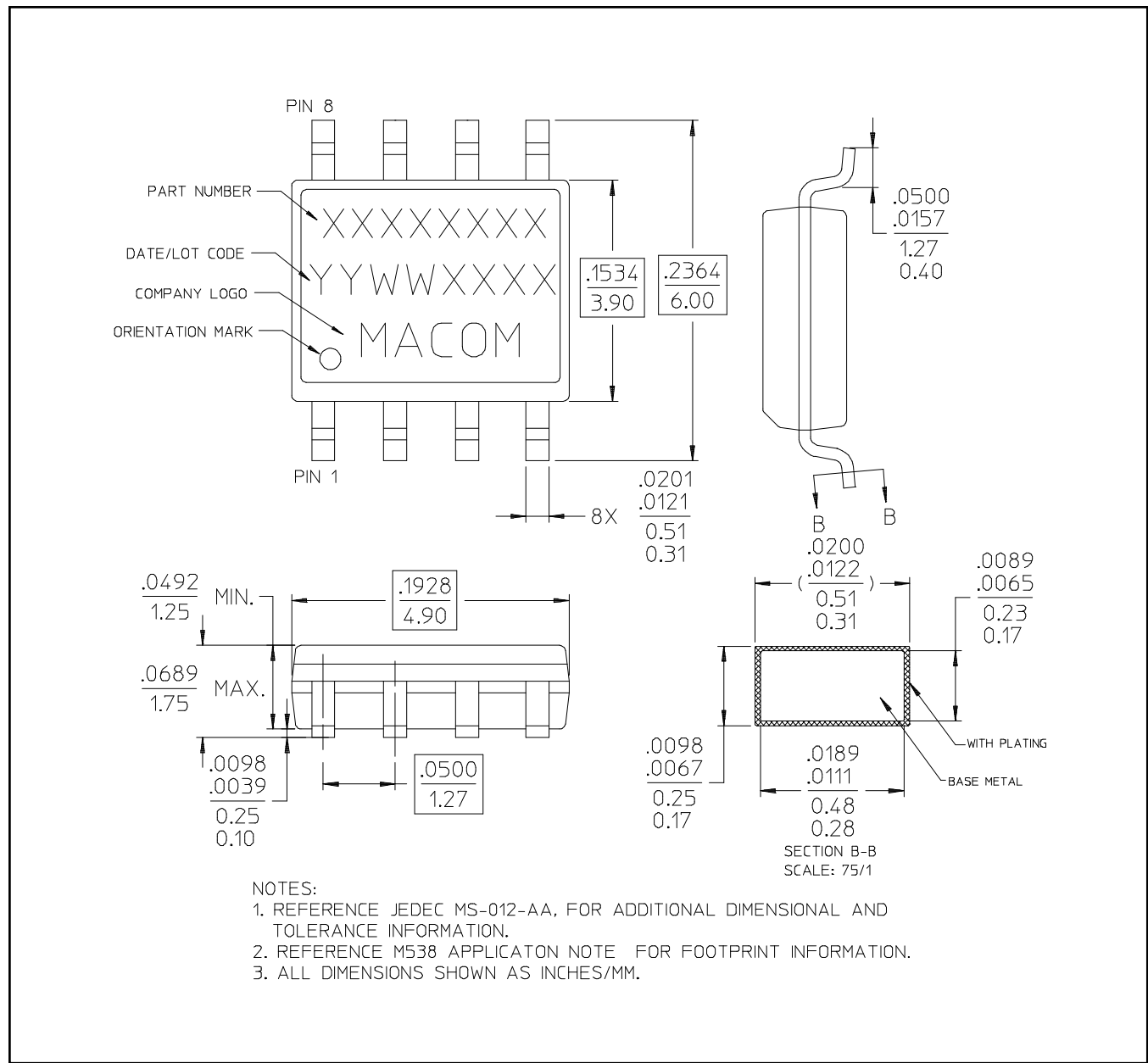
Insertion Loss vs. Frequency



VSWR vs. Frequency



Lead-Free, SOIC-8[†]



[†] Reference Application Note M538 for lead-free solder reflow recommendations.

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.