

# Low Cost SMT 17dB Bi-Directional Coupler 824 – 960 MHz

Rev. V2

#### **Features**

- Device is Bi-Directional
- Small Size and Low Profile
- Superior Repeatability
- Typical Insertion Loss 0.3 dB
- Typical Directivity 15 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 CH20-0032-17G

#### **Description**

M/A-COM's MACPCC0002 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 base station switching networks, power monitoring in handhelds and other communication applications where size and PCB real estate is a premium. Available in tape and reel.

The MACPCC0002 is fabricated using a passiveintegrated circuit process. The process features full chip passivation for increased performance and reliability.

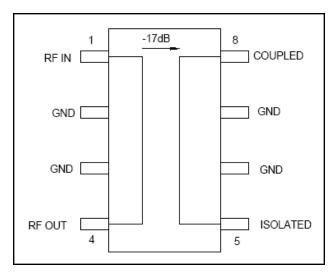
## **Ordering Information**

Commitment to produce in volume is not g

Part Number	Package	
MACPCC0002	Bulk Packaging	
MACPCC0002-TR	1000 piece reel	
MACPCC0002-TB	Sample Test Board	

Note: Reference Application Note M513 for reel size information.

#### **Functional Block Diagram**



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

#### **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

<sup>\*</sup> Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

<sup>•</sup> North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

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## Electrical Specifications: $T_A = 25^{\circ}C$ , $Z_0 = 50\Omega^{1}$

Parameter	Units	Min	Тур	Max
Insertion Loss	dB	_	0.3	0.5
VSWR	_	_	1.3:1	1.6:1
Coupling	dB	_	17±2	_
Coupling Flatness	dB	_	1.2	1.5
Directivity	dB	10	15	_

### Absolute Maximum Ratings <sup>2,3</sup>

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

- 2. 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.

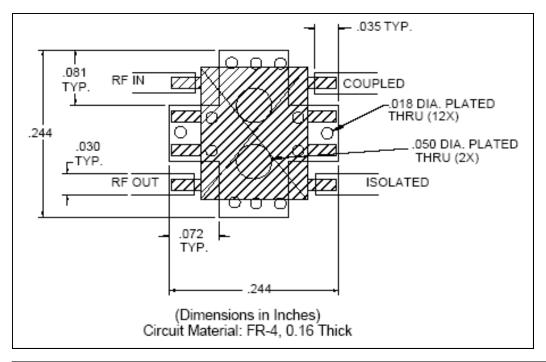
### **Handling Procedures**

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**



typical. Mechanical outline has been fixed. Engineering samples Commitment to produce in volume is not guaranteed.

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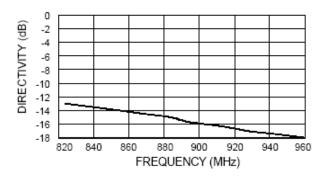


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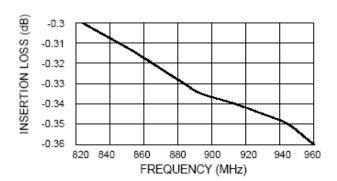
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#### Typical Performance Curves @ +25°C

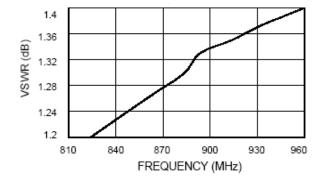
#### Directivity vs. Frequency



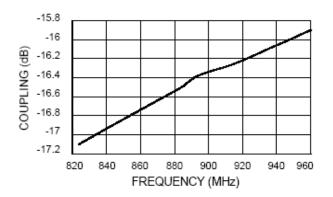
#### Insertion Loss vs. Frequency



#### VSWR vs. Frequency



#### Coupling vs. Frequency



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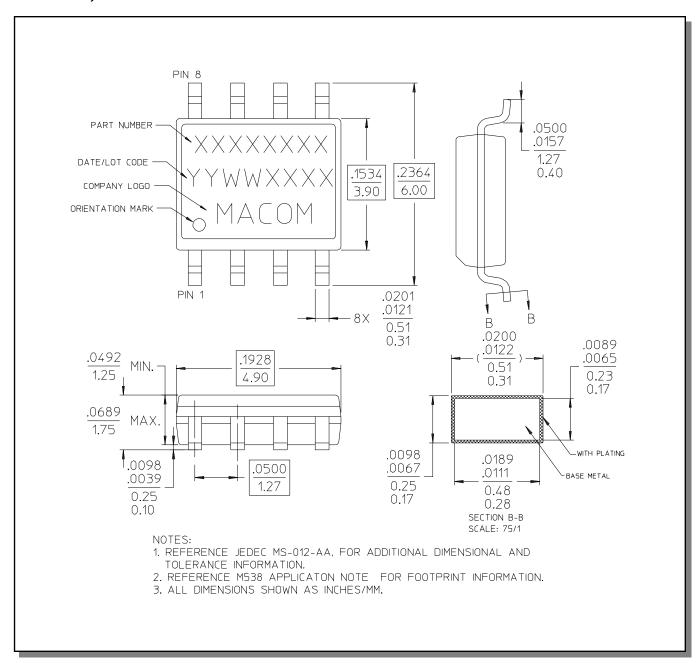
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## Lead-Free, SOIC-8<sup>†</sup>



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

Solutions has under development. Performance is based on engineering tests. Specifications are

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