Low Cost Three Way Power Splitter/Combiner 824 – 960 MHz



#### Features

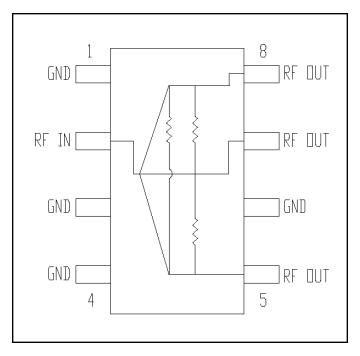
- Small Size and Low Profile
- Excellent Insertion Loss 0.6 dB Typical
- Superior Repeatability
- Low Cost
- CSM, AMPS, CDPD, ARDIS, RAM Frequency Coverage
- SOIC-8 Package

### Description

M/A-COM's DS53-0001 is an IC-based monolithic power divider in a low cost SOIC-8 plastic package. This 3-way power divider is ideally suited for applications where small size, low profile, and low cost without sacrificing Performance, are required. Typical applications include Base Stations, portables and PCMCIA cards for cellular applications. Available in Tape and Reel.

The DS53-0001 is fabricated using a passiveintegrated circuit process. The process features fullchip passivation for increased performance and reliability.

## Functional Block Diagram<sup>1</sup>



1. All unused pins must be RF and DC grounded.

### **Pin Configuration**

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

### **Ordering Information**

Part Number	Package
DS53-0001	Bulk Packaging
DS53-0001-TR	1000 piece reel
DS53-0001SAM	Sample Test Board

Note: Reference Application Note M513 for reel size information.

1

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are

typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

North America Tel: 800.366.2266
 Europe Tel: +353.21.244.6400
 India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.



# Low Cost Three Way Power Splitter/Combiner 824 – 960 MHz

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

Parameter	Units	Min	Тур	Max
Insertion Loss above 4.78 dB	dB	—	0.6	0.7
Isolation	dB	15	18	—
VSWR	—	—	1.4:1	1.6:1
Amplitude Balance	dB	—	0.6	0.8
Phase Balance	Deg	—	2	4

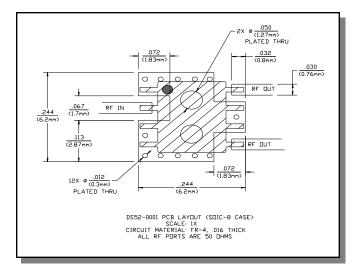
## Absolute Maximum Ratings <sup>2,3</sup>

Parameter	Absolute Maximum		
Input Power <sup>4</sup>	1W 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.
- 4. With internal load dissipation of 0.125 W Maximum.

# **Recommended PCB Configuration**



### 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.

- North America Tel: 800.366.2266
  Europe Tel: +353.21.244.6400
  India Tel: +91.80.4155721
  China Tel: +86.21.2407.1588
- Visit www.macomtech.com for additional data sheets and product information.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

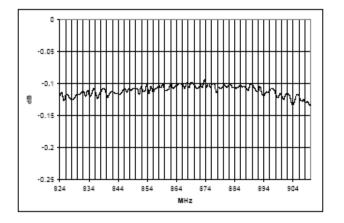
<sup>2</sup> 

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product W/A-COM Technology Visit www.r

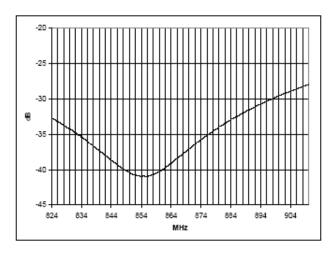
## Low Cost Three Way Power Splitter/Combiner 824 – 960 MHz

## **Typical Performance Curves**

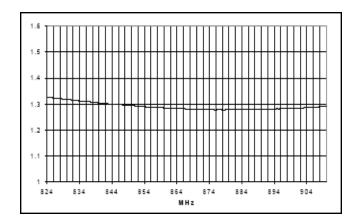
#### Insertion Loss vs. Frequency



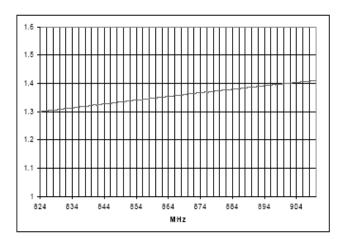
#### Isolation vs. Frequency



#### VSWR Input vs. Frequency



#### VSWR Output vs. Frequency



ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are trained. Mechanical during hear hower fixed. For applications are provided to the second seco

- North America Tel: 800.366.2266
  Europe Tel: +353.21.244.6400
  India Tel: +91.80.4155721
  China Tel: +86.21.2407.1588
- Visit www.macomtech.com for additional data sheets and product information.

typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

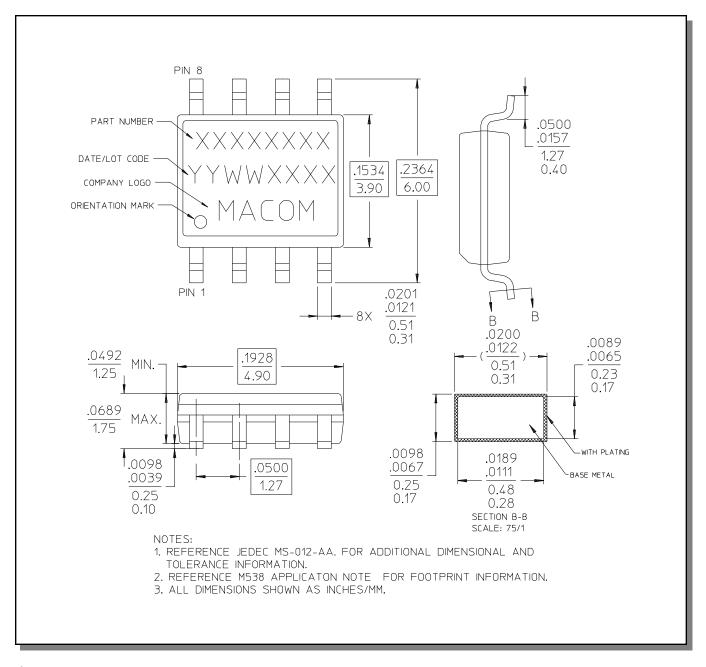




# Low Cost Three Way Power Splitter/Combiner 824 – 960 MHz

Rev. V4

## SOIC-8<sup>†</sup>



- <sup>†</sup> Reference Application Note M538 for lead-free solder reflow recommendations.
- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.
- North America Tel: 800.366.2266
  Europe Tel: +353.21.244.6400
  India Tel: +91.80.4155721
  China Tel: +86.21.2407.1588
- Visit www.macomtech.com for additional data sheets and product information.

test data may be available. M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

4