

# M85 / M85C

## Double-Balanced Mixer

Rev. V3

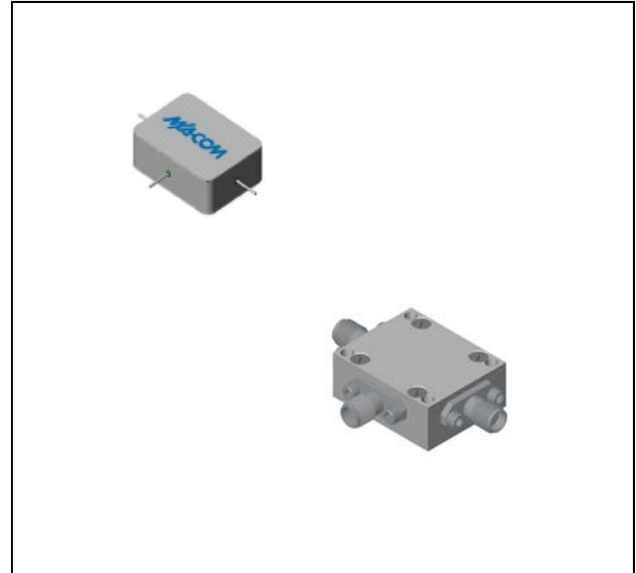
### Features

- LO 2 TO 18 GHz
- RF 2 TO 18 GHz
- IF 0 TO 1000 MHz
- LO DRIVE: +7 dBm (NOMINAL)
- DC COUPLED I-PORT
- WIDE BANDWIDTH

### Description

The M85 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in manual, semi-automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or

### Product Image



### Ordering Information

Part Number	Package
M85	Minpac
M85C	SMA Connectorized

### Electrical Specifications: $Z_0 = 50\Omega$ $L_o = +7$ dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 4 to 14 GHz, fL = 3 to 15 GHz, fI = 0 to 1 GHz	dB	7.0	9.0	9.5
	fR = 22 to 3 GHz, fL = 2 to 3 GHz, fI = 0 to 1 GHz	dB	10.0	11.0	11.5
	fR = 3 to 18 GHz, fL = 3 to 18 GHz, fI = 0 to 1 GHz	dB	8.5	10.5	11.0
Isolation, L to R (min)	fL = 2 to 18 GHz	dB	35	22	20
Isolation, L to I (min)	fL = 2 to 18 GHz	dB	20	15	13
Isolation, R to I (min)	fL = 2 to 18 GHz	dB	20		
1 dB Conversion Comp.	fL = +7 dBm	dBm	+1		
Input IP3	fR1=5 GHz at -10 dBm, fR2=5.01GHz at -10 dBm, fL = 5.5 GHz at +7 dBm	dBm	+10		
	fR1=15 GHz at -10 dBm, fR2=15.01GHz at -10 dBm, fL = 14.5 GHz at +7 dBm	dBm	+10		

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.

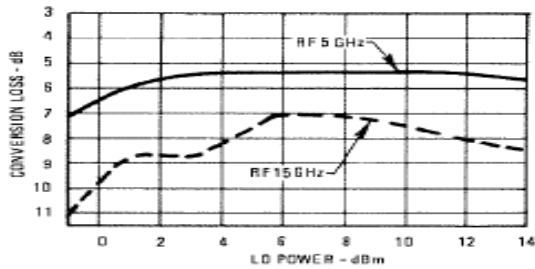
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce 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](http://www.macomtech.com) for additional data sheets and product information.

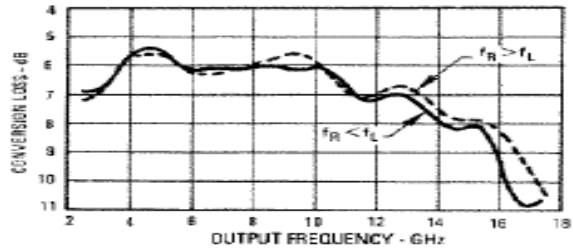
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

### Typical Performance Curves

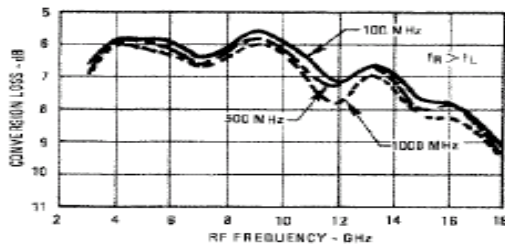
Conversion Loss vs LO Power Level



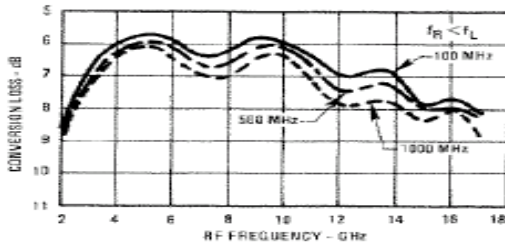
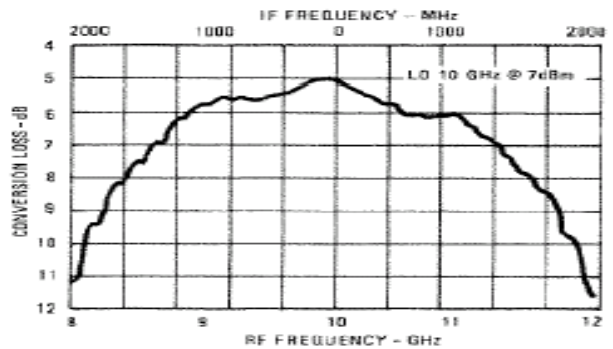
Up Conversion Loss



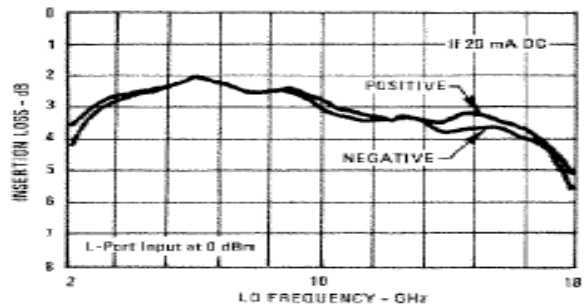
Conversion Loss



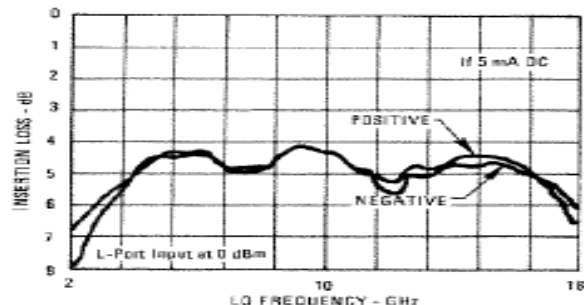
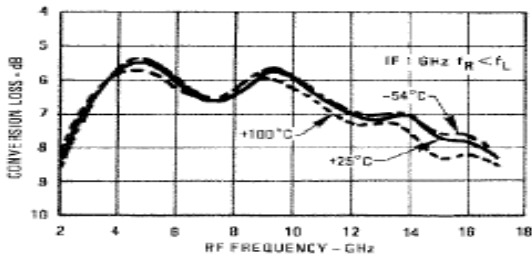
I Port Bandwidth



Insertion Loss with DC Driven I-Port



Conversion Loss over Temperature



# M85 / M85C



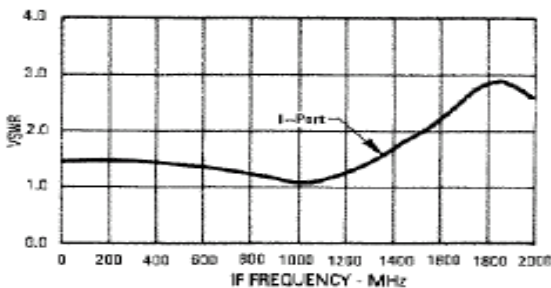
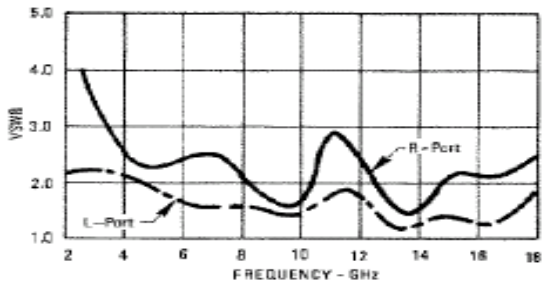
## Double-Balanced Mixer

Rev. V3

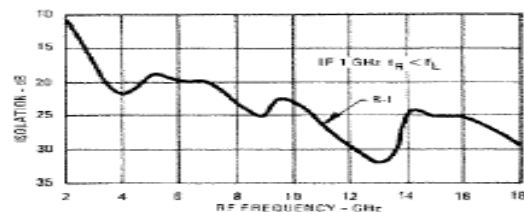
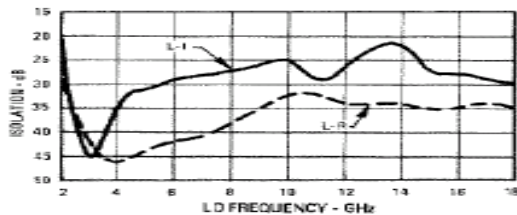
### Absolute Maximum Ratings

Parameter	Absolute Maximum
Operating Temperature	-54°C to +100°C
Storage Temperature	-65°C to +100°C
Peak Input Power	+23 dBm max @ +25°C +20 dBm max @ +100°C
Peak Input Current	100 mA DC

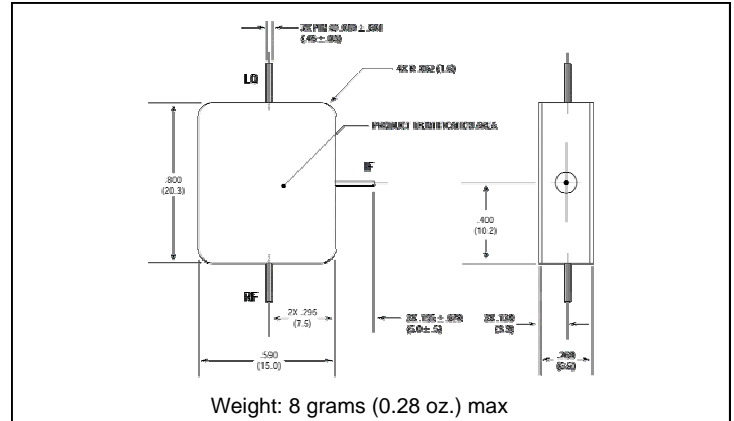
### VSWR



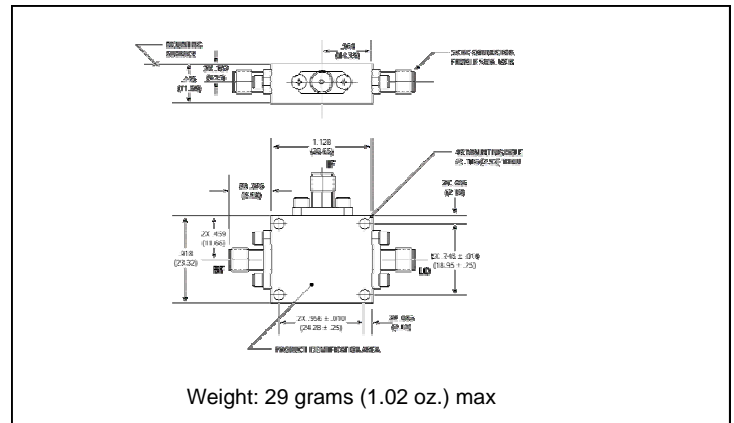
### Isolation



### Outline Drawing: Minpac \*



### Outline Drawing: SMA Connectorized \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.

**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](http://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.