

# M53 / M53C



## Triple-Balanced Mixer

Rev. V2

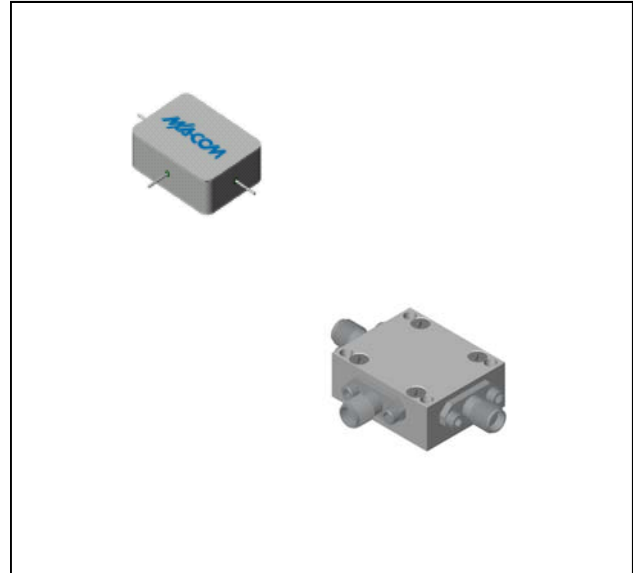
### Features

- LO 2 TO 26 GHz
- RF 2 TO 26 GHz
- IF 0.1 TO 6 GHz
- LO DRIVE +10 dBm (nominal)
- HIGH COMPRESSION POINT
- VERY WIDE BANDWIDTH

### Description

The M53 is a triple balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric baluns to attain excellent performance. 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 MIL-DTL-28837, consult factory.

### Product Image



### Ordering Information

Part Number	Package
M53	Minpac
M53C	SMA Connectorized

### Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +10$ 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 = 8 to 18 GHz, fL = 8 to 18 GHz, fl = 0.1 to 4 GHz	dB	7.5	9.5	10.0
	fR = 2 to 8 GHz, fL = 2 to 8 GHz, fl = 1 to 4 GHz	dB	8.0	10.0	10.5
	fR = 2 to 18 GHz, fL = 2 to 18 GHz, fl = 0.1 to 5 GHz	dB	8.5	10.5	11.0
	fR = 18 to 26 GHz, fL = 18 to 26 GHz, fl = 0.1 to 6 GHz	dB	9.5	12.5	13.0
Isolation, L to R (min)	fL = 2 to 26 GHz	dB	18	15	13
	fL = 4 to 19 GHz	dB	25	20	18
Isolation, L to I (min)	fL = 2 to 20 GHz	dB	30	22	20
	fL = 20 to 26 GHz	dB	20	15	13
1 dB Conversion Comp.	fL @ +10 dBm	dBm	+5		
Input IP3	fR1 = 3.75 GHz @ -6 dBm, fR2 = 3.76 GHz @ -6 dBm, fL = 4 GHz @ 10 dBm	dBm	+16		
	fR1 = 13 GHz @ -6 dBm, fR2 = 13.01 GHz @ -6 dBm, fL = 11 GHz @ 10 dBm	dBm	+16		
	fR1 = 20 GHz @ -6 dBm, fR2 = 20.01 GHz @ -6 dBm, fL = 24 GHz @ 10 dBm	dBm	+13		

\* The M53C specification limits apply at 0°C to +50°C.

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**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.

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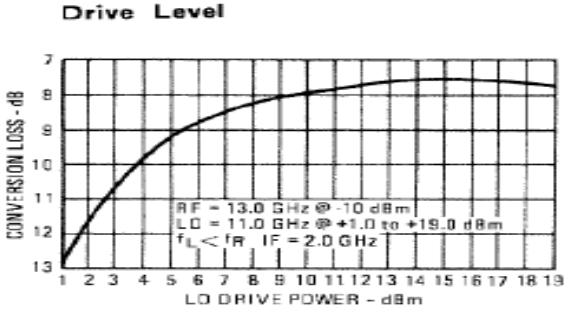
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Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

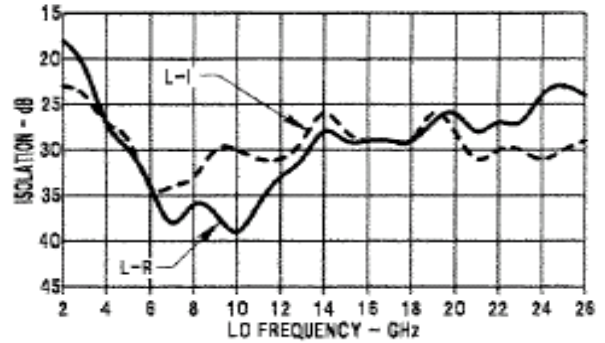
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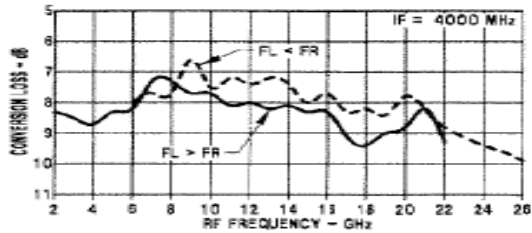
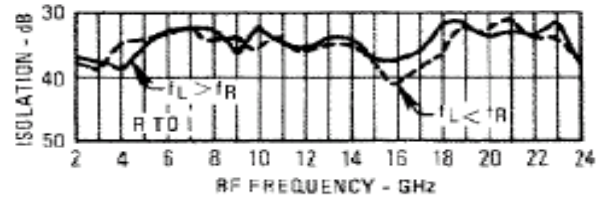
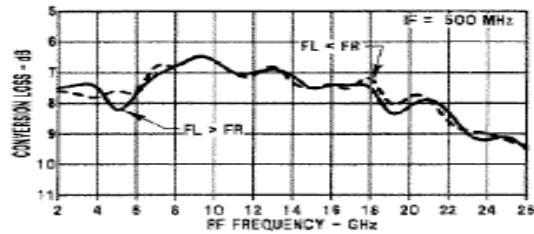
### Typical Performance Curves



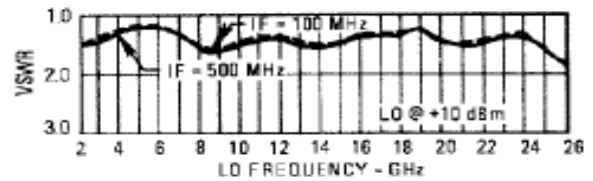
### Isolation vs. Frequency



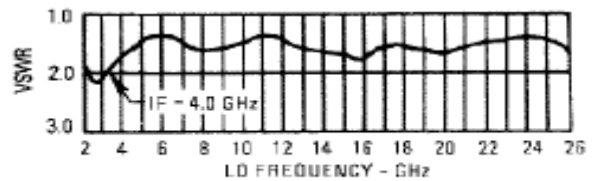
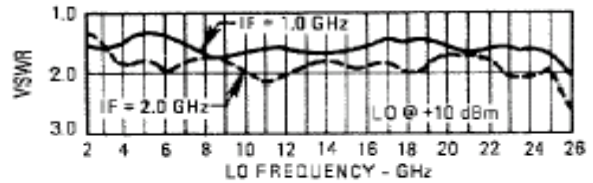
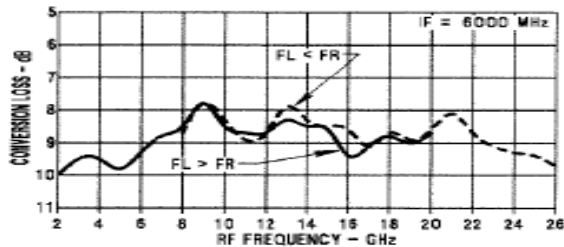
### Conversion Loss vs. Frequency



### I-Port VSWR



### Conversion Loss vs. Frequency



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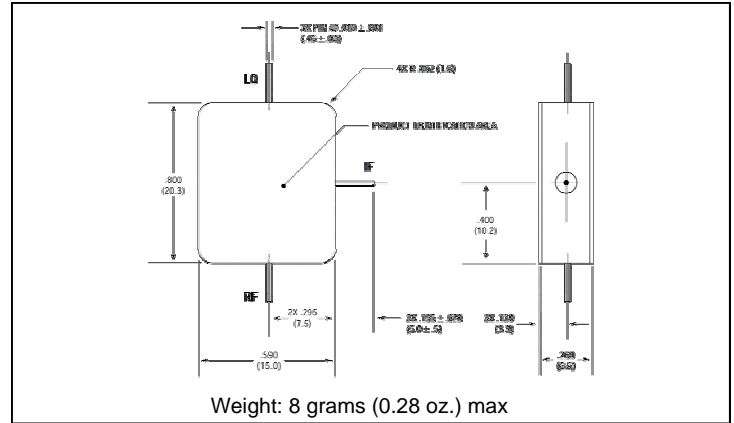
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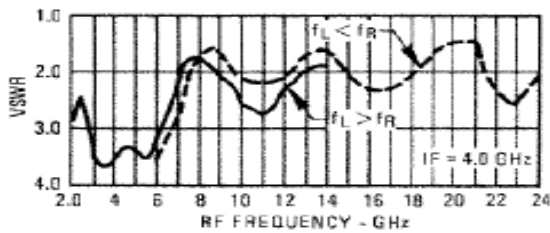
### Absolute Maximum Ratings

Parameter	Absolute Maximum
Operating Temperature	-54°C to +100°C
Storage Temperature	-65°C to +100°C
Peak Input Power	+26 dBm max @ +25°C +22 dBm max @ +100°C
Peak Input Current	mA DC

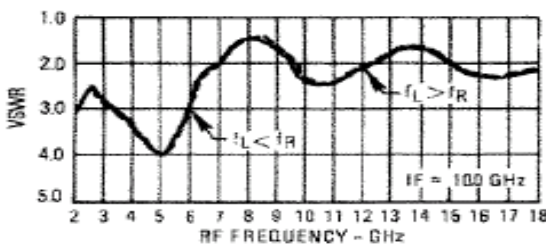
### Outline Drawing: Minpac \*



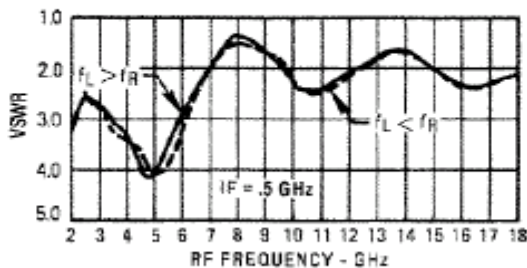
### R-Port VSWR



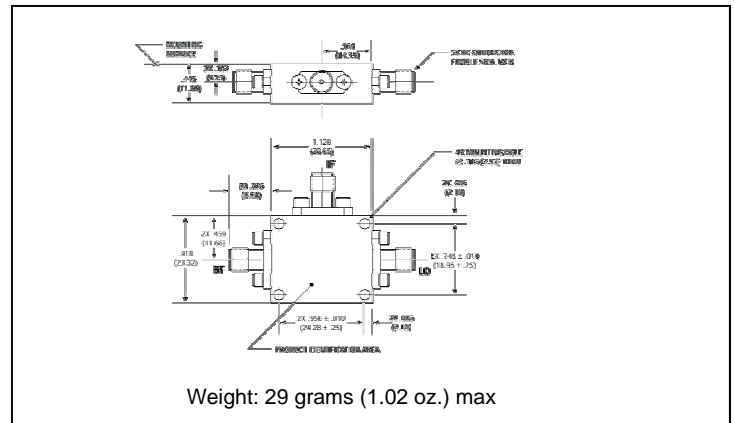
### R-Port VSWR



### R-Port VSWR



### Outline Drawing: SMA Connectorized \*



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

### L-Port VSWR

