

## Triple-Balanced Mixer

Rev. V3

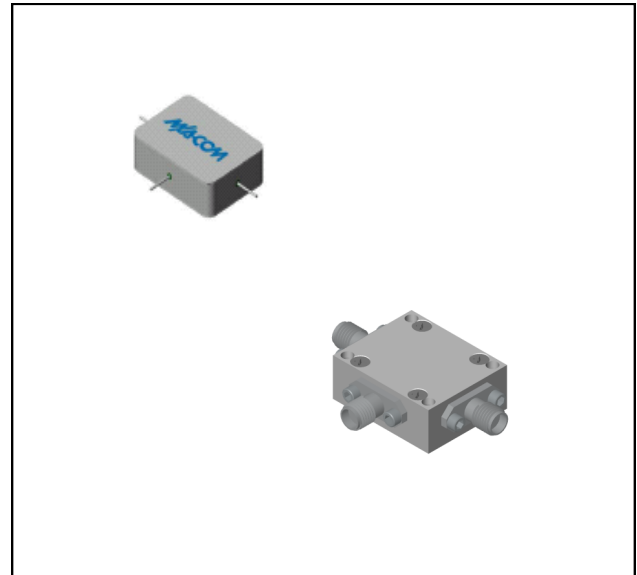
### Features

- LO 2 TO 24 GHz
- RF 2 TO 24 GHz
- IF 1 TO 15 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- HIGH COMPRESSION POINT

### Description

The M51 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
M51	Minpac
M51C	SMA Connectorized

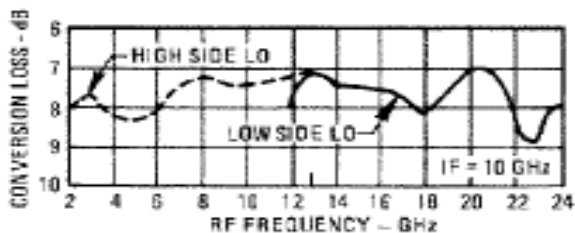
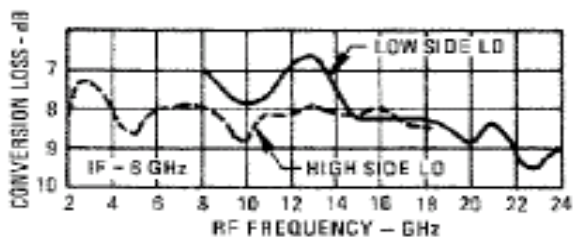
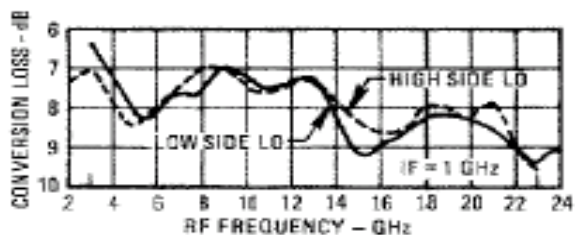
### Electrical Specifications: $Z_0 = 50\Omega$ $L_o = +10$ dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C *
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 2.5 to 18 GHz, fL = 2 to 18 GHz, fI = 2 to 10 GHz	dB	7.5	9.5	10.0
	fR = 2 to 18 GHz, fL = 2 to 24 GHz, fI = 1 to 12 GHz	dB	8.0	10.5	11.0
	fR = 2 to 24 GHz, fL = 2 to 24 GHz, fI = 1 to 12 GHz fI = 1 - 15 GHz fL < fR	dB	9.0	11.5	12.0
Isolation, L to R (min)	fL = 2 to 3 GHz	dB	20	15	13
	fL = 3 to 24 GHz	dB	30	20	18
Isolation, L to I (min)	fL = 2 to 7 GHz	dB	30	20	18
	fL = 7 to 24 GHz	dB	22	15	13
1 dB Conversion Comp.	fL @ +10 dBm	dBm	+5		
Input IP3	fR1 = 5 GHz @ -6 dBm, fR2 = 5.01 GHz @ -6 dBm, fL = 8 GHz @ 10 dBm	dBm	+15		
	fR1 = 16 GHz @ -6 dBm, fR2 = 16.01 GHz @ -6 dBm, fL = 18 GHz @ 10 dBm	dBm	+15		

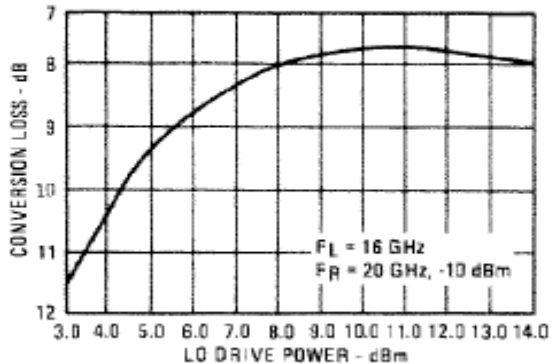
1 \* The M51C specification limits apply at 0°C to +50°C.

### Typical Performance Curves

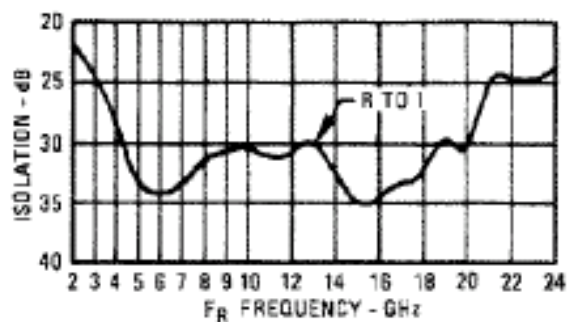
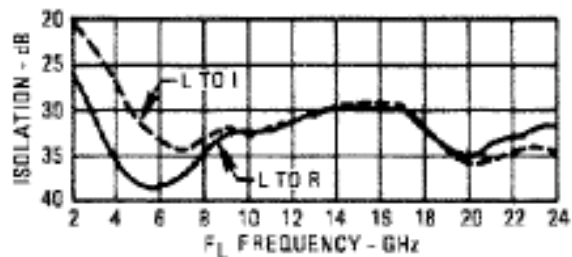
**Conversion Loss vs. Frequency**  
LO @ +10 dBm



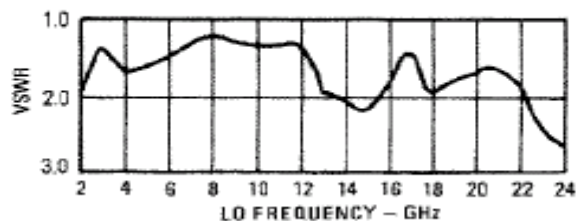
**Drive Level**



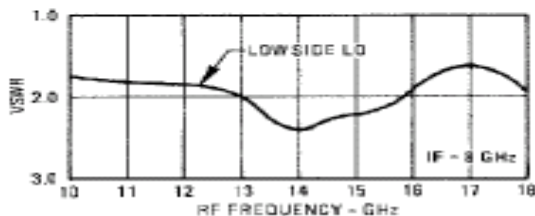
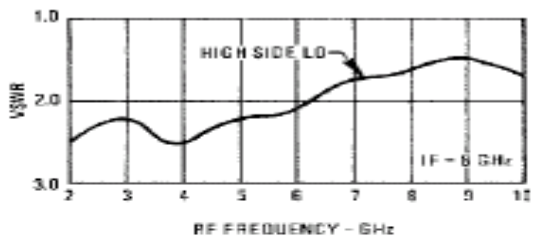
**Isolation vs. Frequency**



**L-Port VSWR**



**R-Port VSWR**



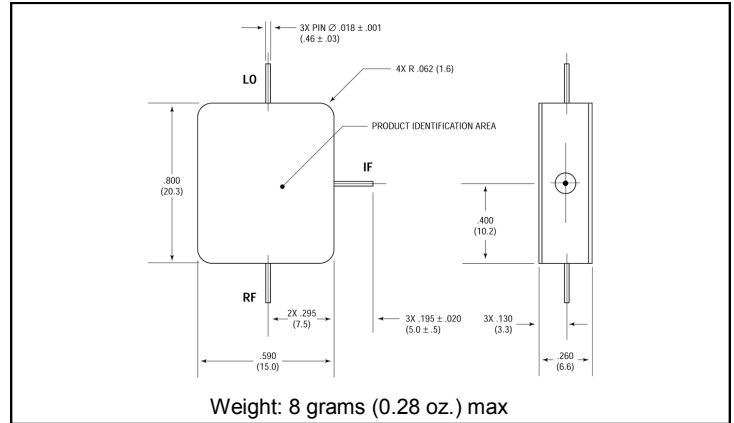
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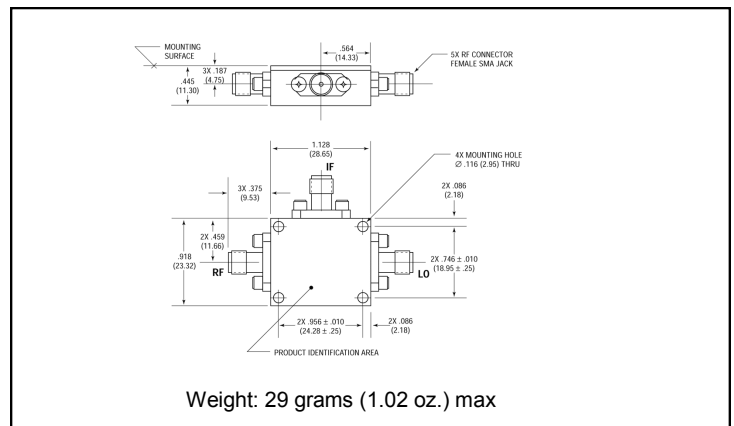
### Absolute Maximum Ratings

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

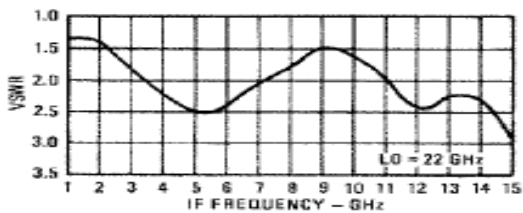
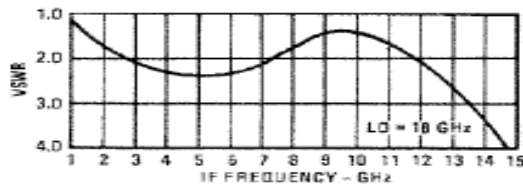
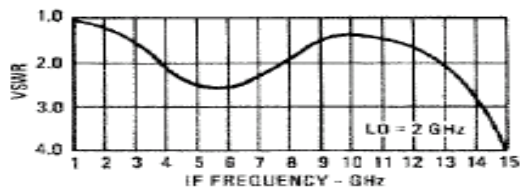
### Outline Drawing: Minpac \*



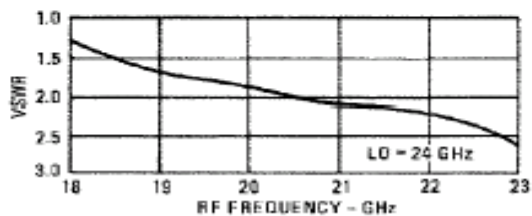
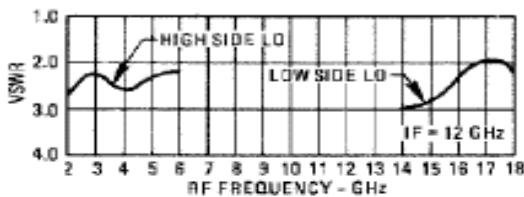
### Outline Drawing: SMA Connectorized \*



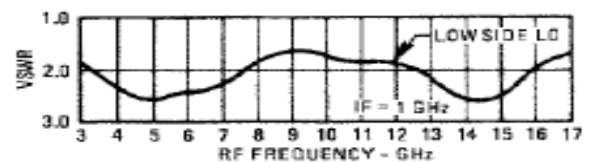
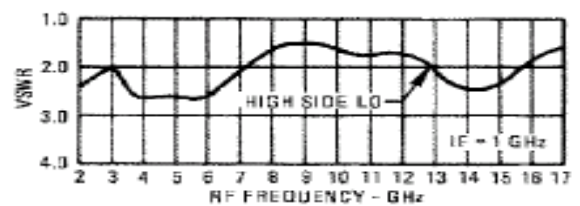
#### I-Port VSWR



#### R-Port VSWR



#### R-Port VSWR LO @ +10 dBm



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

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