

# **Triple-Balanced Mixer**

Rev. V3

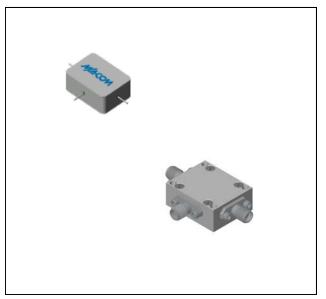
#### **Features**

- 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: $Z_0 = 50\Omega$ Lo = +10 dBm (Downconverter application only)

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

<sup>\*</sup> The M51C specification limits apply at 0°C to +50°C.

Commitment to produce in volume is not guaranteed.

<sup>•</sup> India Tel: +91.80.4155721

<sup>•</sup> North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400 • China Tel: +86.21.2407.1588

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

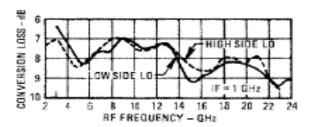


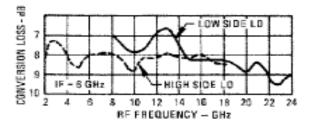
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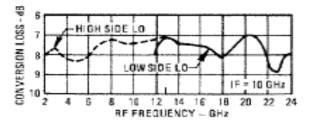
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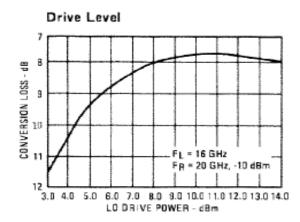
### **Typical Performance Curves**

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

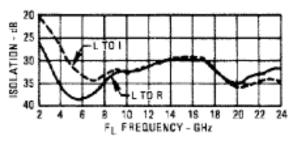


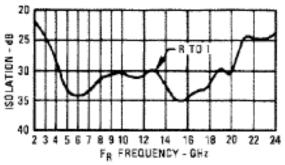




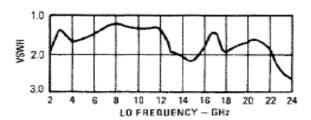


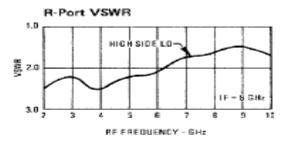
### Isolation vs. Frequency

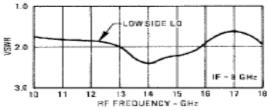




#### L-Port VSWR







Commitment to produce in volume is not guaranteed.

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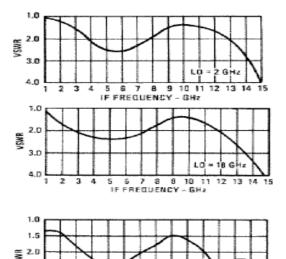
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## **Absolute Maximum Ratings**

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		

#### I-Port VSWR



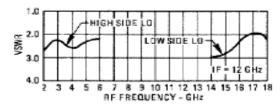
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12 13 14

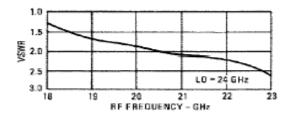
### R-Port VSWR

Commitment to produce in volume is not guaranteed.

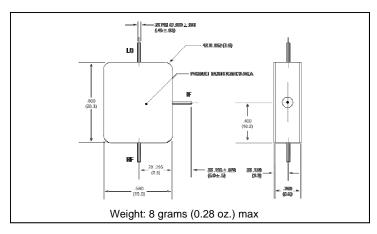
3.0



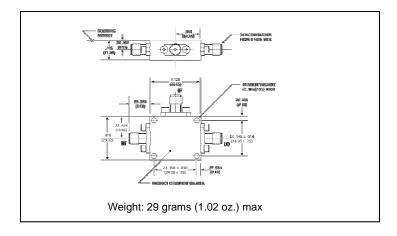
5 6 7 8 9 10 1 IF FREQUENCY - SHz



# Outline Drawing: Minpac \*

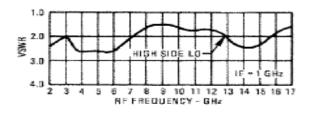


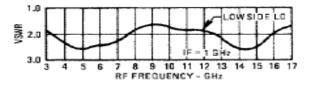
# Outline Drawing: SMA Connectorized \*



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

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





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