

# **Triple-Balanced Mixer**

Rev. V2

#### **Features**

- LO 2.0 TO 26.0 GHz
- RF 2.0 TO 26.0 GHz
- IF 1.0 TO 15.0 GHz
- LO DRIVE +10 dBm (nominal)
- HIGH COMPRESSION POINT
- **VERY WIDE BANDWIDTH**

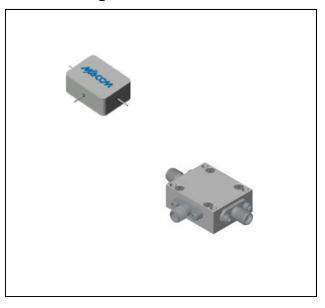
## **Description**

The M50 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.

## **Ordering Information**

Part Number	Package		
M50	Minpac		
M50C	SMA Connectorized		

## Product Image



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

Parameter	Test Conditions	Units	Typical	Guaranteed	
Parameter	rest 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 26 GHz, fI = 2 to 12 GHz fR = 2 to 26 GHz, fL = 2 to 26 GHz, fI = 2 to 15 GHz	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 26 GHz	dB dB	30 22	15 20	13 18
Isolation, L to I (min)	fL = 2 to 7 GHz fL = 7 to 26 GHz	dB dB	30 22	15 20	13 20
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= 25 GHz @ -6 dBm, fR2 = 25.01 GHz @ -6 dBm, fL = 15 GHz @ 10 dBm	dBm dBm	+15 +15		

<sup>\*</sup> The M50C specification limits apply at 0°C to +50°C.

Commitment to produce in volume is not guaranteed.

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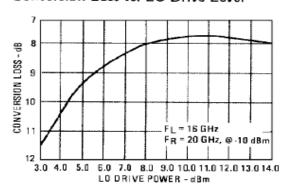


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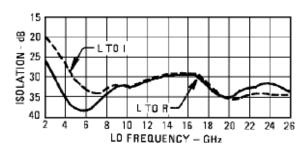
Rev. V2

## **Typical Performance Curves**

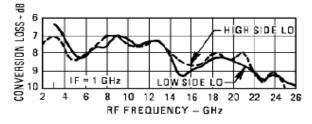
#### Conversion Loss vs. LO Drive Level

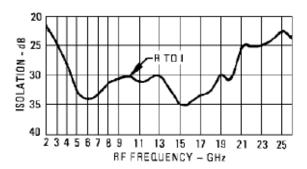


#### Isolation vs. Frequency

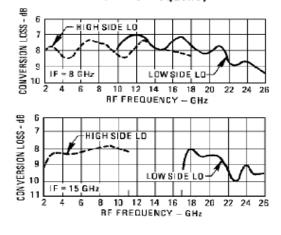


#### Conversion Loss vs. Frequency

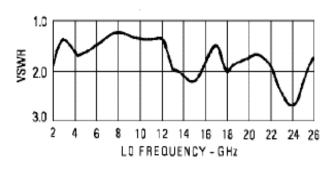




#### Conversion Loss vs. Frequency



## L-Port VSWR



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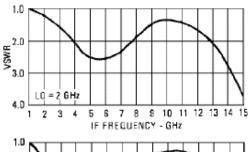
# **Triple-Balanced Mixer**

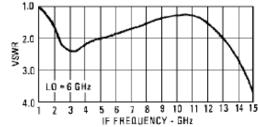
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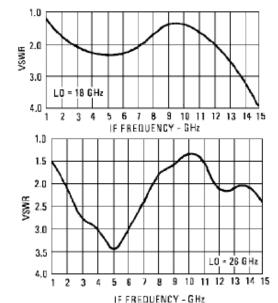
## **Absolute Maximum Ratings**

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		

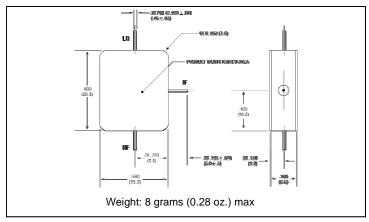
#### I-Port VSWR



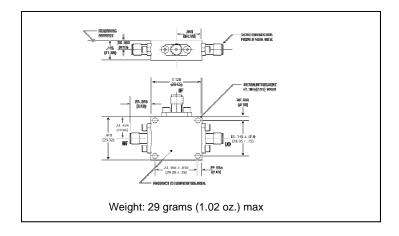




# Outline Drawing: Minpac \*

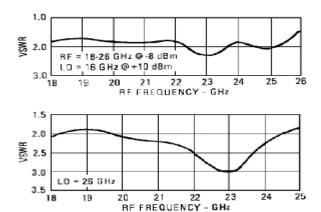


# Outline Drawing: SMA Connectorized \*



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

#### R-Port VSWR



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