# M50A / M50AC

# **Triple-Balanced Mixer**



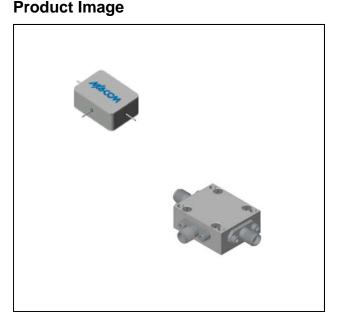
Rev. V2

### Features

- LO 2 TO 26 GHz
- RF 2 TO 18 GHz
- IF 1 TO 12 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- HIGH COMPRESSION POINT

### Description

The M50A 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			
M50A	Minpac			
M50AC	SMA Connectorized			

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

Deremeter	Test Conditions	Units	Typical	Guaranteed	
Parameter	Test Conditions			+25⁰C	-54º to +85ºC *
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 2.5 to 18 GHz, fL =2 to 18 GHz, fI =1 to 10 GHz fR = 2 to 18 GHz, fL =2 to 26 GHz, fI =1 to 12 GHz	dB dB	7.5 8.0	9.5 10.5	10.0 11.0
Isolation, L to R (min)	fL = 2 to 3 GHz fL = 3 to 26 GHz	dB dB	22 30	15 20	
Isolation, L to I (min)	fL = 7 to 26 GHz fL = 2 to 7 GHz	dB dB	30 22	20 15	
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= 15 GHz @ -6 dBm, fR2 = 15.01 GHz @ -6 dBm, fL = 25 GHz @ 10 dBm	dBm dBm	+15 +12		

\* The M50AC specification limits apply at 0°C to +50°C.

Commitment to produce in volume is not gu

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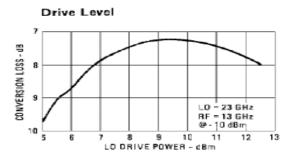
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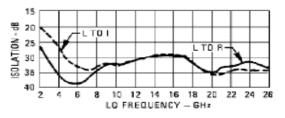


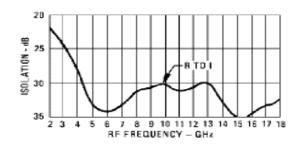
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## **Typical Performance Curves**

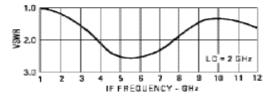


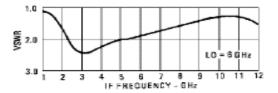
#### Isolation vs. Frequency

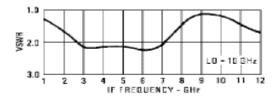




#### I-Port VSWR vs. Frequency, LO @ +10 dBm







2

CONVERSION LOSS - dB

8

9

10

4

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HIGH SIDE LO

8

10

RF FREQUENCY ~ GHz

12

LOW SIDE LO

14

IF = 12 GHz

16

18

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LOW SIDE LO

GHz

18

16

Conversion Loss vs. Frequency

LO @ +10 dBm

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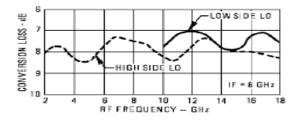
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CONVERSION LOSS - dB

RF FREQUENCY - GHz



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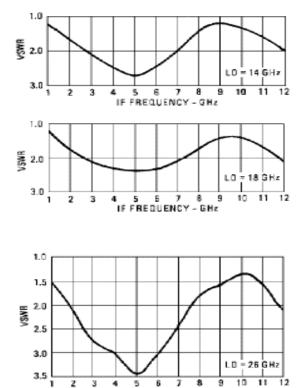


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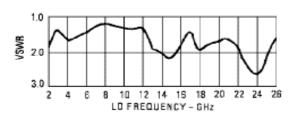
# **Absolute Maximum Ratings**

Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65°C to +100°C
Peak Input Power	+26 dBm max @ +25⁰C +22 dBm max @ +100⁰C
Peak Input Current	mA DC

#### I-Port VSWR

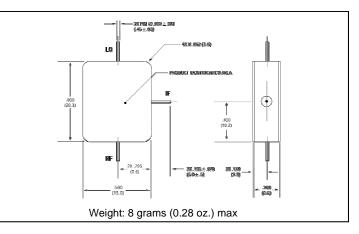




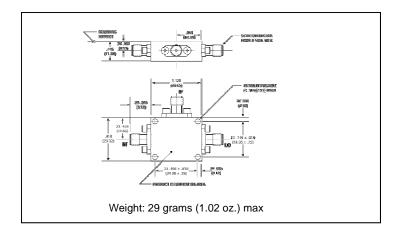


IF FREQUENCY - GHz

## **Outline Drawing: Minpac \***



## Outline Drawing: SMA Connectorized \*



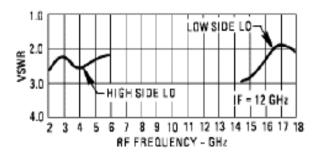
Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

# **R-Port VSWR**

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