M51 / M51C

Triple-Balanced Mixer

Rev. V3

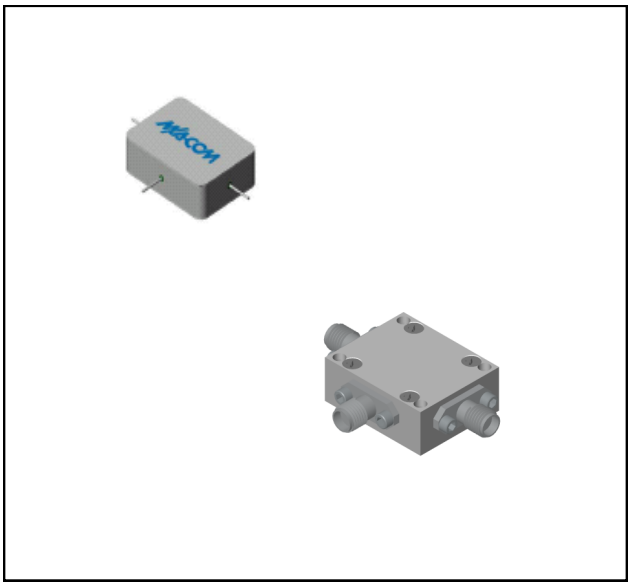
Features

- 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 = 50Ω Lo = +10 dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-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		

* The M51C specification limits apply at 0ºC to +50ºC.

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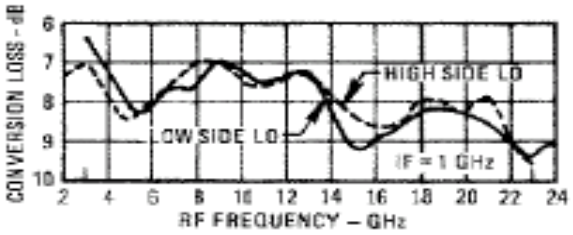
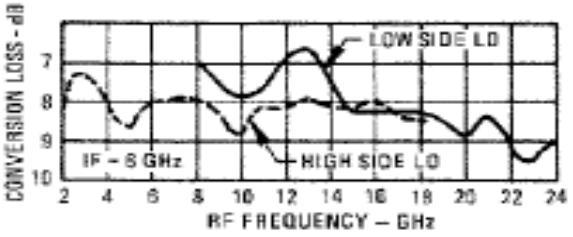
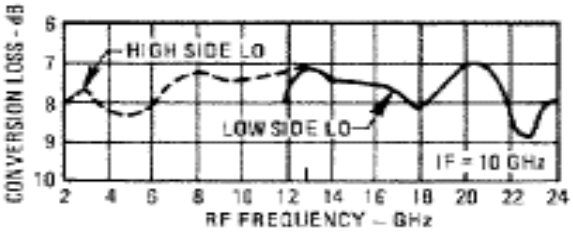
Typical Performance Curves

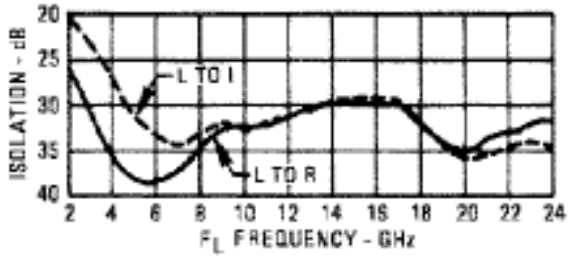
Conversion Loss vs. Frequency
LO @ +10 dBm

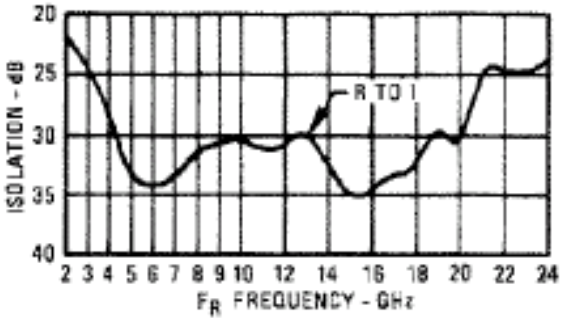




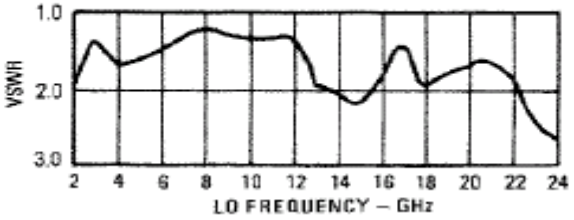


Isolation vs. Frequency

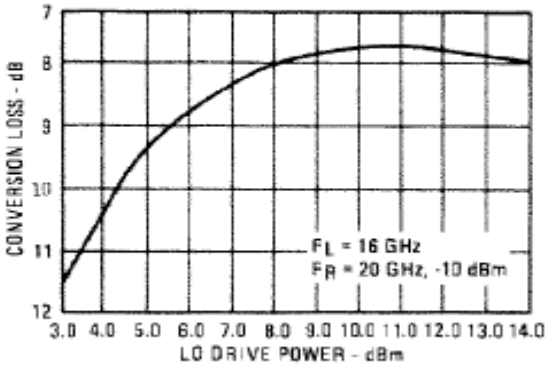




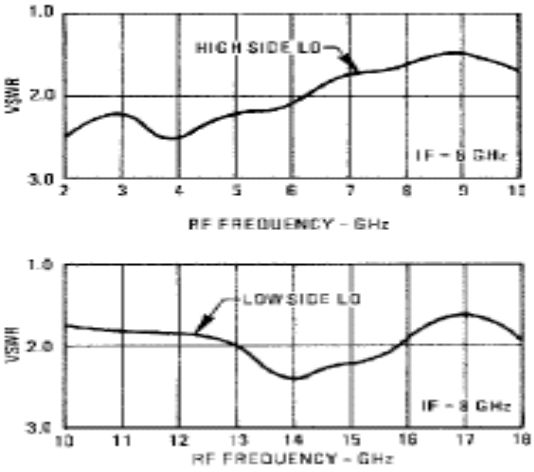
L-Port VSWR



Drive Level



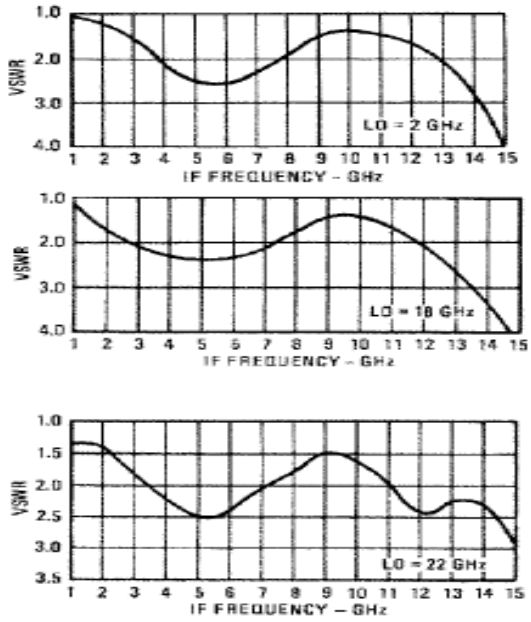
R-Port VSWR



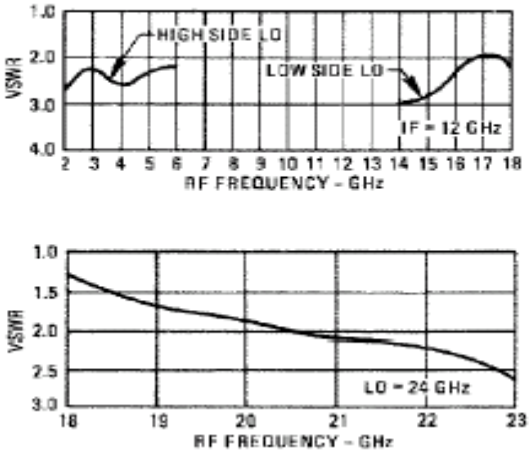
Absolute Maximum Ratings

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

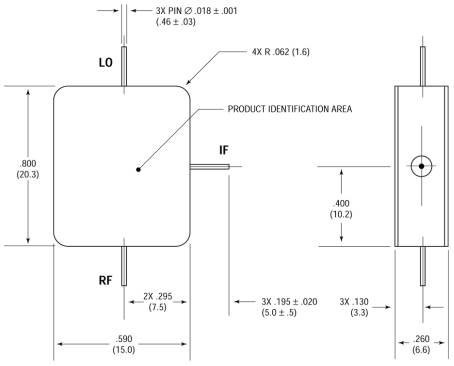
I-Port VSWR



R-Port VSWR

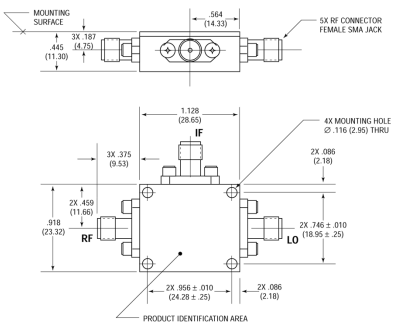


Outline Drawing: Minpac *



Weight: 8 grams (0.28 oz.) max

Outline Drawing: SMA Connectorized *



Weight: 29 grams (1.02 oz.) max

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

R-Port VSWR LO @ +10 dBm