

Triple-Balanced Mixer

Rev. V2

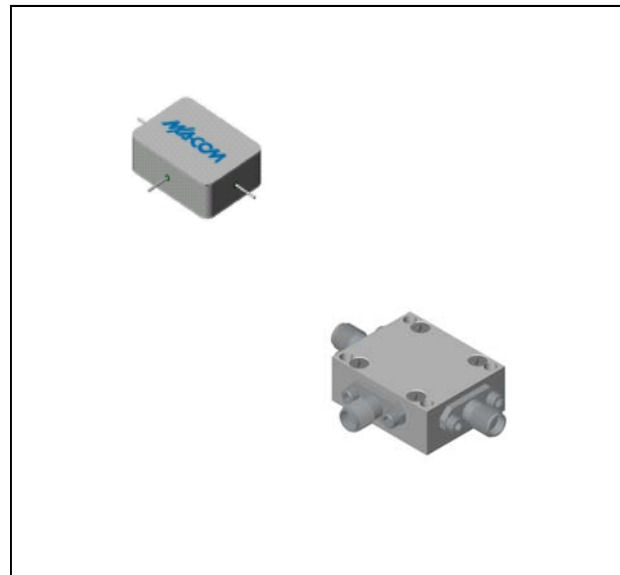
Features

- LO 2 TO 26 GHz
- RF 2 TO 26 GHz
- IF 0.1 TO 6 GHz
- LO DRIVE +10 dBm (nominal)
- HIGH COMPRESSION POINT
- VERY WIDE BANDWIDTH

Description

The M53 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
M53	Minpac
M53C	SMA Connectorized

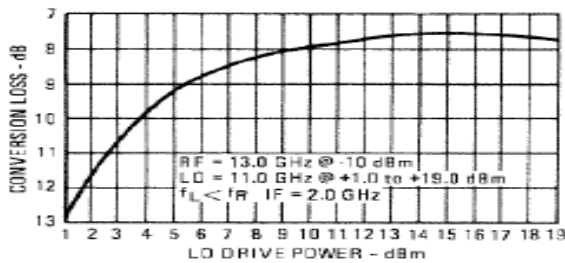
Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +10$ dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C *
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 8 to 18 GHz, fL = 8 to 18 GHz, fI = 0.1 to 4 GHz	dB	7.5	9.5	10.0
	fR = 2 to 8 GHz, fL = 2 to 8 GHz, fI = 1 to 4 GHz	dB	8.0	10.0	10.5
	fR = 2 to 18 GHz, fL = 2 to 18 GHz, fI = 0.1 to 5 GHz	dB	8.5	10.5	11.0
	fR = 18 to 26 GHz, fL = 18 to 26 GHz, fI = 0.1 to 6 GHz	dB	9.5	12.5	13.0
Isolation, L to R (min)	fL = 2 to 26 GHz	dB	18	15	13
	fL = 4 to 19 GHz	dB	25	20	18
Isolation, L to I (min)	fL = 2 to 20 GHz	dB	30	22	20
	fL = 20 to 26 GHz	dB	20	15	13
1 dB Conversion Comp.	fL @ +10 dBm	dBm	+5		
Input IP3	fR1 = 3.75 GHz @ -6 dBm, fR2 = 3.76 GHz @ -6 dBm, fL = 4 GHz @ 10 dBm	dBm	+16		
	fR1 = 13 GHz @ -6 dBm, fR2 = 13.01 GHz @ -6 dBm, fL = 11 GHz @ 10 dBm	dBm	+16		
	fR1 = 20 GHz @ -6 dBm, fR2 = 20.01 GHz @ -6 dBm, fL = 24 GHz @ 10 dBm	dBm	+13		

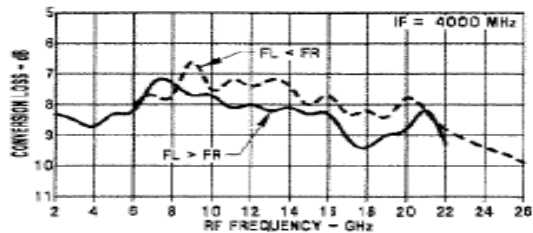
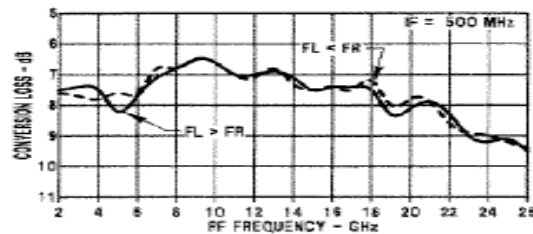
* The M53C specification limits apply at 0°C to +50°C.

Typical Performance Curves

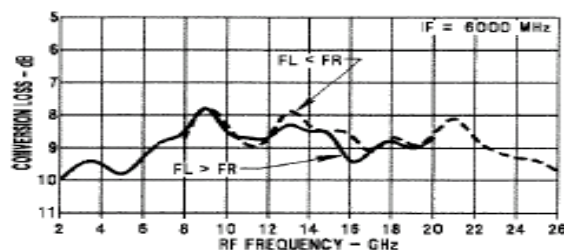
Drive Level



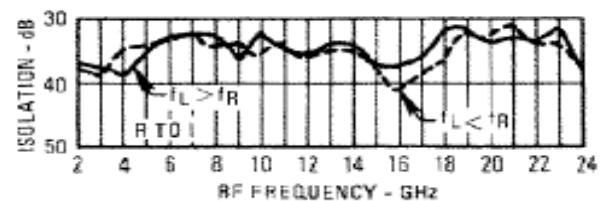
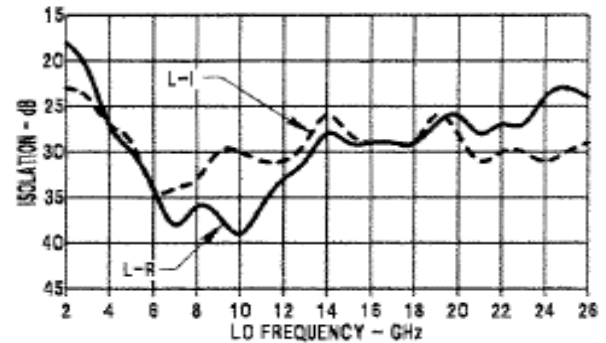
Conversion Loss vs. Frequency



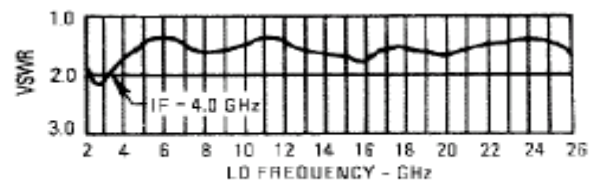
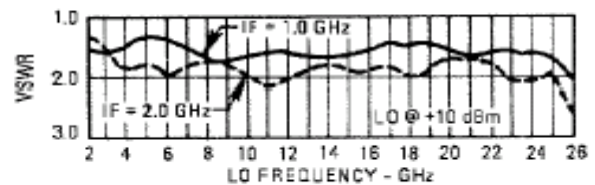
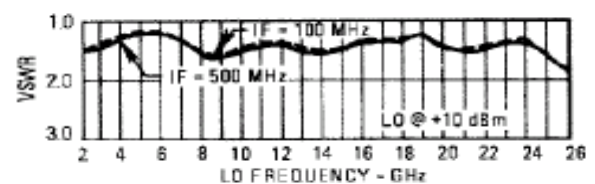
Conversion Loss vs. Frequency



Isolation vs. Frequency



I-Port VSWR



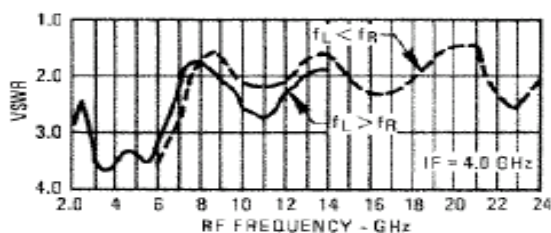
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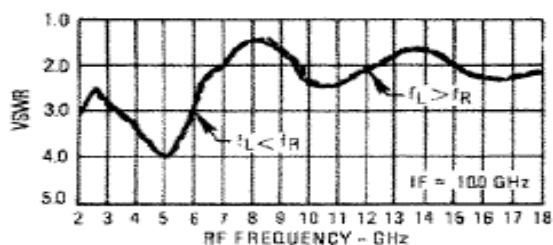
Absolute Maximum Ratings

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

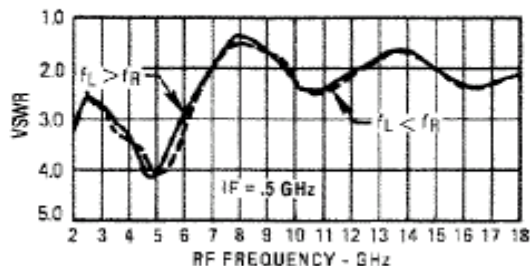
R-Port VSWR



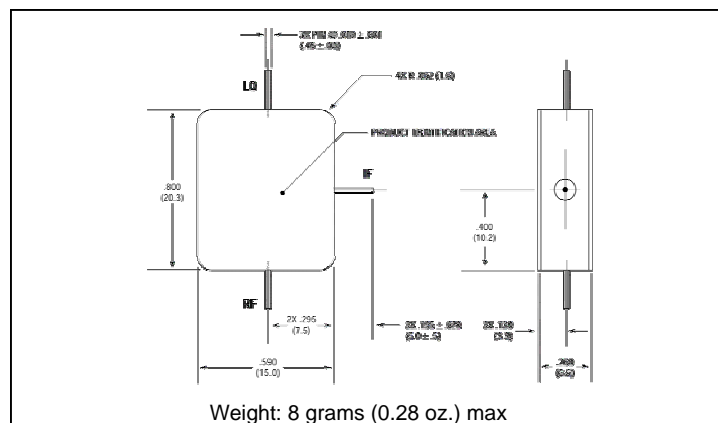
R-Port VSWR



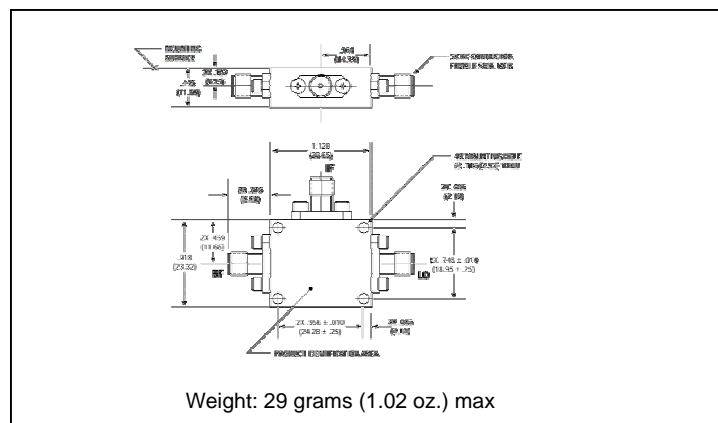
R-Port VSWR



Outline Drawing: Minpac *

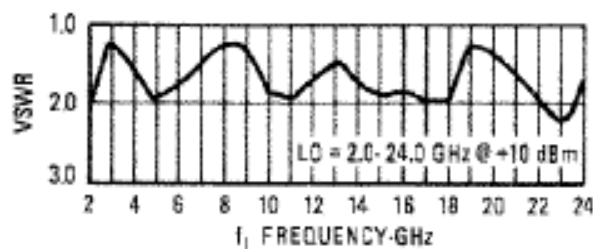


Outline Drawing: SMA Connectorized *



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

L-Port VSWR



Mouser Electronics

Authorized Distributor

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MACOM:

M53