

Double-Balanced Mixer

Rev. V3

Features

- LO 7 TO 15 GHz
- RF 8 TO 12.5 GHz
- IF DC TO 2.5 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- LOW NOISE FIGURE

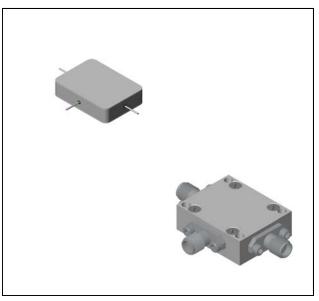
Description

The M77 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband soft dielectric and ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. 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
M77	Minpac
M77C	SMA Connectorized

Product Image



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

Parameter	Test Conditions	Units	Typical	Guaranteed	
raiametei	lest Conditions			+25°C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 8 to 12.5 GHz, fL = 7 to 13.5 GHz, fI = 0.03 to 1 GHz fR = 8 to 12.5 GHz, fL = 7 to 14.5 GHz, fI = 1 to 2 GHz fR = 8 to 12.5 GHz, fL = 7 to 15 GHz, fI = 2 to 2.5 GHz	dB dB dB	5.0 5.5 6.0	7.0 7.5 8.0	7.5 8.0 8.5
Isolation, L to R (min)	fL = 7 to 15 GHz fL = 8 to 12 GHz	dB dB	35 35	20 20	18 18
Isolation, L to I (min)	fL = 7 to 14 GHz fL = 14 to 15 GHz		30 20	15 10	13 8
1 dB Conversion Comp. fL = +10 dBm		dBm	+4		
Input IP3	fR1=10 GHz at -6 dBm,fR2=10.01GHz at -6 dBm, fL = 11 GHz at = +10 dBm	dBm	+15		

Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

Commitment to produce in volume is not guaranteed.

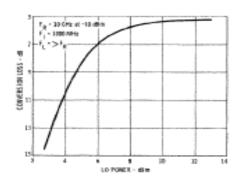


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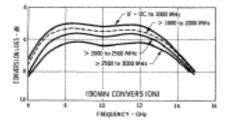
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Typical Performance Curves

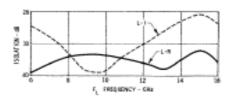
Conversion Loss Vs. LO Drive



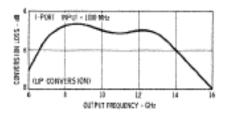
Conversion Loss vs. Frequency



Isolation vs. Frequency

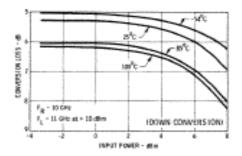


Conversion Loss vs. Output Frequency

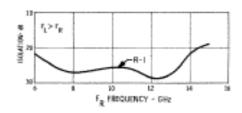


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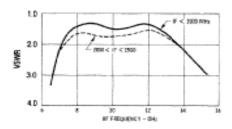
Conversion Loss vs. RF Input Power



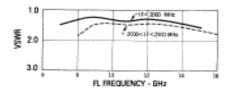
Isolation vs. Frequency



R-Port VSWR vs. Frequency



I-Port VSWR vs. f



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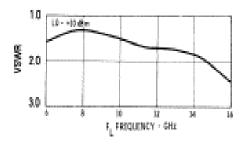
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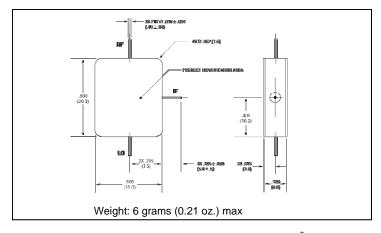
Absolute Maximum Ratings

Parameter	Absolute Maximum		
Operating Temperature	-54°C to +100°C		
Storage Temperature	-65°C to +100°C		
Peak Input Power	+23 dBm max @ +25°C +20 dBm max @ +100°C		
Peak Input Current	100 mA DC		

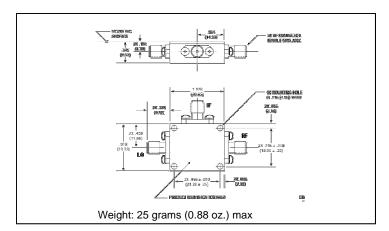
L-Port VSWR vs. Frequency



Outline Drawing: Minpac *



Outline Drawing: SMA Connectorized *



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