

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

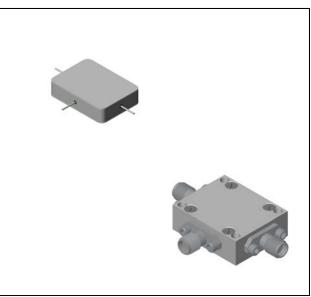
Description

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		Typical	Guaranteed	
raiametei				+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	dB dB	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		

Commitment to produce in volume is not du

[•] North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

[•] India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.

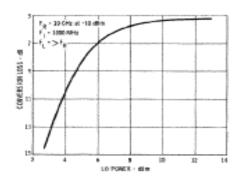


Double-Balanced Mixer

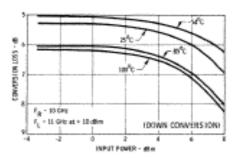
Rev. V3

Typical Performance Curves

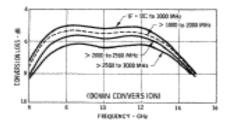
Conversion Loss Vs. LO Drive



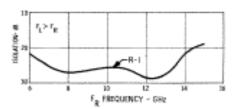
Conversion Loss vs. RF Input Power



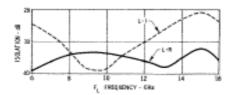
Conversion Loss vs. Frequency



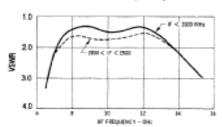
Isolation vs. Frequency



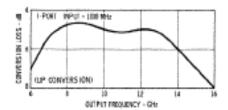
Isolation vs. Frequency



R-Port VSWR vs. Frequency

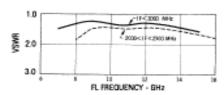


Conversion Loss vs. Output Frequency



2

I-Port VSWR vs. f



- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.
- PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are
- North America Tel: 800.366.2266 Europe Tel: +353.21.244.6400
- India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588 Visit www.macomtech.com for additional data sheets and product information.

Commitment to produce in volume is not guit



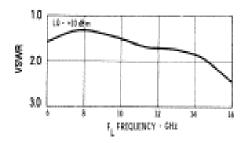
Double-Balanced Mixer

Rev. V3

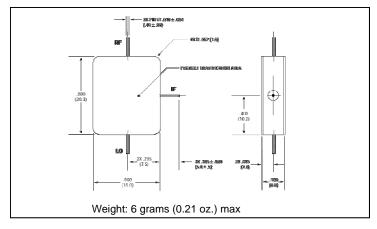
Absolute Maximum Ratings

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		

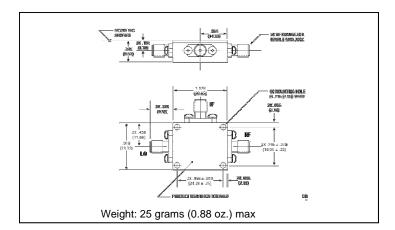
L-Port VSWR vs. Frequency



Outline Drawing: Minpac *



Outline Drawing: SMA Connectorized *



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

typical. Mechanical outline has been fixed. Engineering samples

Commitment to produce in volume is not g