

Double-Balanced Mixer

Rev. V3

Features

- LO 2.5 TO 11.5 GHz
- RF 4.5 TO 9.5 GHz
- IF DC TO 2.0 GHz
- LO DRIVE: +10 dBm (NOMINAL) LOW NOISE FIGURE: 5.5 dB (TYP.)

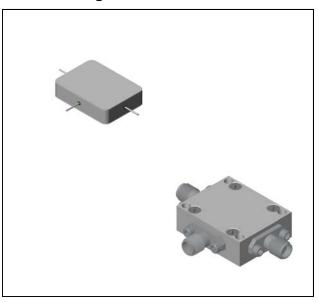
Description

The M76 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	
M76	Minpac	
M76C	SMA Connectorized	

Product Image



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

Parameter	Test Conditions	Units	Typical	Guaranteed	
raiametei				+25°C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 6 to 8 GHz, fL = 4 to 9 GHz, fI = 0.03 to 2 GHz fR = 5 to 9 GHz, fL = 4 to 9 GHz, fI = 0.03 to 1 GHz fR = 4 to 9.5 GHz, fL = 2.5 to 11.5 GHz, fI = 0.03 to 2 GHz	dB dB dB	5.5 5.5 6.0	7.0 7.0 8.0	7.5 7.5 8.5
Isolation, L to R (min)	fL = 2.5 to 9 GHz fL = 9 to 11.5 GHz	dB dB	40 30	25 20	23 18
Isolation, L to I (min)	fL = 2.5 to 4 GHz fL = 4 to 11.5 GHz	dB dB	20 25	10 15	8 13
1 dB Conversion Comp. fL = +10 dBm		dBm	+3		
Input IP3	fR1=7 GHz at -6 dBm,fR2=7.01GHz at -6 dBm, fL = 8 GHz at = +10 dBm	dBm	+13		

Commitment to produce in volume is not guaranteed.

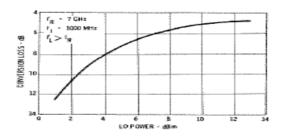


Double-Balanced Mixer

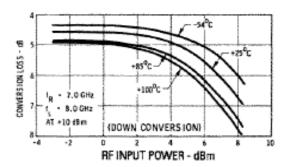
Rev. V3

Typical Performance Curves

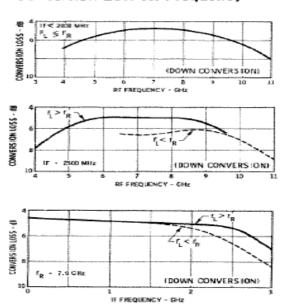
Conversion Loss Vs. LO Drive



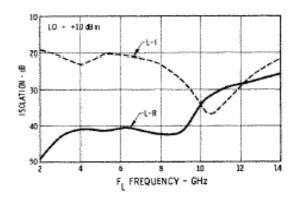
Conversion Loss vs. RF Input Power



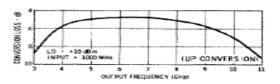
Conversion Loss vs. Frequency



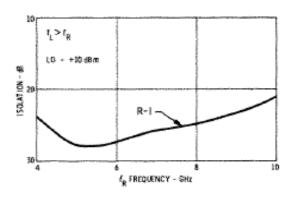
Isolation vs. Frequency



Conversion Loss vs. Output Frequency



2



- **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 typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.
- 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.



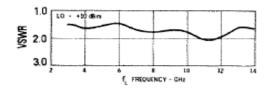
Double-Balanced Mixer

Rev. V3

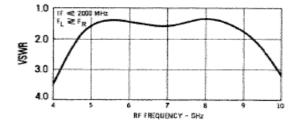
Absolute Maximum Ratings

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		

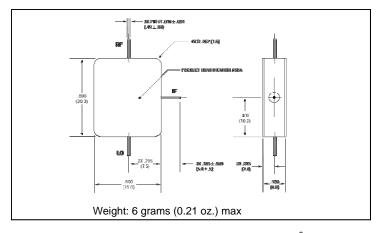
L-Port VSWR vs. Frequency



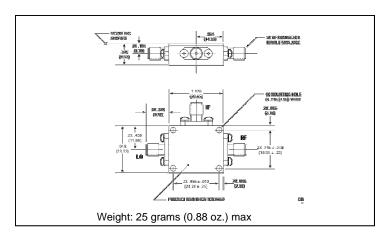
R-Port VSWR vs. Frequency



Outline Drawing: Minpac *

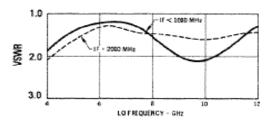


Outline Drawing: SMA Connectorized *



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

I-Port VSWR vs. fL



- 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.