

Double-Balanced Mixer

Rev. V2

Features

- LO 3.5 TO 18 GHz
- RF 6 TO 18 GHz
- IF DC TO 3000 MHz
- LO DRIVE +7 dBm (nominal)
- WIDE BANDWIDTH
- DC COUPLED I-PORT

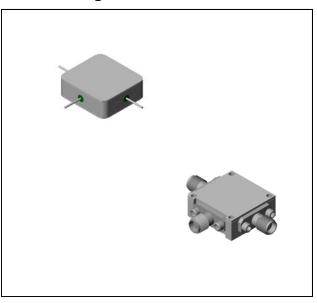
Description

The M86 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

Ordering Information

Part Number	Package	
M86	Minpac	
M86C	SMA Connectorized	

Product Image



Electrical Specifications: $Z_0 = 50\Omega$ Lo = +7 dBm (Downconverter application only)

Doromotor	Test Conditions	Units	Typical	Guaranteed	
Parameter	Test Conditions			+25°C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 6 to 16 GHz, fL = 5 to 17 GHz, fI = 30 to 1000 MHz fR = 16 to 18 GHz, fL = 15 to 18 GHz, fI = 30 to 1000 MHz fR = 6 to 18 GHz, fL = 3.5 to 18 GHz, fI = 30 to 3000 MHz	dB dB dB	6.0 7.0 7.0	8.0 9.0 9.0	8.5 9.5 9.5
Isolation, L to R (min)	fL = 3.5 to 14 GHz fL = 14 to 18 GHz	dB dB	36 32	23 18	21 16
Isolation, L to I (min)	fL = 3.5 to 9 GHz fL = 9 to 18 GHz	dB dB	28 38	16 23	14 21
1 dB Conversion Comp.	fL = +7 dBm	dBm	+3		
fR1=13 GHz at -10 dBm,fR2=13.01GHz at -10 dBm, fL = 14 GHz at = +7 dBm		dBm	+10		

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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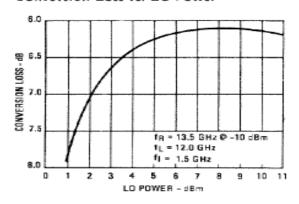


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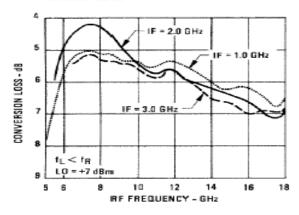
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Typical Performance Curves

Conversion Loss vs. LO Power

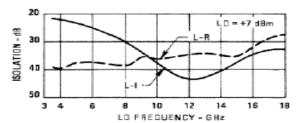


Conversion Loss



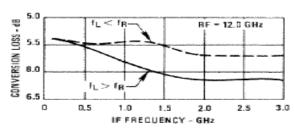
= 1.0 GHz 5 CONVERSION LOSS - d8 IF = 2.0 GHz fL> fR ĻO = +7 dBm 10 12 14 16 RF FREQUENCY - GHz

Isolation

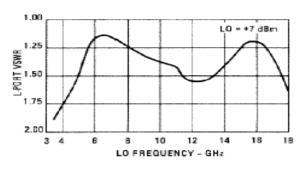


Conversion Loss

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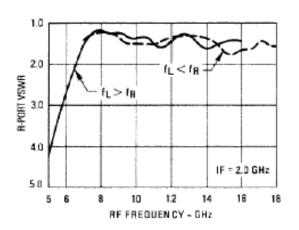
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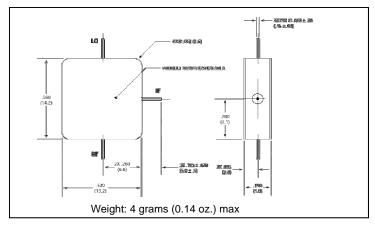
Absolute Maximum Ratings

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		

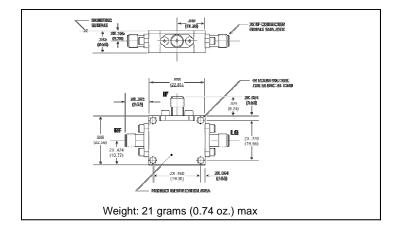
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Outline Drawing: Minpac *

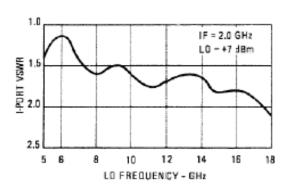


Outline Drawing: SMA Connectorized *

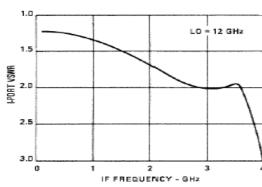


* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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