M86 / M86C

Double-Balanced Mixer

Rev. V2

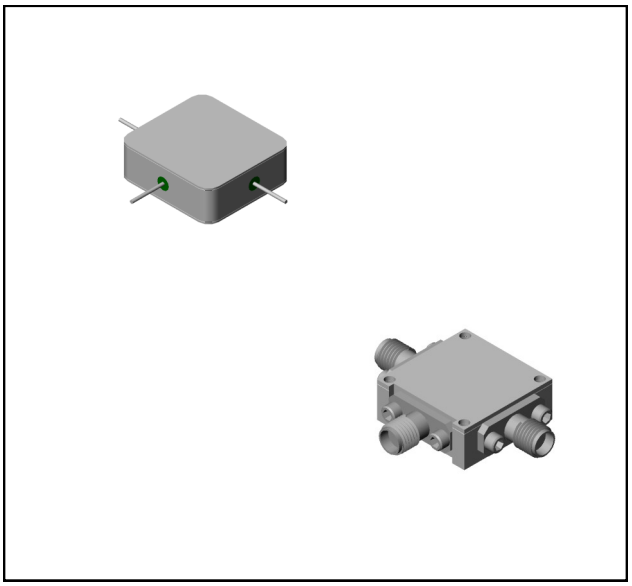
Features

- 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

Product Image



Ordering Information

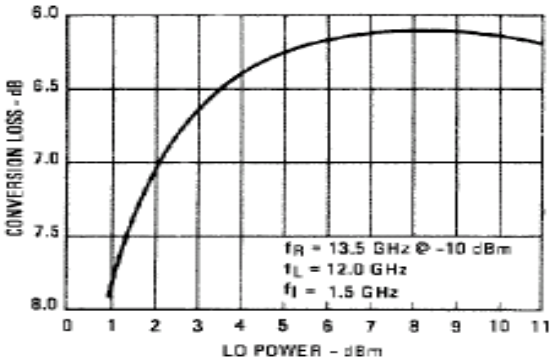
Part Number	Package
M86	Minpac
M86C	SMA Connectorized

Electrical Specifications: Z_0 = 50Ω Lo = +7 dBm (Downconverter application only)

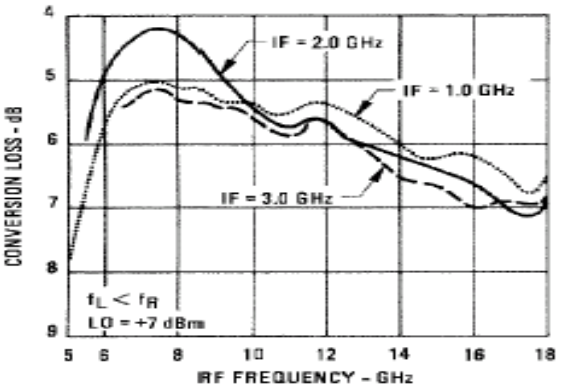
Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 6 to 16 GHz, fL = 5 to 17 GHz, fI = 30 to 1000 MHz fR = 16 to 18 GHz, fL = 15 to 18 GHz, fI = 30 to 1000 MHz fR = 6 to 18 GHz, fL = 3.5 to 18 GHz, fI = 30 to 3000 MHz	dB 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		
Input IP3	fR1=13 GHz at –10 dBm,fR2=13.01GHz at –10 dBm, fL = 14 GHz at = +7 dBm	dBm	+10		

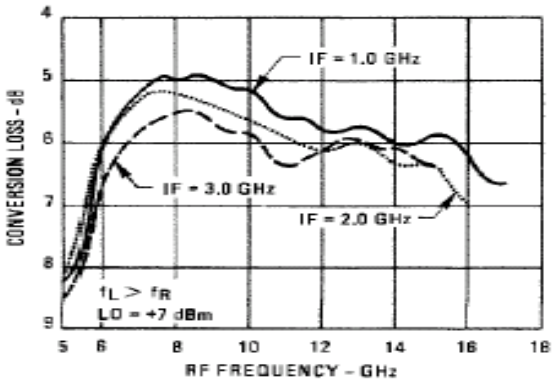
Typical Performance Curves

Conversion Loss vs. LO Power

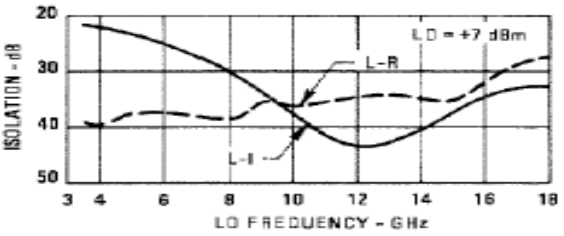


Conversion Loss

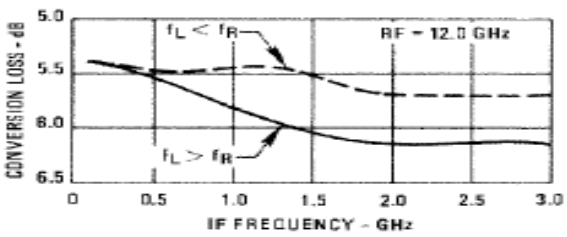




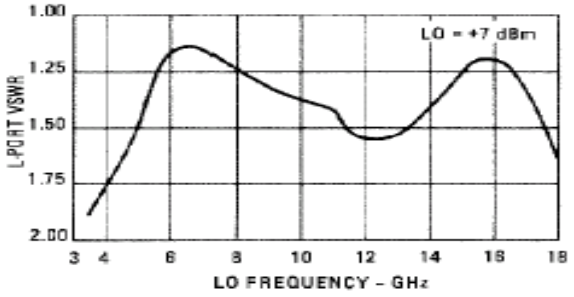
Isolation



Conversion Loss



VSWR



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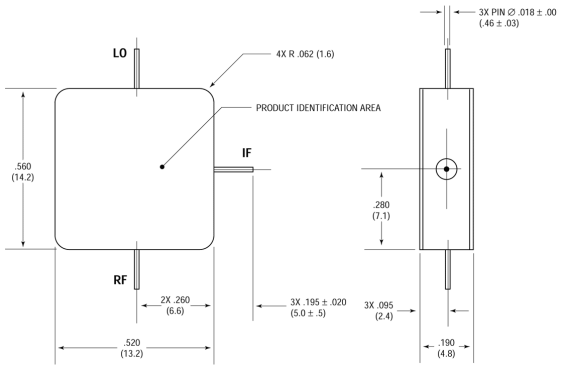
Absolute Maximum Ratings

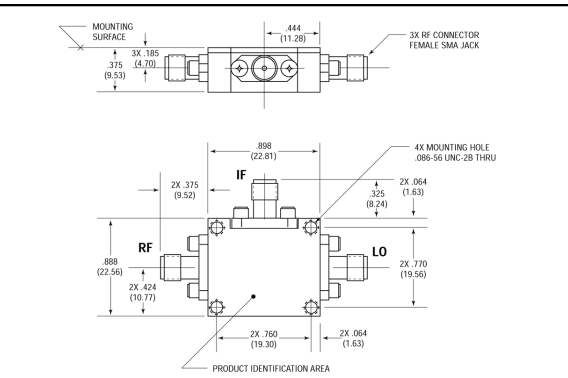
Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65ºC to +100ºC
Peak Input Power	+23 dBm max @ +25ºC +20 dBm max @ +100ºC
Peak Input Current	100 mA DC

Outline Drawing: Minpac *



Weight: 4 grams (0.14 oz.) max

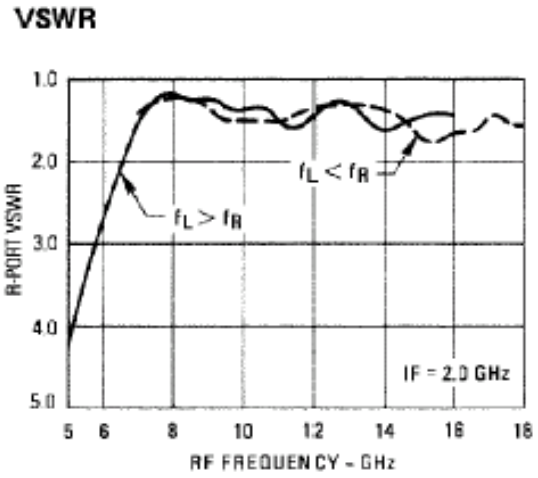
Outline Drawing: SMA Connectorized *



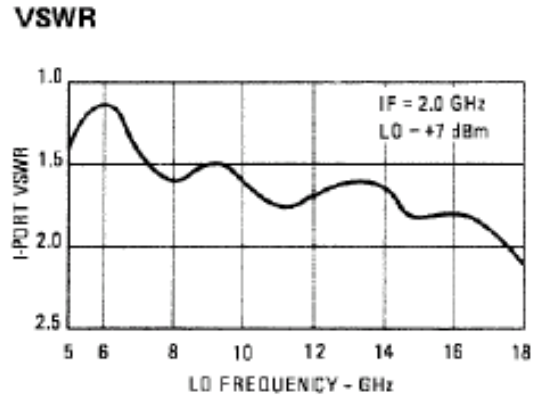
Weight: 21 grams (0.74 oz.) max

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

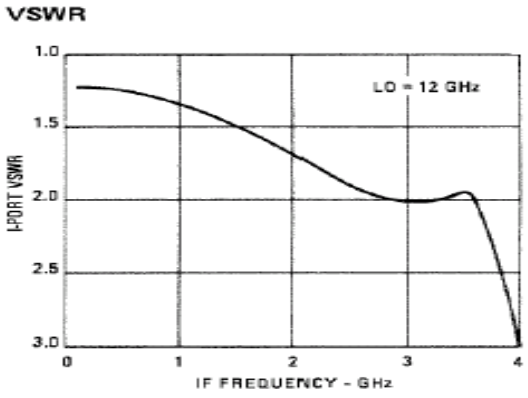
VSWR



VSWR



VSWR



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