

## Double-Balanced Mixer

Rev. V2

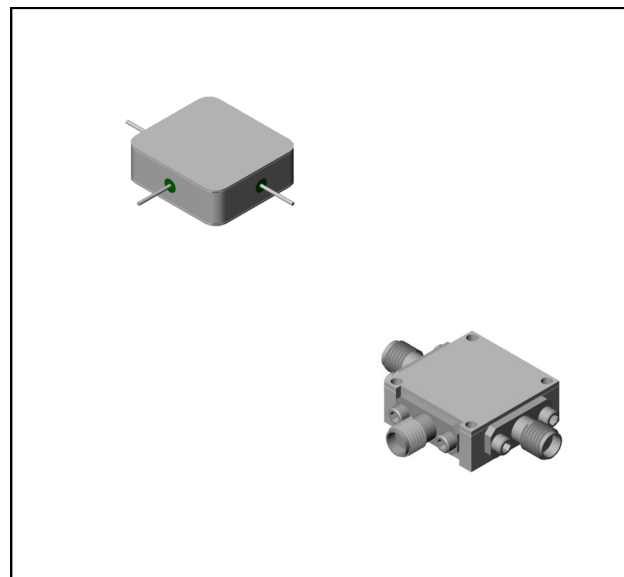
### Features

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

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C
SSB Conversion Loss (max) & SSB Noise Figure (max)	$fR = 6$ to 16 GHz, $fL = 5$ to 17 GHz, $fI = 30$ to 1000 MHz	dB	6.0	8.0	8.5
	$fR = 16$ to 18 GHz, $fL = 15$ to 18 GHz, $fI = 30$ to 1000 MHz	dB	7.0	9.0	9.5
	$fR = 6$ to 18 GHz, $fL = 3.5$ to 18 GHz, $fI = 30$ to 3000 MHz	dB	7.0	9.0	9.5
Isolation, L to R (min)	$fL = 3.5$ to 14 GHz	dB	36	23	21
	$fL = 14$ to 18 GHz	dB	32	18	16
Isolation, L to I (min)	$fL = 3.5$ to 9 GHz	dB	28	16	14
	$fL = 9$ to 18 GHz	dB	38	23	21
1 dB Conversion Comp.	$fL = +7$ dBm	dBm	+3		
Input IP3	$fR1=13$ GHz at $-10$ dBm, $fR2=13.01$ GHz at $-10$ dBm, $fL = 14$ GHz at $+7$ dBm	dBm	+10		

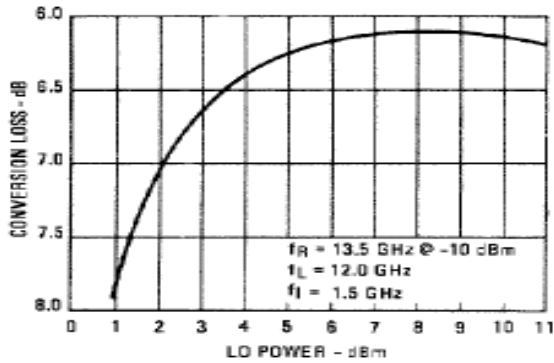
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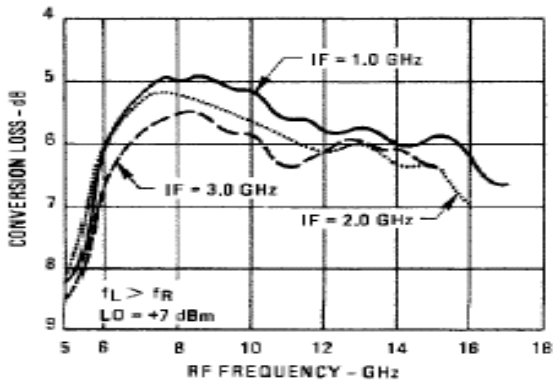
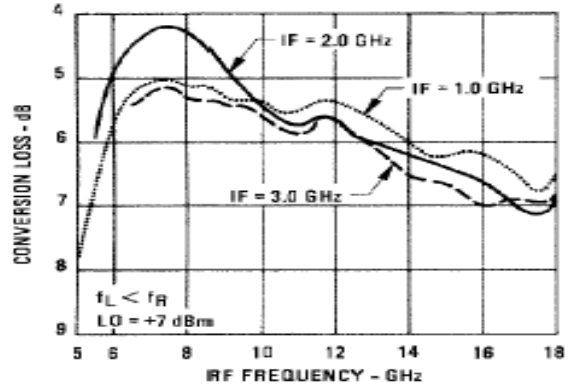
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### Typical Performance Curves

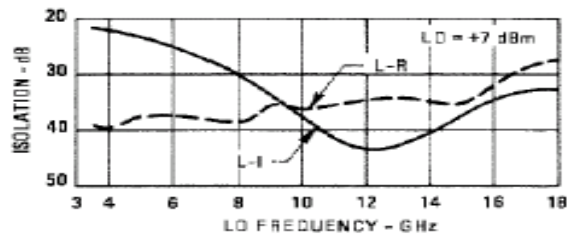
Conversion Loss vs. LO Power



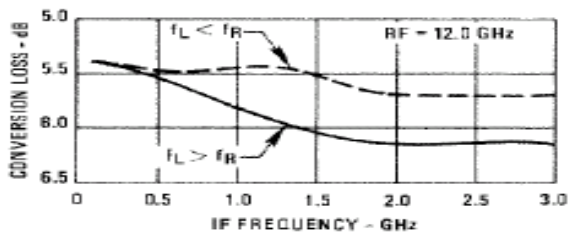
Conversion Loss



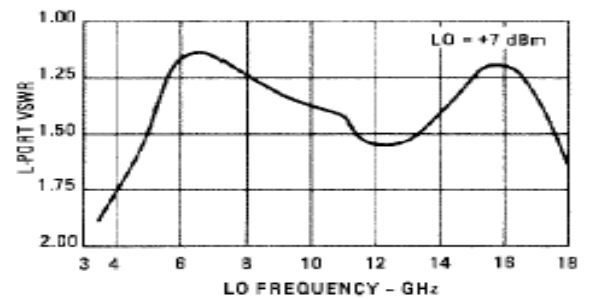
Isolation



Conversion Loss



VSWR



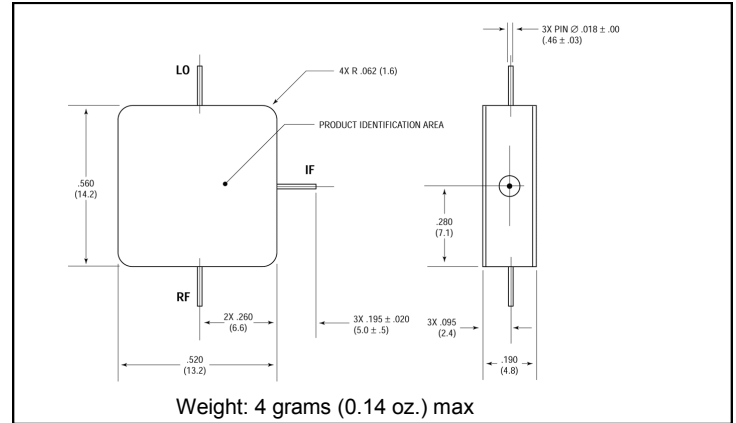
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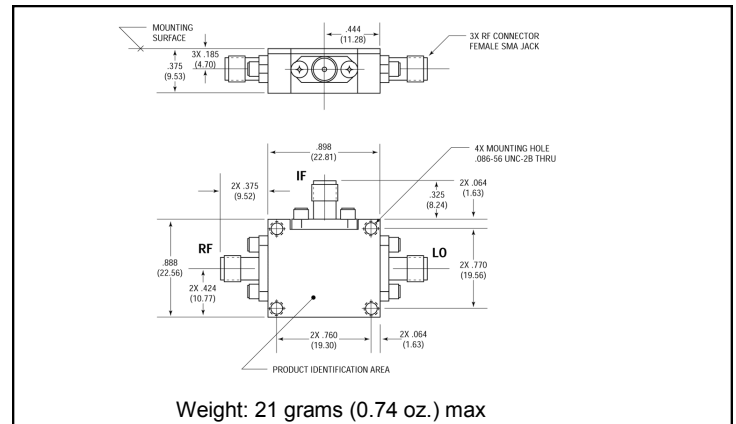
### Absolute Maximum Ratings

Parameter	Absolute Maximum
Operating Temperature	-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

### Outline Drawing: Minpac \*

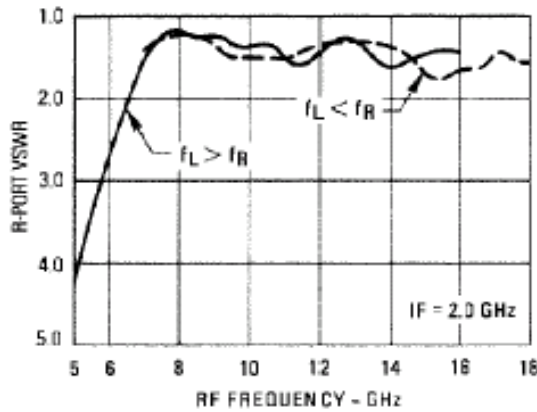


### Outline Drawing: SMA Connectorized \*

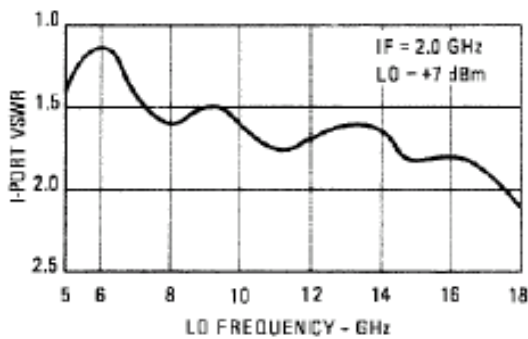


\* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

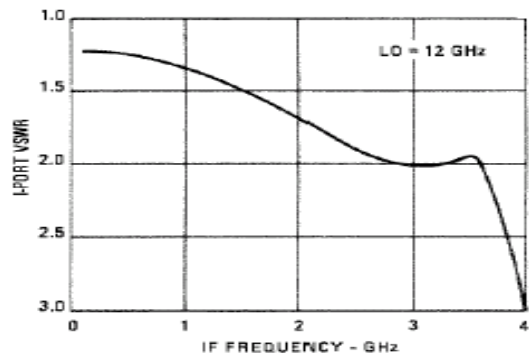
### VSWR



### VSWR



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