M85 / M85C

Double-Balanced Mixer

Rev. V3

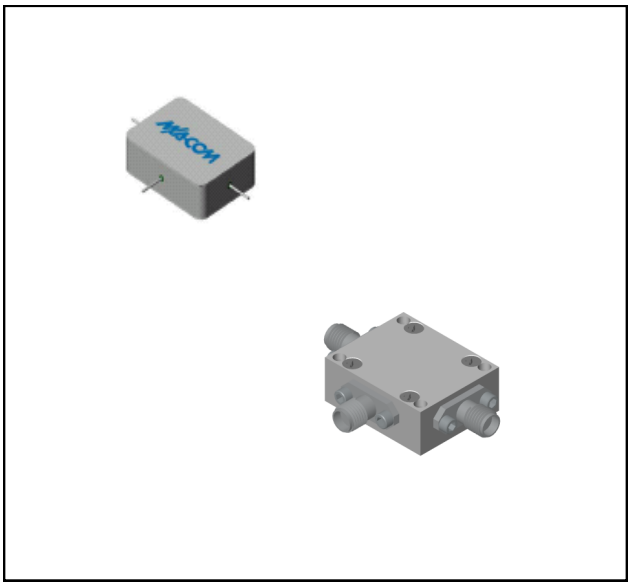
Features

- LO 2 TO 18 GHz
- RF 2 TO 18 GHz
- IF 0 TO 1000 MHz
- LO DRIVE: +7 dBm (NOMINAL)
- DC COUPLED I-PORT
- WIDE BANDWIDTH

Description

The M85 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.

Product Image



Ordering Information

Part Number	Package
M85	Minpac
M85C	SMA Connectorized

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

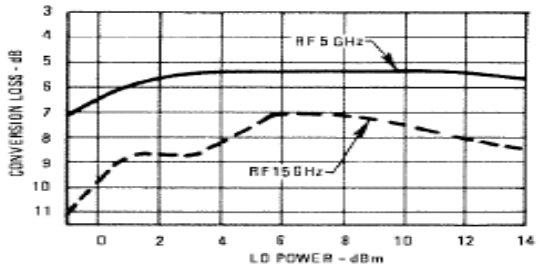
Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25ºC	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 4 to 14 GHz, fL = 3 to 15 GHz, fI = 0 to 1 GHz fR = 22 to 3 GHz, fL = 2 to 3 GHz, fI = 0 to 1 GHz fR = 3 to 18 GHz, fL = 3 to 18 GHz, fI = 0 to 1 GHz	dB dB dB	7.0 10.0 8.5	9.0 11.0 10.5	9.5 11.5 11.0
Isolation, L to R (min)	fL = 2 to 18 GHz	dB	35	22	20
Isolation, L to I (min)	fL = 2 to 18 GHz	dB	20	15	13
Isolation, R to I (min)	fL = 2 to 18 GHz	dB	20		
1 dB Conversion Comp.	fL = +7 dBm	dBm	+1		
Input IP3	fR1=5 GHz at –10 dBm,fR2=5.01GHz at –10 dBm, fL = 5.5 GHz at = +7 dBm fR1=15 GHz at –10 dBm,fR2=15.01GHz at –10 dBm, fL = 14.5 GHz at = +7 dBm	dBm dBm	+10 +10		

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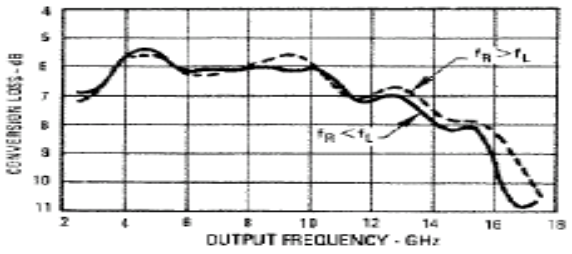
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Typical Performance Curves

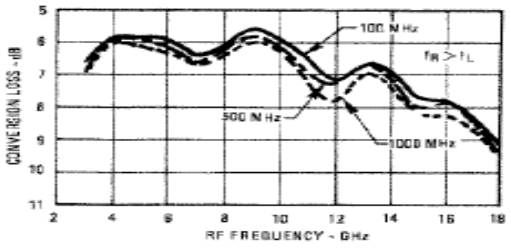
Conversion Loss vs LO Power Level



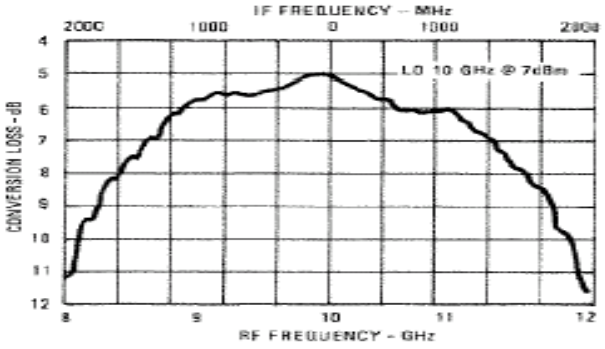
Up Conversion Loss

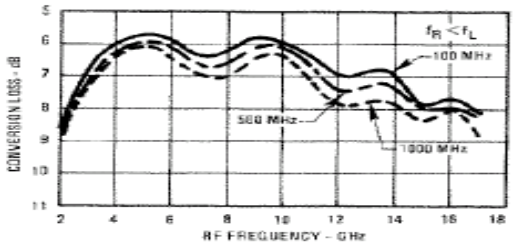


Conversion Loss

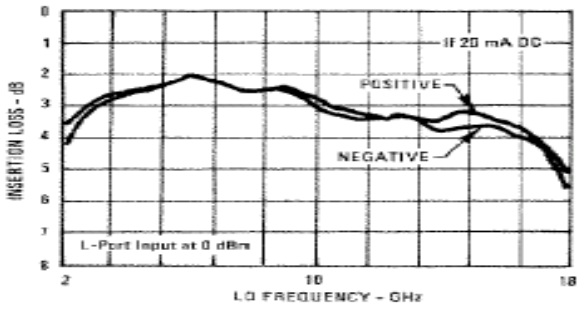


I Port Bandwidth

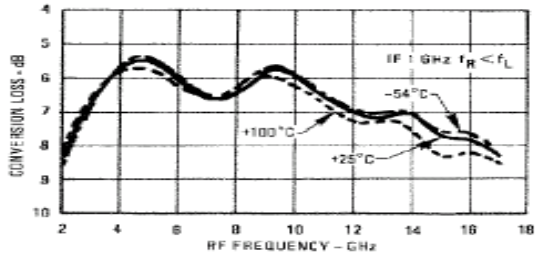


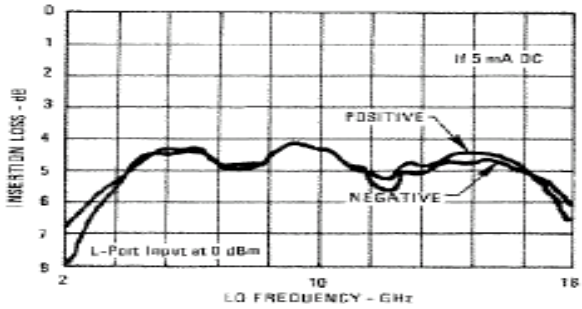


Insertion Loss with DC Driven I–Port



Conversion Loss over Temperature





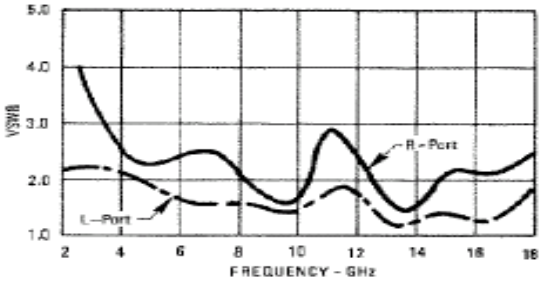
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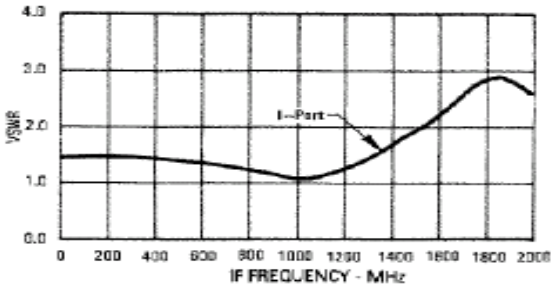
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Absolute Maximum Ratings

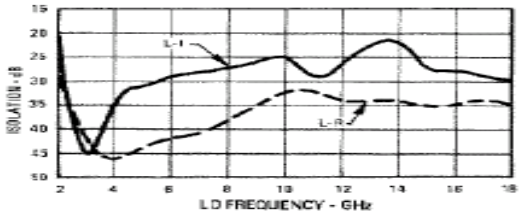
Parameter	Absolute Maximum
Operating Temperature	-54ºC to +100ºC
Storage Temperature	-65ºC to +100ºC
Peak Input Power	+23 dBm max @ +25ºC +20 dBm max @ +100ºC
Peak Input Current	100 mA DC

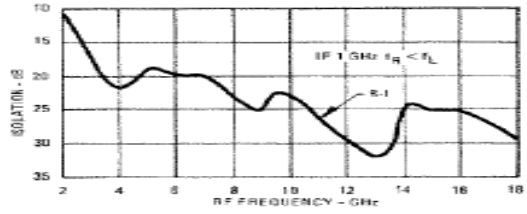
VSWR



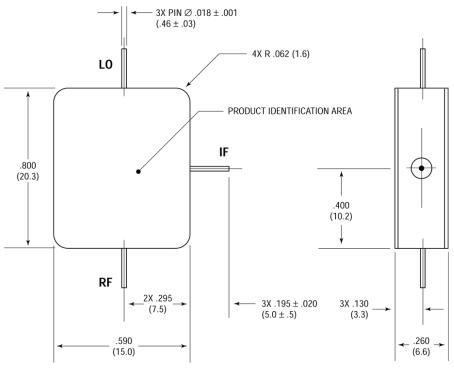


Isolation



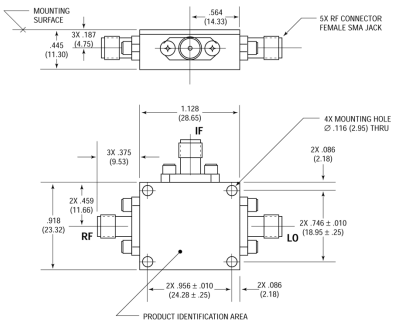


Outline Drawing: Minpac *



Weight: 8 grams (0.28 oz.) max

Outline Drawing: SMA Connectorized *



Weight: 29 grams (1.02 oz.) max

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

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