# M77 / M77C

## **Double-Balanced Mixer**



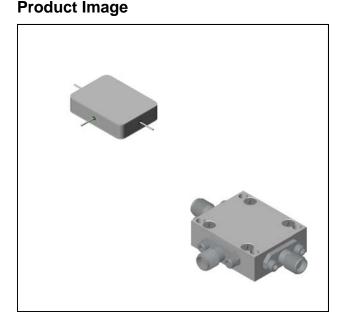
Rev. V3

### Features

- LO 7 TO 15 GHz
- RF 8 TO 12.5 GHz
- IF DC TO 2.5 GHz
- LO DRIVE: +10 dBm (NOMINAL)
- LOW NOISE FIGURE

## Description

The M77 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	
M77	Minpac	
M77C	SMA Connectorized	

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

Parameter	Test Conditions	Units	Typical	Guaranteed	
raiameter	Test Conditions			+25⁰C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 8 to 12.5 GHz, fL = 7 to 13.5 GHz, fl = 0.03 to 1 GHz fR = 8 to 12.5 GHz, fL = 7 to 14.5 GHz, fl = 1 to 2 GHz fR = 8 to 12.5 GHz, fL = 7 to 15 GHz, fl = 2 to 2.5 GHz	dB dB dB	5.0 5.5 6.0	7.0 7.5 8.0	7.5 8.0 8.5
Isolation, L to R (min)	fL = 7 to 15 GHz fL = 8 to 12 GHz	dB dB	35 35	20 20	18 18
Isolation, L to I (min)	fL = 7 to 14 GHz fL = 14 to 15 GHz	dB dB	30 20	15 10	13 8
1 dB Conversion Comp.	fL = +10 dBm	dBm	+4		
Input IP3	fR1=10 GHz at –6 dBm,fR2=10.01GHz at –6 dBm, fL = 11 GHz at = +10 dBm	dBm	+15		

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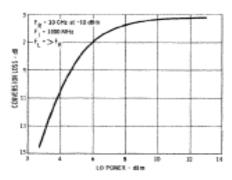
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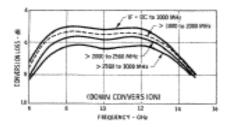


## **Typical Performance Curves**

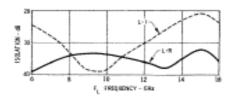
#### Conversion Loss Vs. LO Drive



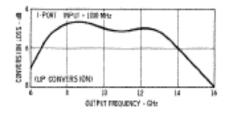
### Conversion Loss vs. Frequency



Isolation vs. Frequency



#### Conversion Loss vs. Output Frequency

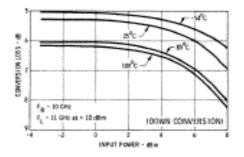


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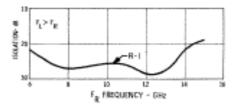
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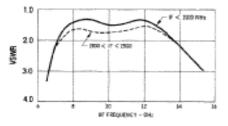
#### Conversion Loss vs. RF Input Power



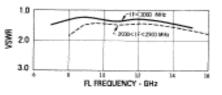
Isolation vs. Frequency



#### R-Port VSWR vs. Frequency



#### I-Port VSWR vs. f



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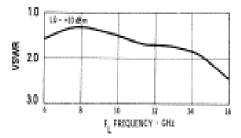
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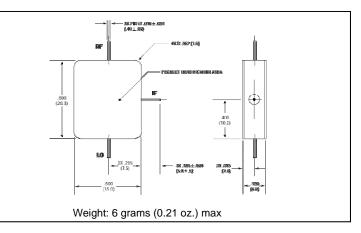
## **Absolute Maximum Ratings**

Parameter	Absolute Maximum		
Operating Temperature	-54ºC to +100ºC		
Storage Temperature	-65°C to +100°C		
Peak Input Power	+23 dBm max @ +25⁰C +20 dBm max @ +100⁰C		
Peak Input Current	100 mA DC		

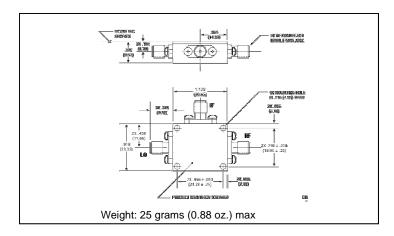
## L-Port VSWR vs. Frequency



# Outline Drawing: Minpac \*



# Outline Drawing: SMA Connectorized \*



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

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