

#### **Double-Balanced Mixer**

Rev. V3

#### **Features**

- LO 2.5 TO 11.5 GHz
- RF 4.5 TO 9.5 GHz
- IF DC TO 2.0 GHz
- LO DRIVE: +10 dBm (NOMINAL) LOW NOISE FIGURE: 5.5 dB (TYP.)

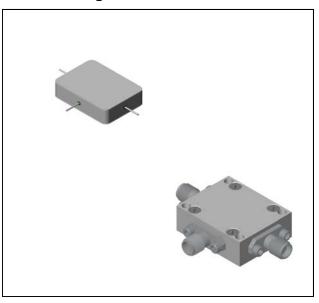
#### **Description**

The M76 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	
M76	Minpac	
M76C	SMA Connectorized	

## Product Image



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

Parameter	Test Conditions	Units	Typical	Guaranteed	
raiametei				+25°C	-54º to +85ºC
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 6 to 8 GHz, fL = 4 to 9 GHz, fI = 0.03 to 2 GHz fR = 5 to 9 GHz, fL = 4 to 9 GHz, fI = 0.03 to 1 GHz fR = 4 to 9.5 GHz, fL = 2.5 to 11.5 GHz, fI = 0.03 to 2 GHz	dB dB dB	5.5 5.5 6.0	7.0 7.0 8.0	7.5 7.5 8.5
Isolation, L to R (min)	fL = 2.5 to 9 GHz fL = 9 to 11.5 GHz	dB dB	40 30	25 20	23 18
Isolation, L to I (min)	fL = 2.5 to 4 GHz fL = 4 to 11.5 GHz	dB dB	20 25	10 15	8 13
1 dB Conversion Comp. fL = +10 dBm		dBm	+3		
Input IP3	fR1=7 GHz at -6 dBm,fR2=7.01GHz at -6 dBm, fL = 8 GHz at = +10 dBm	dBm	+13		

Commitment to produce in volume is not guaranteed.

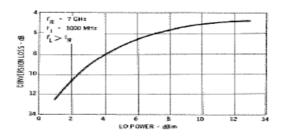


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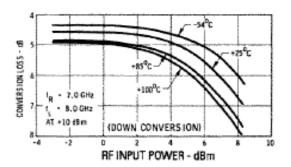
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## **Typical Performance Curves**

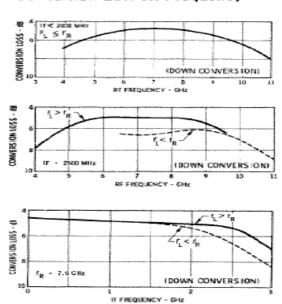
#### Conversion Loss Vs. LO Drive



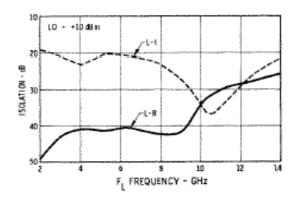
#### Conversion Loss vs. RF Input Power



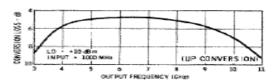
#### Conversion Loss vs. Frequency



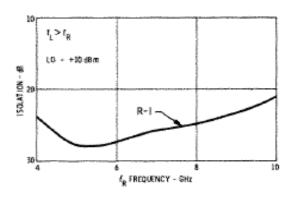
## Isolation vs. Frequency



#### Conversion Loss vs. Output Frequency



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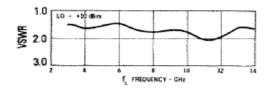
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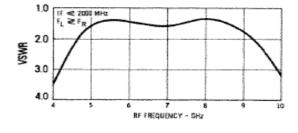
#### **Absolute Maximum Ratings**

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		

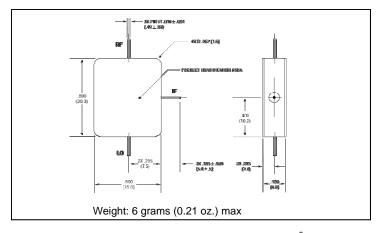
#### L-Port VSWR vs. Frequency



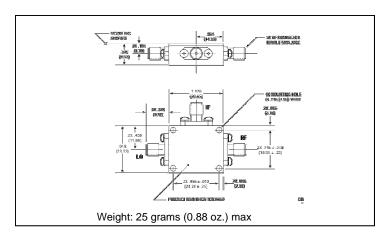
#### R-Port VSWR vs. Frequency



## Outline Drawing: Minpac \*

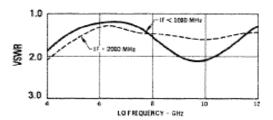


# Outline Drawing: SMA Connectorized \*



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

## I-Port VSWR vs. fL



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