

### **Double-Balanced Mixer**

Rev. V3

#### **Features**

- LO 1 TO 400 MHz
- RF 1 TO 400 MHz
- IF 0 TO 400 MHz
- LO DRIVE: +27 dBm (NOMINAL)
- HIGH INTERCEPT POINT: +32.5 dBm (TYP.)

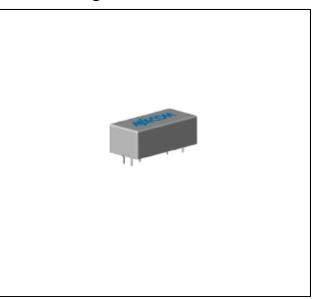
### **Description**

The M9E is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband 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 Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

## Ordering Information

Part Number	Package
M9E	Relay Can

## **Product Image**



# Electrical Specifications: $Z_0 = 50\Omega$ Lo = +27 dBm (Downconverter Application only)

Parameter	Test Conditions	Units	Typical	oical Guaranteed	
Parameter			25°C	0º to 50ºC	-54º to +85ºC
SSB Conversion Loss & SSB Noise Figure (max)	fR=0.002 to 0.05 GHz, fL=0.002 to 0.05 GHz, fl=0.002 to 0.1GHz fR=0.001 to 0.1 GHz, fL=0.001 to 0.1 GHz, fl=0.0004 to 0.4GHz fR=0.001 to 0.4 GHz, fL=0.001 to 0.4 GHz, fl=0.0004 to 0.2 GHz	dB dB dB	6.0 7.0 8.0	7.0 7.5 9.0	7.3 7.8 9.3
Isolation, L to R (min)	fL = 0.001  to  0.03  GHz fL = 0.03  to  0.1  GHz fL = 0.1  to  0.4  GHz	dB dB dB	50 40 30	45 35 25	44 34 24
Isolation, L to I (min)	fL = 0.001  to  0.03  GHz fL = 0.03  to  0.1  GHz fL = 0.1  to  0.4  GHz	dB dB dB	55 45 35	45 40 25	44 39 24
Isolation, R to I (min)	fL = 0.001 to 0.4 GHz	dB	25		
1 dB Conversion Compression	fL @ +27 dBm	dBm	+20		
Input IP3		dBm	+32.5		

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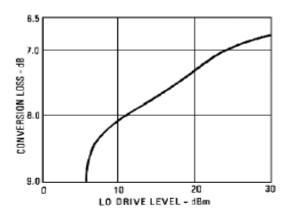


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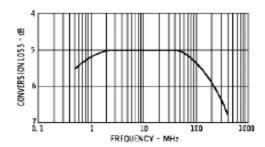
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## **Typical Performance Curves**

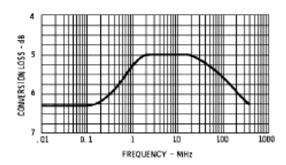
#### Conversion Loss



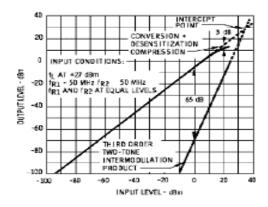
### Conversion Loss vs. Input Frequency



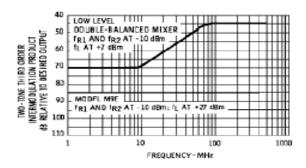
#### Conversion Loss vs. Output Frequency



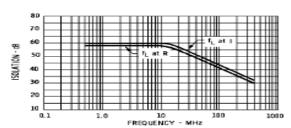
#### Two-Tone Supression vs. Input Level



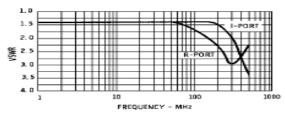
## Two-Tone Suppression vs. Input Frequency



#### Isolation



#### VSWR



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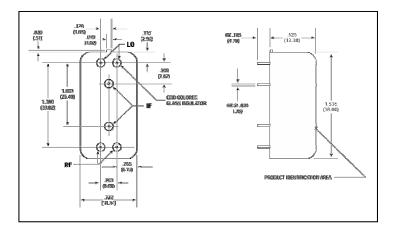
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## **Absolute Maximum Ratings**

Parameter	Absolute Maximum		
Operating Temperature	-54 C to +100°C		
Storage Temperature	-65°C to +100°C		
Peak Input Power	+33 dBm max @ +25°C dBm max @ +100°C		
Peak Input Current	200 mA DC		

## **Outline Drawing: Relay Can**



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