

## Double-Balanced Mixer

Rev. V3

### Features

- LO 10 to 1500 MHz
- RF 10 to 1500 MHz
- IF DC to 800 MHz
- LO Drive +7 dBm (nominal)
- High Isolation 35 dB (typ)

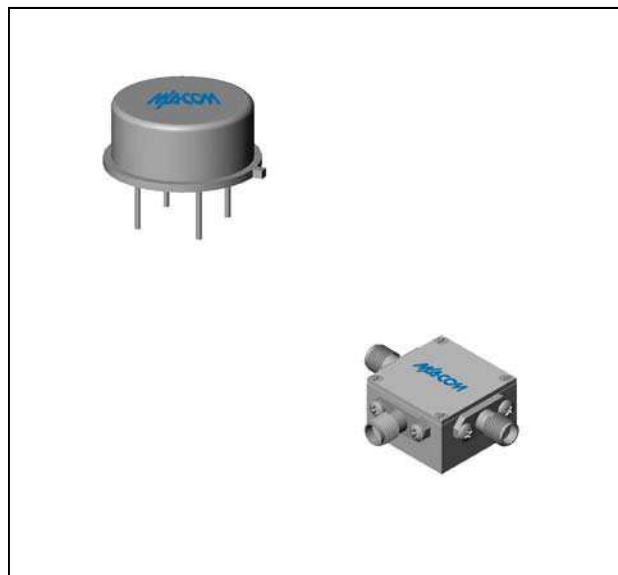
### Description

The M2A 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 diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

### Ordering Information

Part Number	Package
M2A	TO-8
M2AC	SMA Connectorized

### Product Image



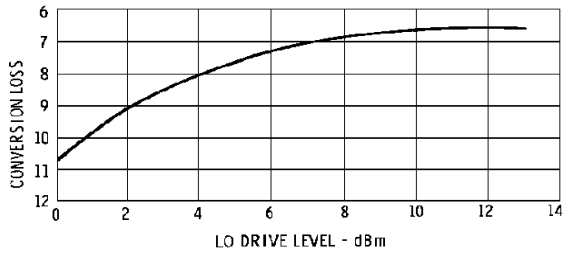
### Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +7$ dBm (Downconverter application only)

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C *
SSB Conversion Loss (max)	fR = 0.02 to 0.6 GHz, fL = 0.01 to 0.8 GHz, fl = 0.001 to 0.2 GHz fR = 0.01 to 1.5 GHz, fL = 0.01 to 1.5 GHz, fl = 0.001 to 0.2 GHz fl = 0.001 to 0.8 GHz	dB	7.0 7.5 8.0	7.5 8.5 9.0	8.0 9.0 9.5
SSB Noise Figure (max)	Within 1 db of conversion loss	dB	—	—	—
Isolation, L to R (min)	fL = 0.01 to 0.5 GHz fL = 0.5 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB	45 40 35	35 28 25	
Isolation, L to I (min)	fL = 0.01 to 0.5 GHz fL = 0.5 to 1.2 GHz fL = 1.2 to 1.5 GHz	dB	40 30 25	30 20 18	
1 dB Conversion Comp.	fL = +7 dBm	dBm	0		
Input IP3		dBm	+12		

\* The M2AC specification limits apply at 0°C to +50°C.

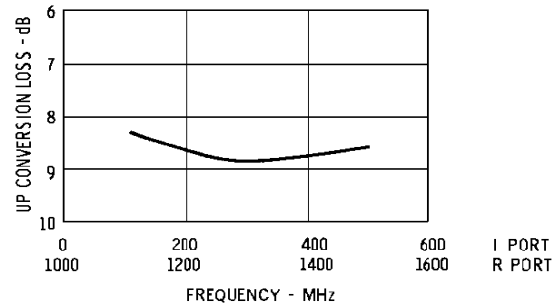
### Typical Performance Curves

**Conversion Loss**



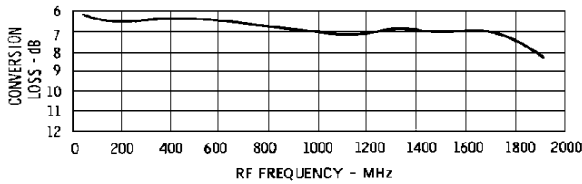
$F_R = 1000 \text{ MHz}$   
 $F_L = 1020 \text{ MHz}$   
 $F_I = 20 \text{ MHz}$

**Conversion Loss**



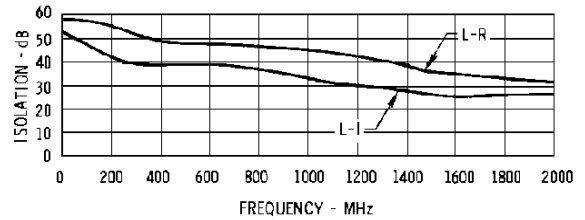
$F_{LO} = 1000 \text{ MHz AT } +7 \text{ dBm}$   
 $P_{IF} = -10 \text{ dBm}$

**Conversion Loss**



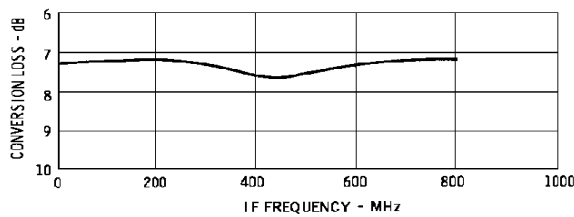
$F_{IF} = F_{LO} - F_{RF} = 20 \text{ MHz}$   
 $P_{LO} = +7 \text{ dBm}$   
 $P_{RF} = -10 \text{ dBm}$

**Isolation**



$P_{LO} = +7 \text{ dBm}$

**Conversion Loss**



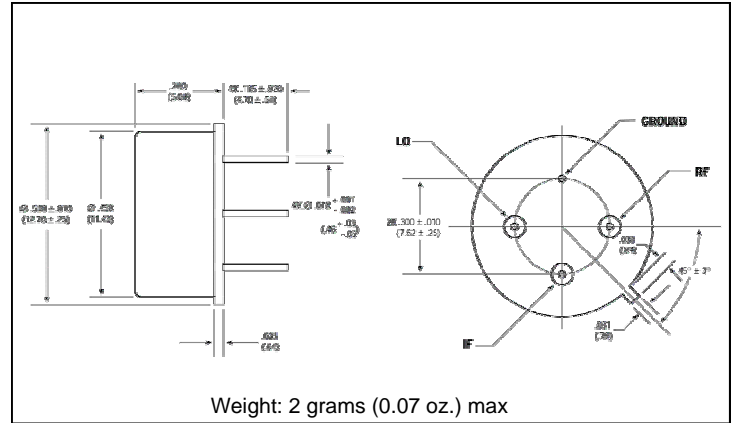
## Double-Balanced Mixer

Rev. V3

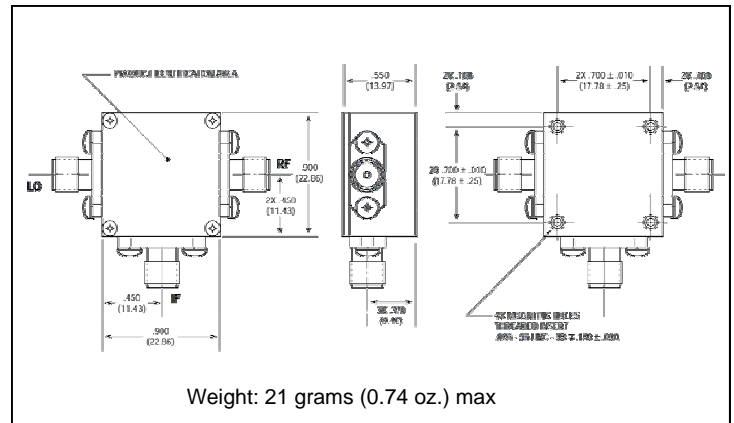
### Absolute Maximum Ratings

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 +17 dBm max @ +100°C
Peak Input Current	50 mA DC

### Outline Drawing: TO-8 \*



### Outline Drawing: SMA Connectorized \*



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