# M8TH / M8THC

## Load Insensitive Mixer



Rev. V5

#### Features

- LO 1 TO 3400 MHz
- RF 1 TO 3400 MHz
- IF 1 TO 2000 MHz •
- LO DRIVE: +23 dBm (NOMINAL)
- **INSENSITIVE TO SYSTEM MISMATCH**
- HIGH INTERCEPT: +29 dBm (TYP.)

### Description

The M8TH is a termination insensitive mixer, designed for use in military, wireless and test equipment applications. The design utilizes Schottky bridge quad diodes, broadband ferrite baluns and internal loads to provide excellent performance without degradation due to external VSWR mismatches. Environmental screening available to MIL-STD-883, MIL-STD-202 or MIL-DTL-28837, consult factory.

### **Ordering Information**

Part Number	Package		
M8TH	TO-8		
M8THC	SMA Connectorized		

#### Electrical Specifications: $Z_0 = 50\Omega$ Lo =+23 dBm (Downconverter application only)

Devenation	Test Canditions	Units	Typical	Guaranteed	
Parameter	Test Conditions			+25ºC	-54º to +85ºC*
SSB Conversion Loss (max) & SSB Noise Figure (max)	fR = 0.005 to 2 GHz, fL = 0.005 to 2 GHz, fI = 0.001 to 0.5 GHz fR = 0.001 to 3.4 GHz, fL = 0.001 to 3.4 GHz, fI = 0.001 to 2 GHz	dB dB	6.5 8.5	8.0 10.5	8.3 10.8
Isolation, L to R (min)	fL = 0.01 to 1.5 GHz fL = 0.01 to 3.4 GHz	dB dB	37 35	30 22	29 21
Isolation, L to I (min)	fL = 0.01 to 1.5 GHz fL = 0.01 to 3.4 GHz	dB dB	40 35	30 25	29 24
Isolation, R to I (min)	fR = 0.01 to 3.4 GHz	dB	21		
1 dB Conversion Comp.	fL = +23 dBm	dBm	+17		
Input IP3 fR1 = 1 GHz at 0 dBm, fR2 = 1.01 GHz at 0 dBm fL = 1.8 GHz at +22 dBm		dBm	+29		

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\* The M8TC specification limits apply at 0°C to +50°C.

Commitment to produce in volume is not guaranteed.

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#### **Typical Performance Curves**

#### Conversion Loss vs. Frequency



VSWR vs. Frequency



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### **Absolute Maximum Ratings**

Outline	Drawing:	TO-8 <sup>*</sup>
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Parameter	Absolute Maximum			
Operating Temperature	-54°C to +100°C			
Storage Temperature	-65⁰C to +100⁰C			
Peak Input Power	+27 dBm max @ +25⁰C +23 dBm max @ +100⁰C			
Peak Input Current	mA DC			



# Outline Drawing: SMA Connectorized \*



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

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