

## Wideband Load Insensitive Mixer

Rev. V2

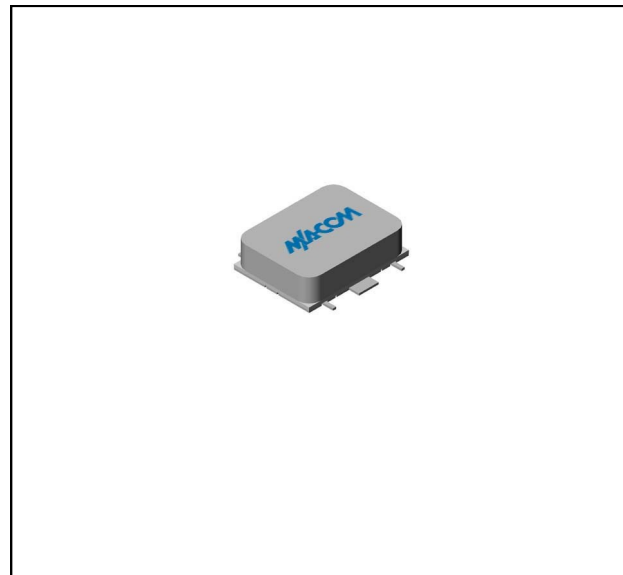
### Features

- LO 50 to 5000 MHz
- RF 50 to 5000 MHz
- IF 50 to 3000 MHz
- LO Drive +23 dBm (nominal)
- Insensitive to System Mismatch
- High Intercept +29 dBm (typ)

### Description

The SM5TH is a termination insensitive mixer, designed for use in military, commercial 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. The use of high temperature solder and welded assembly processes used internally makes it ideal for use in semi-automated and automated assembly. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

### Product Image



### Ordering Information

Part Number	Package
SM5TH	Surface Mount

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

Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-40° to +85°C
SSB Conversion Loss (max)	fR = 0.05 to 1.5 GHz, fL = 0.05 to 1.5 GHz, fl = 0.05 to 1.5 GHz	dB	7.0	8.3	9.0
	fR = 1.5 to 3.0 GHz, fL = 1.5 to 3.0 GHz, fl = 0.05 to 3.0 GHz		7.5	9.0	9.7
	fR = 3.0 to 5.0 GHz, fL = 3.0 to 5.0 GHz, fl = 0.05 to 3.0 GHz		8.5	10.5	11.2
SSB Noise Figure (max)	Within 1 dB of conversion loss	dB	—	—	—
Isolation, L to R (min)	fL = 0.05 to 1.0 GHz	dB	35	25	23
	fL = 1.0 to 5.0 GHz		33	23	21
Isolation, L to I (min)	fL = 0.05 to 1.0 GHz	dB	40	32	30
	fL = 1.0 to 5.0 GHz		35	25	23
Isolation, R to I (min)	fR = 0.05 to 5.0 GHz	dB	32		
1 dB Conversion Comp.	fL = +23 dBm	dBm	+17		
Input IP3	fL1 = 0.05 to 5.0 GHz, fR = 0.05 to 5.0 GHz, fl = 0.05 to 3.0 GHz	dBm	+29		
VSWR	R-Port fR = 0.05 to 5.0 GHz, L-Port fL = 0.05 to 5.0 GHz, I-Port fl = 0.05 to 3.0 GHz		1.6:1 1.5:1 1.4:1		

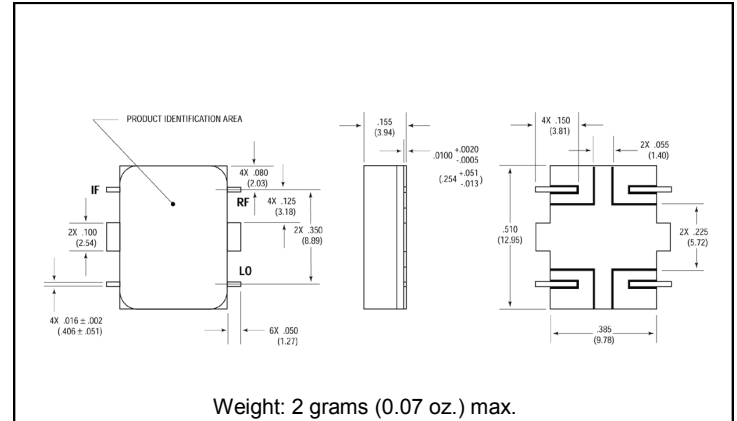
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### Absolute Maximum Ratings

Parameter	Absolute Maximum
Operating Temperature	-54°C to +100°C
Storage Temperature	-65°C to +100°C
Peak Input Power	+27 dBm max @ +25°C +23 dBm max @ +100°C
Peak Input Current	50 mA DC

### Outline Drawing: Surface Mount \*



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

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