

Wideband Load Insensitive Mixer

SM5TH

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)

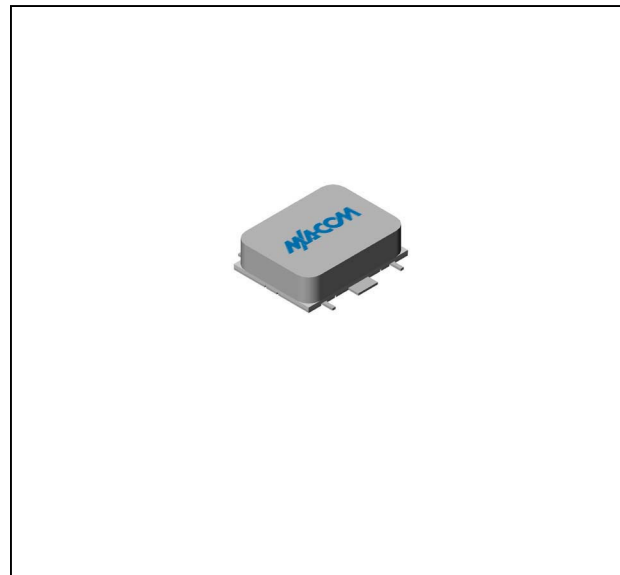
Description

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.

Ordering Information

Part Number	Package
SM5TH	Surface Mount

Product Image



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 fR = 1.5 to 3.0 GHz, fL = 1.5 to 3.0 GHz, fl = 0.05 to 3.0 GHz fR = 3.0 to 5.0 GHz, fL = 3.0 to 5.0 GHz, fl = 0.05 to 3.0 GHz	dB	7.0 7.5 8.5	8.3 9.0 10.5	9.0 9.7 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 fL = 1.0 to 5.0 GHz	dB	35 33	25 23	23 21
Isolation, L to I (min)	fL = 0.05 to 1.0 GHz fL = 1.0 to 5.0 GHz	dB	40 35	32 25	30 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		

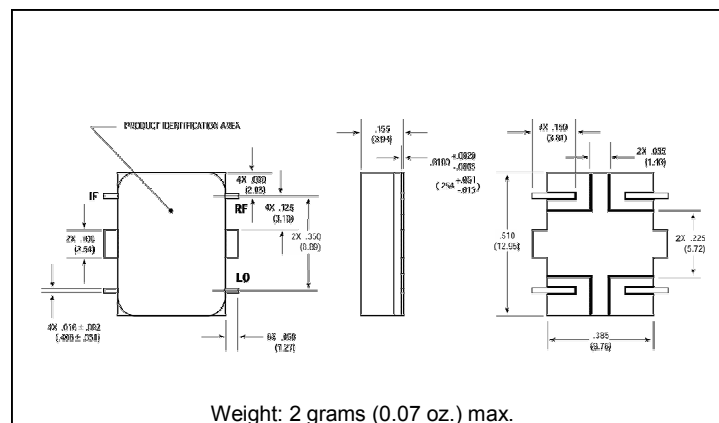
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Absolute Maximum Ratings

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.