

Wideband Load Insensitive Mixer

Rev. V3

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)

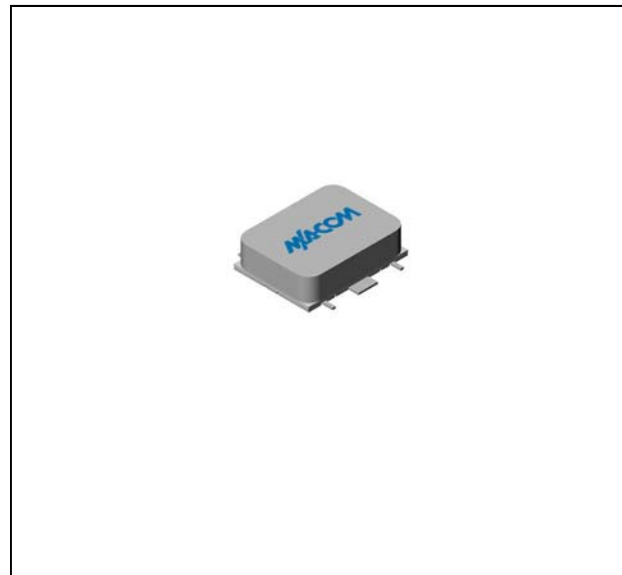
Description

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 |
| MAMX-010498-SM5TD2 | Surface Mount Screened |

Product Image



Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +23$

| 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, fI = 0.05 to 1.5 GHz fR = 1.5 to 3.0 GHz, fL = 1.5 to 3.0 GHz, fI = 0.05 to 3.0 GHz fR = 3.0 to 5.0 GHz, fL = 3.0 to 5.0 GHz, fI = 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, fI = 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 fI = 0.05 to 3.0 GHz | | 1.6:1 1.5:1 1.4:1 | | |

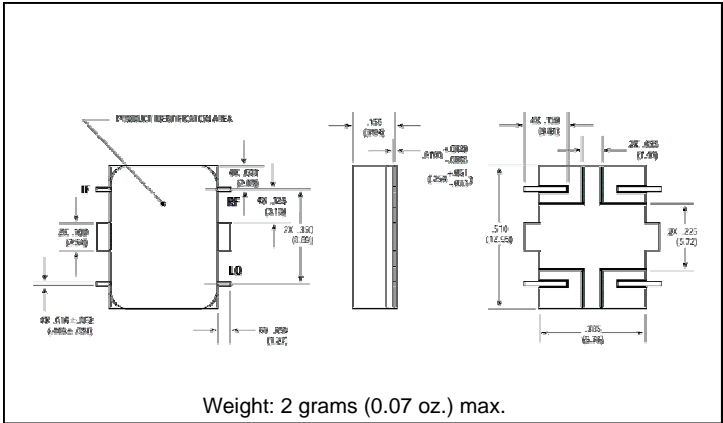
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Absolute Maximum Ratings

| 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.