Load Insensitive Mixer



Rev. V3

Features

- LO 1 TO 3400 MHz
- RF 1 TO 3400 MHz
- IF 1 TO 2000 MHz .
- LO DRIVE: +17 dBm (NOMINAL)
- **INSENSITIVE TO SYSTEM MISMATCH**
- HIGH INTERCEPT: +24 dBm (TYP.) .
- +260°C REFLOW COMPATIBLE

Description

The SM4T17 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 |
|-------------|---------------|
| SM4T17 | Surface Mount |

Electrical Specifications: $Z_0 = 50\Omega$ Lo = +17 dBm (Downconverter application only)

| Devemator | Test Ose dilans | Linita | Typical | Guar | Guaranteed | |
|------------------------------|--|----------------|--------------------------------|--------------------|--------------------|--|
| Parameter Test Conditions | | Units | | +25⁰C | -40º to +85ºC | |
| SSB Conversion Loss (max) | $\label{eq:rescaled} \begin{array}{l} fR = 0.005 \ to \ 1 \ GHz, \ fL = \ 0.005 \ to \ 1 \ GHz, \ fI = 0.001 \ to \ 0.5 \ GHz \\ fR = 0.001 \ to \ 3 \ GHz, \ fL = 0.001 \ to \ 3 \ GHz, \ fI = 0.001 \ to \ 1.5 \ GHz \\ fR = 0.001 \ to \ 3.4 \ GHz, \ fL = 0.001 \ to \ 3.4 \ GHz, \ fI = 0.001 \ to \ 2 \ GHz \end{array}$ | dB dB dB | 6.5 8.0 9.0 | 7.5 9.0 10.5 | 7.8 9.3 10.8 | |
| SSB Noise Figure | | dB | Within 1 dB of conversion loss | | | |
| Isolation, L to R (min) | fL = 0.01 to 1.5 GHz fL = 0.01 to 3.4 GHz | dB dB | 40 30 | 35 25 | 34 24 | |
| Isolation, L to I (min) | fL = 0.01 to 1.5 GHz fL = 0.01 to 3.4 GHz | dB dB | 40 30 | 35 25 | 34 24 | |
| Isolation, R to I (min) | fR = 0.01 to 3.4 GHz | dB | 25 | | | |
| 1 dB Conversion Comp. | fL = +17 dBm | dBm | +13 | | | |
| Input IP3 | tt IP3 $f_{R1} = 1.9 \text{ GHz } @ 10 \text{ dBm}, f_{R2} = 1.91\text{GHz } @ 10 \text{ dBm}, f_{L} = 2 \text{ GHz } @ 17 \text{ dBm}$ | | +24 | | | |



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Absolute Maximum Ratings

| Parameter | Absolute Maximum | | |
|-----------------------|---|--|--|
| Operating Temperature | -54ºC to +100ºC | | |
| Storage Temperature | -65ºC to +100ºC | | |
| 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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