

## Wideband Load Insensitive Mixer

Rev. V2

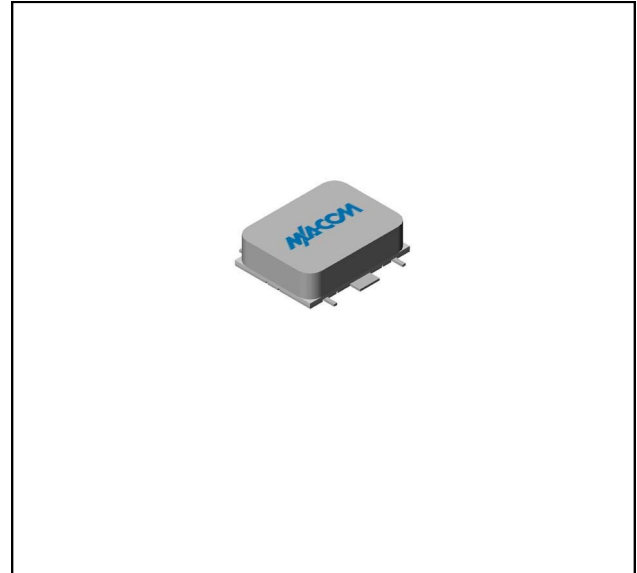
### Features

- LO 50 TO 5000 MHz
- RF 50 TO 5000 MHz
- IF 50 TO 3000 MHz
- LO DRIVE +17 dBm (NOMINAL)
- INSENSITIVE TO SYSTEM LOAD MISMATCH
- HIGH INTERCEPT: +24 dBm (TYP.)

### Description

The SM5T17 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.

### Product Image



### Ordering Information

| Part Number | Package       |
|-------------|---------------|
| SM5T17      | Surface Mount |

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

| Parameter                                          | Test Conditions                                                                                                                                                                                      | Units | Typical                 | Guaranteed |               |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|------------|---------------|
|                                                    |                                                                                                                                                                                                      |       |                         | +25°C      | -40° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 0.05 to 1.5 GHz, fL = 0.05 to 1.5 GHz, fl = 0.05 to 1.5 GHz<br>fR = 1.5 to 3.0 GHz, fL = 1.5 to 3.0 GHz, fl = 0.05 to 3.0 GHz<br>fR = 3.0 to 5.0 GHz, fL = 3.0 to 5.0 GHz, fl = 0.05 to 3.0 GHz | dB    | 6.9                     | 8.3        | 9.0           |
|                                                    |                                                                                                                                                                                                      |       | 7.5                     | 8.8        | 9.5           |
|                                                    |                                                                                                                                                                                                      |       | 8.5                     | 10.5       | 11.2          |
| Isolation, L to R (min)                            | fL = 0.05 to 1.0 GHz<br>fL = 1.0 to 5.0 GHz                                                                                                                                                          | dB    | 35                      | 25         | 23            |
|                                                    |                                                                                                                                                                                                      |       | 33                      | 23         | 21            |
| Isolation, L to I (min)                            | fL = 0.05 to 1.0 GHz<br>fL = 1.0 to 5.0 GHz                                                                                                                                                          | dB    | 40                      | 32         | 30            |
|                                                    |                                                                                                                                                                                                      |       | 35                      | 25         | 23            |
| Isolation, R to I (min)                            | fR = 0.05 to 5.0 GHz                                                                                                                                                                                 | dB    | 32                      |            |               |
| 1 dB Conversion Comp.                              | fL = +17 dBm                                                                                                                                                                                         | dBm   | +13                     |            |               |
| Input IP3                                          | fL = 0.05 to 5.0 GHz, fR = 0.05 to 5.0 GHz,<br>fl = 0.05 to 3.0 GHz                                                                                                                                  | dBm   | +24                     |            |               |
| VSWR                                               | R-Port fR = 0.05 to 5.0 GHz,<br>L-Port fL = 0.05 to 5.0 GHz,<br>I-Port fl = 0.05 to 3.0 GHz                                                                                                          |       | 1.6:1<br>1.5:1<br>1.4:1 |            |               |

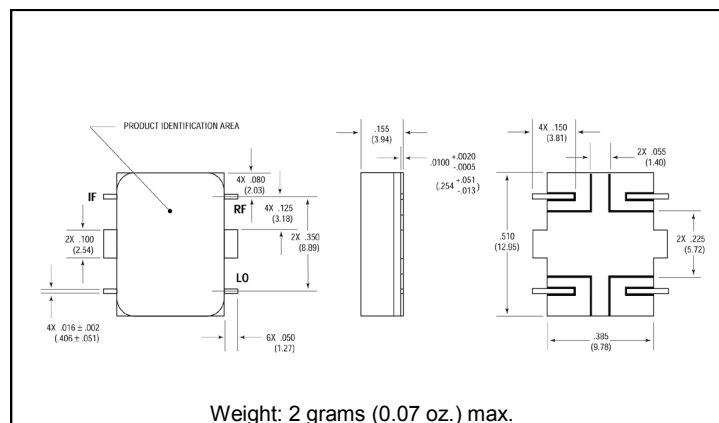
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### Absolute Maximum Ratings

| 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<br>+23 dBm max @ +100°C |
| Peak Input Current    | 50 mA DC                                    |

### Outline Drawing: Surface Mount \*



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

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