

Double-Balanced Mixer

Rev. V2

Features

- LO 0.05 TO 200 MHz
- RF 0.05 TO 200 MHz
- IF DC TO 200 MHz
- LO DRIVE +7 dBm (nominal)
- HIGH ISOLATION 45 dB (TYP.)

Description

The SM6D is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.



Ordering Information

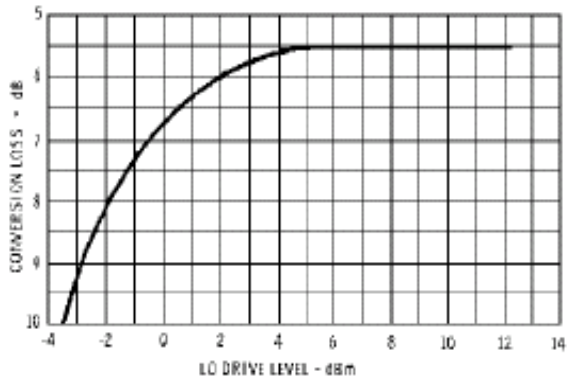
| Part Number | Package |
|-------------|---------------|
| SM6D | Surface Mount |

Electrical Specifications: $Z_0 = 50\Omega$ $L_o = +7$ dBm (Downconverter application only)

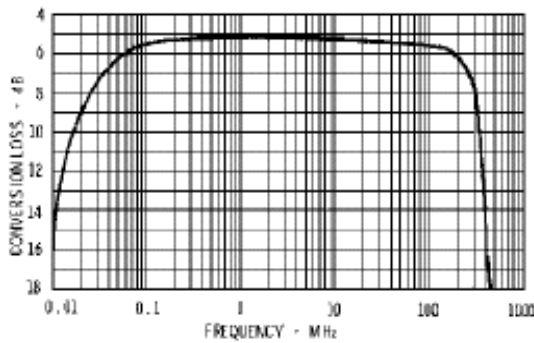
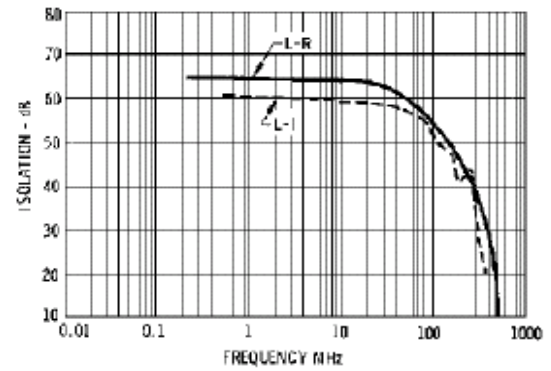
| Parameter | Test Conditions | Units | Typical | Guaranteed | |
|--|---|-------|---------|------------|---------------|
| | | | | +25°C | -54° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | $f_R=0.0002$ to 0.05 GHz, $f_L=0.0002$ to 0.05 GHz, $f_I=0.0002$ to 0.05 GHz | dB | 5.5 | 6.5 | 7.0 |
| | $f_R = 0.05$ to 0.2 GHz, $f_L = 0.05$ to 0.2 GHz, $f_I = 0.05$ to 0.2 GHz | dB | 7.5 | 8.0 | 8.5 |
| | $f_R=0.00005$ to 0.000 GHz, $f_L=0.00005$ to 0.000 GHz, $f_I=0.00005$ to 0.0002 GHz | dB | 8.0 | 8.5 | 9.0 |
| | | dB | | | |
| Isolation, L to R (min) | $f_L = 0.00005$ to 0.03 GHz | dB | 60 | 45 | 43 |
| | $f_L = 0.03$ to 0.2 GHz | dB | 45 | 35 | 33 |
| Isolation, L to I (min) | $f_L = 0.00005$ to 0.03 GHz | dB | 55 | 40 | 38 |
| | $f_L = 0.03$ to 0.2 GHz | dB | 40 | 30 | 28 |

Typical Performance Curves

Conversion Loss



Isolation



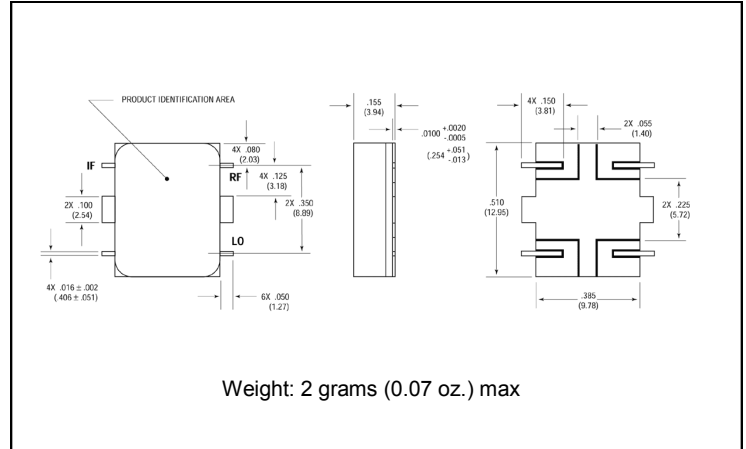
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Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-----------------------|---------------------|
| Operating Temperature | -54°C to +100°C |
| Storage Temperature | -65°C to +100°C |
| Peak Input Power | +17 dBm max @ +25°C |
| Peak Input Current | 50 mA DC |

Outline Drawing: Surface Mount *



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