

## 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

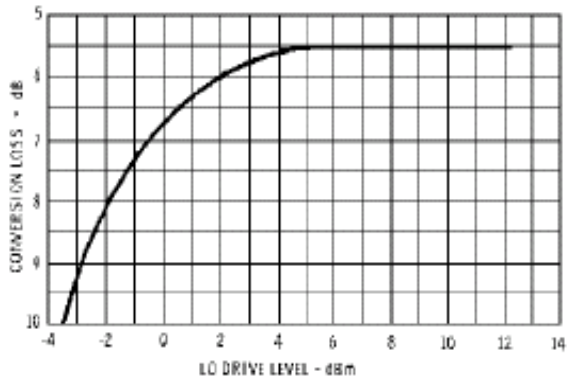
Part Number	Package
SM6D	Surface Mount

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

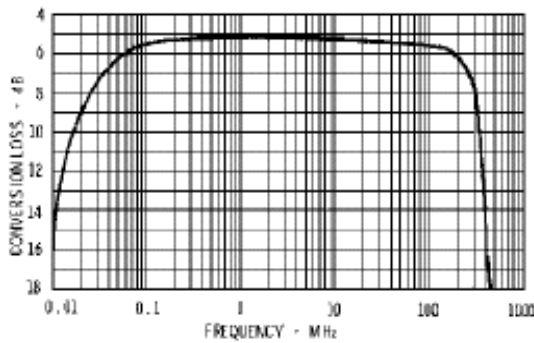
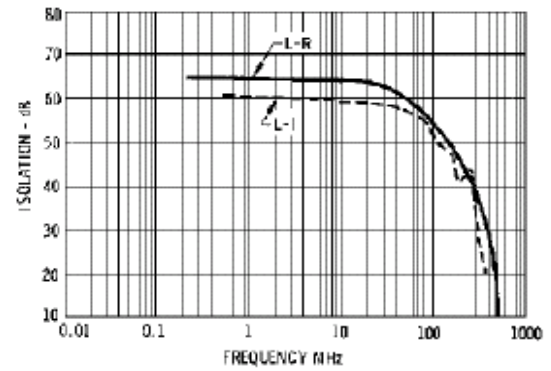
Parameter	Test Conditions	Units	Typical	Guaranteed	
				+25°C	-54° to +85°C
SSB Conversion Loss (max) & SSB Noise Figure (max)	$f_R=0.0002$ to $0.05$ GHz, $f_L=0.0002$ to $0.05$ GHz, $f_I=0.0002$ to $0.05$ GHz	dB	5.5	6.5	7.0
	$f_R = 0.05$ to $0.2$ GHz, $f_L = 0.05$ to $0.2$ GHz, $f_I = 0.05$ to $0.2$ GHz	dB	7.5	8.0	8.5
	$f_R=0.00005$ to $0.000$ GHz, $f_L=0.00005$ to $0.000$ GHz,	dB	8.0	8.5	9.0
	$f_I=0.00005$ to $0.0002$ GHz	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



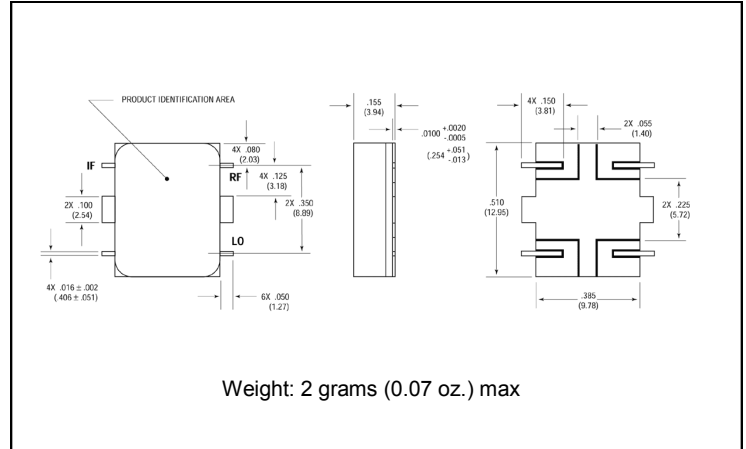
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### Absolute Maximum Ratings

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)  $\pm 0.015$  (0.38) unless otherwise specified.

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