

# Model 3031

- PC Board Mountable
- Millivolt Output
- Small Size
- Low Cost

- Vibration/Shock Monitoring
- Consumer Electronics
- Patient Monitoring
- Crash Recorder



## DESCRIPTION

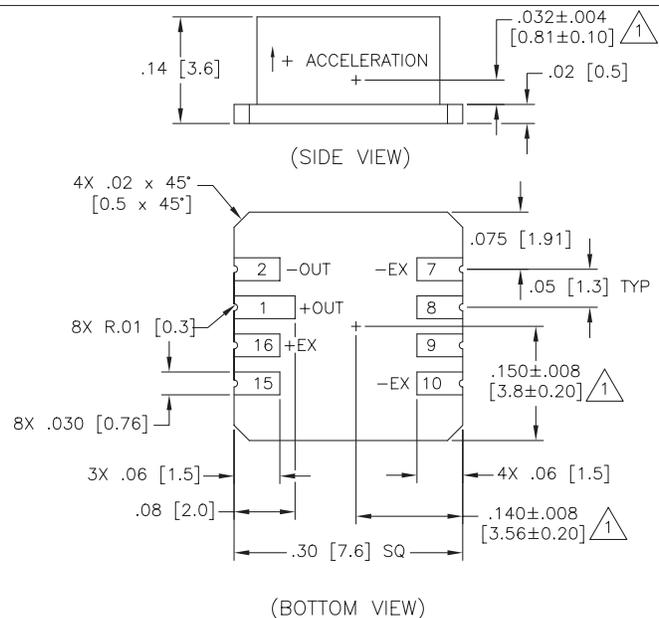
The Model 3031 is a piezoresistive silicon accelerometer in a surface mount package. It is intended for high volume applications where small size, light weight, and low cost are required.

This accelerometer consists of a micro machined silicon mass suspended by multiple beams from a silicon frame. Piezoresistors located in the beams change their resistance as the motion of the suspended mass changes the strain in the beams.

Silicon caps on the top and bottom of the device are added to provide over-range stops. This design provides for a very low profile, high shock resistance, durability and built-in damping over a wide usable bandwidth.

For non-surface mount accelerometers please see Models 3022, 3028, 3052 or 3058.

## DIMENSIONS



△ NOTED DIMENSIONS INDICATE CENTER OF GRAVITY POSITIONS

## FEATURES

- Surface Mount Package
- ±0.5% Non-linearity (typical)
- ±1.0% Temperature Performance (with comp resistors-typical)
- DC Response
- Built-in Damping
- Built-in Overrange Stops
- Low Power

## STANDARD RANGES

Range	g
±50	•
±100	•
±200	•
±500	•

Internet: [www.msiusa.com](http://www.msiusa.com)  
 Tel: 1-757-766-1500  
 North America Toll Free: 1-800-745-8008  
 Fax: 1-757-766-4297

### PERFORMANCE SPECIFICATIONS

Supply Voltage: 5.0 VDC

Ambient Temperature: 25°C (Unless otherwise specified)

PARAMETERS	RANGE				UNITS	NOTES
	±50G	±100G	±200G	±500G		
Frequency Response [MIN]	0-1000	0-1500	0-2000	0-2400	Hz	1
Mounted Resonant Frequency [MIN]	2000	3000	4000	5000	Hz	
Sensitivity (MIN/MAX)	0.6/1.5	0.3/0.6	0.15/0.3	0.06/0.15	mV/g	2

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Zero Acceleration Output		5	25	±mV	
Damping Ratio	0.4	0.7	0.9		
Non-linearity		0.5	1	±% Span	3
Transverse Sensitivity		1	3	±% Span	
Input & Output Resistance	2.5	3.5	6.5	kΩ	
Temperature Error - Span		1.0	2.0	±% Span	4, 5
Temperature Error - Zero		1.0	2.0	±% Span	4, 5
Supply Voltage		5.0	10.0	VDC	
Output Noise		1.0		µV p-p	6
Output Load Resistance	5			MΩ	
Acceleration Limits (Any Direction)			20X	Rated	7
Operating Temperature	-40°C to +125°C				
Storage Temperature	-55°C to +150°C				
Weight	0.3 Grams				

#### Notes

- The frequency response is defined as the range of frequencies over which the device sensitivity is within ±5% of the DC value.
- Output voltage increases for positive acceleration; output voltage decreases for negative acceleration.
- Best Fit Straight Line.
- Percentage values are with external compensation.
- Compensated temperature range: 0-50°C in reference to 25°C.
- 10 Hz to 1 kHz.
- 20X or 2000g, whichever is less.
- Solder on pads is 62% Tin, 36% Lead, 2% Silver. Maximum allowable temperature during mounting is 220°C for 1 minute. Contact factory if a higher mounting temperature will be used.

### ORDERING INFORMATION

**3031 - 100**



### CONNECTIONS

