



# Accelerometer Model 3031

[查询"3031-002"供应商](#)

## OEM Accelerometer Piezoresistive Low Cost Surface Mount Package

### Features

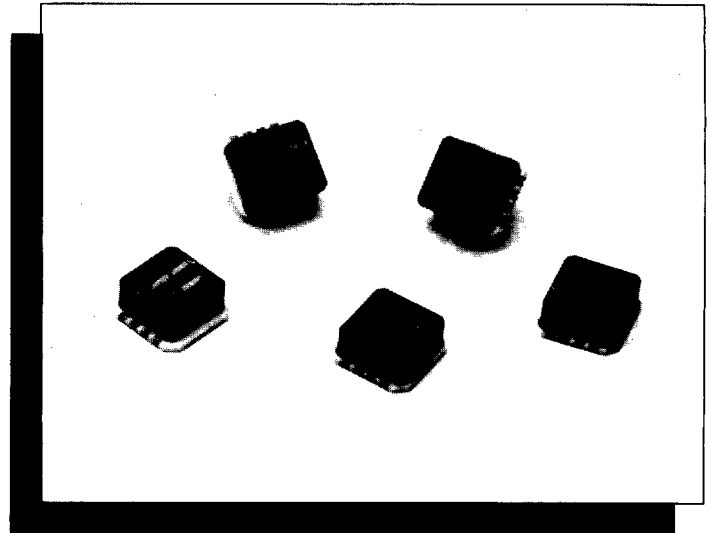
- DC Response
- Wide Bandwidth
- High Sensitivity
- Built-In Damping
- Miniature Size
- Low Mass
- Built-In Overrange Stops
- Solid State Reliability

### Typical Applications

- Military Arming and Fuzing
- Automotive Suspension Control
- Automotive Braking Control
- Automotive Crash Testing
- Machine Tool Monitoring
- Industrial Vibration Monitoring
- Computer Peripherals
- Modal Analysis

### Standard Ranges

- ± 2g
- ± 5g
- ± 10g
- ± 20g
- ± 50g
- ± 100g
- ± 200g
- ± 500g



### Description

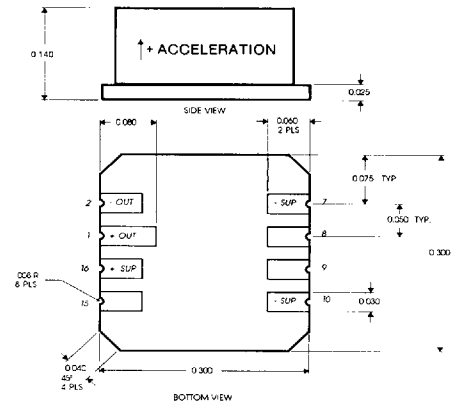
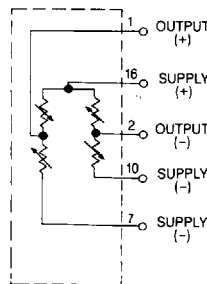
The Model 3031 is a solid-state, piezoresistive accelerometer and is packaged in a surface mount configuration. It is intended for high volume applications where small size, light weight and low cost are required.

The accelerometer consists of a micromachined 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 the bottom of the device are added to provide over range stops and unusually high shock resistance and durability. As a result of this unique three-layer silicon structure, these accelerometers also have a very low profile and low mass and are batch fabricated at a very low cost. An added result of this structure is built-in damping, which allows a wider useable bandwidth to be achieved.

The devices are available in standard acceleration ranges from ± 2g to ± 500g. Device performance characteristics and packaging can be easily tailored on a special order basis to meet the requirements of specific applications.

### Connections/Dimensions

ACCELEROMETER EQUIVALENT CIRCUIT



ALL DIMENSIONS ARE IN INCHES

# Models 3031

# Accelerometer

## Performance Specifications

查询"3031-002"供应商

Supply = 5 Volts & Ambient Temperature = 25° C (Unless otherwise specified)

PARAMETER	RANGE			
	±2g	±5g	±10g	±20g
Frequency Response (MIN) (See Note 10)	0-350 Hz	0-400 Hz	0-500 Hz	0-600 Hz
Mounted Resonant Frequency (MIN)	1500 Hz	1500 Hz	1500 Hz	1500 Hz
Sensitivity (mV/g) (MIN/MAX)	1.75/3.0	1.50/3.0	1.35/3.0	1.25/3.0

PARAMETER	RANGE			
	±50g	±100g	±200g	±500g
Frequency Response (MIN) (See Note 10)	0-1000 Hz	0-1500 Hz	0-2000 Hz	0-2400 Hz
Mounted Resonant Frequency (MIN)	2000 Hz	3000 Hz	4000 Hz	5000 Hz
Sensitivity (mV/g) (MIN/MAX)	0.60/1.5	0.30/0.6	0.15/0.3	0.06/0.15

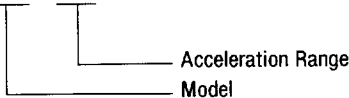
PARAMETER	ALL RANGES				
	MIN	TYP	MAX	UNITS	NOTES
Zero Acceleration Output		5	25	±mV	
Damping Ratio	0.4	0.7	0.9		3
Linearity		0.2	1	±%Span	4
Transverse Sensitivity		1	3	±%Span	
Input & Output Resistance	2.5	3.5	6.5	kΩ	
Temperature Coefficient - Span		1.0		±%Span	2,5
Temperature Coefficient - Zero		1.0		±%Span	2,5
Supply Voltage		5.0	10.0	VDC	
Output Noise		1.0		µVp-p	11
Output Load Resistance	2			MΩ	6
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

- Output voltage increases for positive acceleration; output voltage decreases for negative acceleration.
- Percentage values are with external compensation.
- Damping factor is controlled to within ±10% over operating temperature range. Alternate damping ratios are available on a special order basis.
- Best Fit Straight Line linearity.
- Temperature range: 0-50°C in reference to 25° C.
- Prevents increase of TC-Span and sensitivity decrease due to output loading.
- 400g for ±2g, ±5g, and ±10g versions. 20x or 2000g for other versions, whichever is less.
- Solder on pads is 63% Tin, 37% Lead. Maximum allowable temperature during mounting is 220° C for 1 minute. Contact factory if a higher mounting temperature will be used.
- The standard package is ideally suited for mounting to ceramic substrates. In addition, mounting to printed circuit boards is possible under certain conditions. Contact factory for additional information.
- The useful frequency range is defined as the range of frequencies over which the device sensitivity is within ±5% of the DC value.
- 10 Hz to 1 kHz

### Ordering Information

3031 - 100



### Represented By

IC Sensors products are warranted against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ALL OTHER EXPRESSED OR IMPLIED WARRANTIES. IC Sensors reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.



1701 McCarthy Blvd. Milpitas, California 95035-7416 Fax (408) 434-6687 Phone (408) 432-1800

M3031R3-9203 Printed in USA

2