

# Model 3031 Accelerometer



SMD Accelerometer  
Miniature DC Response  
Piezoresistive MEMS  
High-g Over-Range Protection

The **Model 3031** is a silicon MEMS accelerometer designed for demanding mid to high volume applications. The accelerometer is ideal for applications requiring a miniature light weight accelerometer with wide frequency bandwidth. The model 3031 incorporates a 3<sup>rd</sup> generation MEMS sensing element providing superior long-term stability. The accelerometer provides a millivolt output signal and features mechanical overload stops that provide high-g shock protection.

## FEATURES

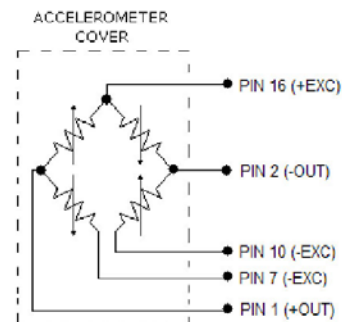
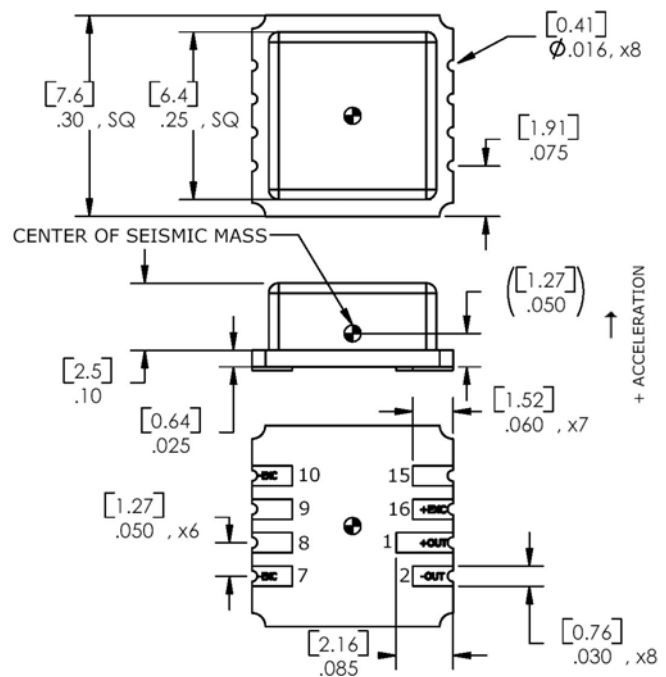
- ±50g to ±100g Range (higher ranges available on model 3038)
- Surface Mount Package
- 3<sup>rd</sup> Generation MEMS Element
- Light Weight
- DC Response, Gas Damping
- Over-Range Stops
- Low Power Consumption

## APPLICATIONS

- Vibration & Shock Monitoring
- Embedded Applications
- Surface Mount Package
- Machinery
- Transportation
- Instrumentation



## dimensions



US Patents 5,103,667; 5,253,510; 5,445,006 apply

# Model 3031 Accelerometer

## performance specifications

All values are typical at +24°C, 100Hz and 5Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice. Standard product parameters are described in PSC-1002 for Embedded DC Accelerometers.

### Parameters

#### DYNAMIC

	±50	±100
Range (g)	±50	±100
Sensitivity (mV/g) <sup>1</sup>	0.6-1.5	0.3-0.6
Frequency Response (Hz)	0-1000	0-1400
Natural Frequency (Hz)	4000	6000
Non-Linearity (%FSO)	±1	±1
Transverse Sensitivity (%)	3	3
Damping Ratio	0.4-0.9	0.4-0.9
Shock Limit (g)	5000	5000

#### Notes

@5Vdc Excitation  
±5%

#### ELECTRICAL

	±25	±25
Zero Acceleration Output (mV)	±25	±25
Excitation Voltage (Vdc)	2 to 10	2 to 10
Input Resistance (Ω)	2400 to 6500	2400 to 6500
Output Resistance (Ω)	2400 to 6500	2400 to 6500
Insulation Resistance (MΩ)	>100	>100
Residual Noise (μV RMS)	10	10
Ground Isolation	Isolated from Mounting Surface	

Differential

@50Vdc  
Maximum

#### ENVIRONMENTAL

Thermal Zero Shift (%FSO/°C)	-0.09
Thermal Sensitivity Shift (%/°C)	-0.15
Operating Temperature (°C)	-40 to 125
Compensated Temperature (°C)	Not Compensated
Storage Temperature (°C)	-40 to 125
Humidity	Epoxy Sealed

Typical  
Typical

See Note 2

#### PHYSICAL

Case Material	Ceramic
Weight (grams)	0.3
Mounting	Solder

<sup>1</sup> Output is ratiometric to excitation voltage. 10Vdc excitation will increase output by a factor of 2x.

<sup>2</sup> Order model 3031-XXX-10196 for temperature compensation resistor values included in the calibration certificate.

<sup>3</sup> The maximum recommended soldering temperature is +260°C

**Calibration supplied:** CS-SENS-0100 NIST Traceable Amplitude Calibration at 100Hz and 5Vdc Excitation

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## ordering info

PART NUMBERING Model Number+Range

3031-GGG

|  
| \_\_\_\_\_ Range (050 is 50 g)

Example: 3031-050  
Model 3031, 50g

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