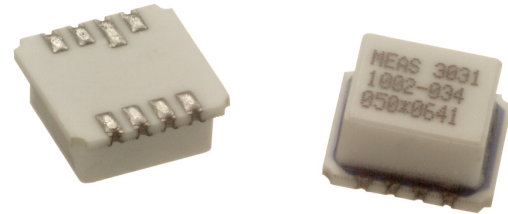


# Model 3031 Accelerometer



SMD Accelerometer  
Miniature DC Response  
Piezoresistive MEMS  
10,000g 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 shock protection to 10,000g.

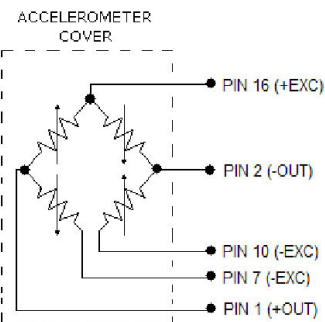
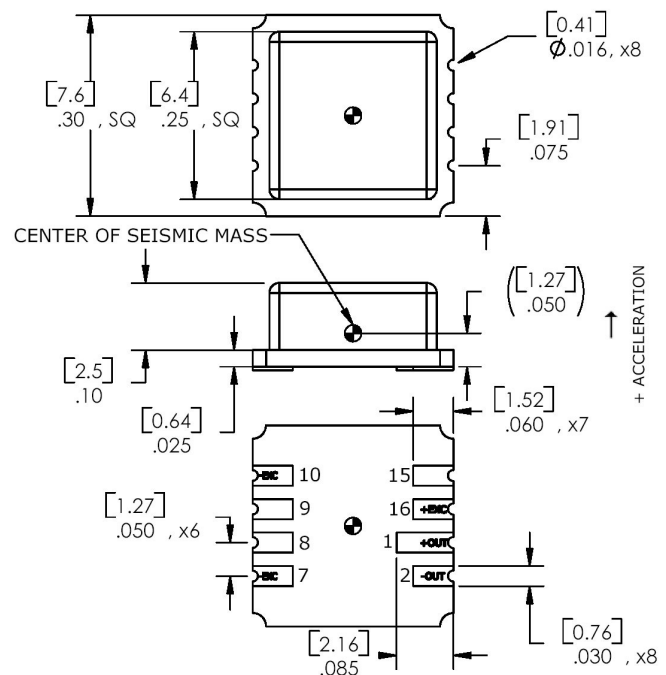
## FEATURES

- $\pm 50g$  to  $\pm 100g$  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.

### Parameters

#### DYNAMIC

|                            |         |         |
|----------------------------|---------|---------|
| Range (g)                  | ±50     | ±100    |
| Sensitivity (mV/g)         | 0.6-1.5 | 0.3-0.6 |
| Frequency Response (Hz)    | 0-1000  | 0-1500  |
| Natural Frequency (Hz)     | 4000    | 6000    |
| Non-Linearity (%FSO)       | ±0.5    | ±0.5    |
| Transverse Sensitivity (%) | <3      | <3      |
| Damping Ratio              | 0.7     | 0.7     |
| Shock Limit (g)            | 10000   | 10000   |

#### Notes

@5Vdc Excitation  
±5%

<1 Typical

#### ELECTRICAL

|                               |                                |              |
|-------------------------------|--------------------------------|--------------|
| Zero Acceleration Output (mV) | ±25                            | ±25          |
| Excitation Voltage (Vdc)      | 2 to 10                        | 2 to 10      |
| Input Resistance (Ω)          | 2500 to 6500                   | 2500 to 6500 |
| Output Resistance (Ω)         | 2500 to 6500                   | 2500 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           | -0.09 |
| Thermal Sensitivity Shift (%/°C) | -0.15           | -0.15 |
| Operating Temperature (°C)       | -40 to 125      |       |
| Compensated Temperature (°C)     | Not Compensated |       |
| Storage Temperature (°C)         | -40 to 125      |       |

Typical  
Typical

#### PHYSICAL

|                 |                |
|-----------------|----------------|
| Case Material   | Ceramic        |
| Cable           | Not applicable |
| Weight (grams)  | 0.3            |
| Mounting        | Solder         |
| Mounting Torque | Not applicable |
| AWG             | Not applicable |

**Wiring color code:** Not applicable

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## ordering info

PART NUMBERING Model Number+Range

3031-GGG

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

Example: 3031-050  
Model 3031, 50g