

# Model 3038 Accelerometer



Miniature Piezoresistive MEMS  
SMD Accelerometer  
Hermetically Sealed  
10,000g Shock Protection



**The Model 3038** is a hermetically sealed SMD accelerometer designed for high performance applications. The accelerometer incorporates a gas-damped piezoresistive MEMS sensing element providing outstanding long-term stability. The model 3038 provides a millivolt output signal and features mechanical overload stops that provide shock protection to loads greater than 10,000g.

## FEATURES

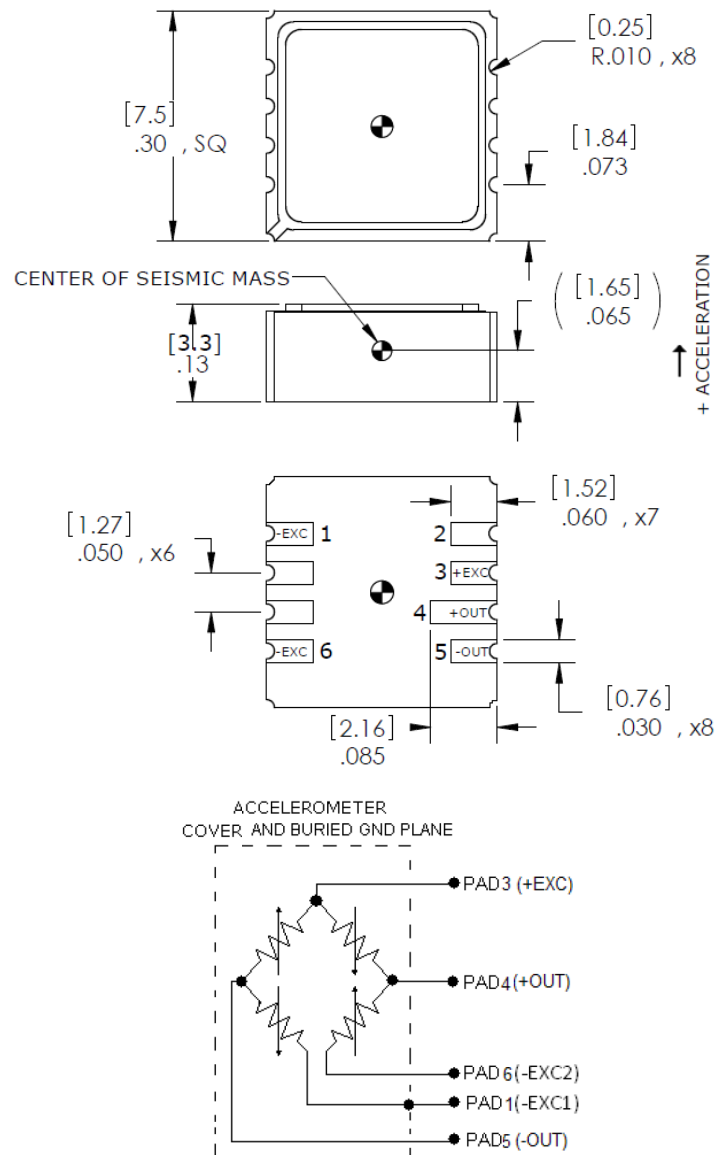
- ±50g to ±6000g Dynamic Ranges
- Board Mountable Accelerometer
- Low Power Consumption
- Hermetic LCC Package
- DC Response, Gas Damping
- 5000Hz Bandwidth

## APPLICATIONS

- Harsh Environments
- Vibration & Shock Monitoring
- Impact Testing
- Embedded Applications
- Instrumentation
- Machinery

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

## dimensions



# Model 3038 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	±200	±500	±2000	±6000	Notes
Range (g)	±50	±100	±200	±500	±2000	±6000	
Sensitivity (mV/g) <sup>1</sup>	1.0	0.50	0.40	0.20	0.08	0.05	@5Vdc Excitation
Frequency Response (Hz)	0-1000	0-1200	0-1400	0-2000	0-4500	0-5000	±5%
Natural Frequency (Hz)	4000	6000	8000	15000	24000	26000	
Non-Linearity (%FSO)	±1	±1	±1	±1	±1	±2	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<1 Typical
Damping Ratio	0.4-0.9	0.4-0.9	0.2-0.6	0.2-0.6	0.05-0.30	0.05-0.30	
Shock Limit (g) <sup>3</sup>	10000	10000	10000	10000	10000	10000	

#### ELECTRICAL

Zero Acceleration Output (mV)	±25						Differential	
Excitation Voltage (Vdc)	2 to 10							
Input Resistance (Ω)	2400-6500							
Output Resistance (Ω)	2400-6500							
Insulation Resistance (MΩ)	>100						@50Vdc	
Residual Noise (µV RMS)	10						Maximum	
Ground Isolation	Isolated from Mounting Surface							

#### ENVIRONMENTAL

Thermal Zero Shift (%FSO/°C)	-0.09						Typical
Thermal Sensitivity Shift (%/°C)	-0.15						Typical
Operating Temperature (°C)	-55 to 125						
Compensated Temperature (°C)	Uncompensated						
Storage Temperature (°C)	-55 to 125						
Humidity	Hermetically Sealed						

#### PHYSICAL

Case Material	Ceramic
Weight (grams)	0.6
Mounting	Solder

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

<sup>2</sup> The maximum recommended soldering temperature is +260°C

<sup>3</sup> 10,000g shock limit in normal axis; 5,000g in transverse axes

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

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.

## ordering info

PART NUMBERING Model Number+Range

3038-GGGG-ZZ

I I\_\_\_\_\_ Options (otherwise leave blank)  
 I\_\_\_\_\_ Range (0100 is 100g)

Optional Dash Numbers

-01 10Vdc Calibration

Example: 3038-0100

Model 3038, 100g Range, No Options