

## MODEL 3038 ACCELEROMETER

- Excellent durability with hermetic seal
- Easy installation with SMD design
- Over-range protection for up to 10,000 g shock loads
- Long-term measurement stability

Designed for application durability in extreme temperature, vibration and shock environments, TE Connectivity's (TE) Model 3038 accelerometer delivers the performance you need.

The Model 3038 helps improve sensing confidence and allows for simple installation with a hermetically sealed SMD design. It incorporates a gas-damped piezoresistive MEMS sensing element providing outstanding long-term stability. With a millivolt output signal and mechanical overload stops that provide shock protection to loads greater than 10,000g, this sensor offers excellent value for performance.

### FEATURES

- $\pm 50\text{g}$  to  $\pm 6,000\text{g}$  Dynamic Ranges
- Board Mountable Accelerometer
- Low Power Consumption
- Hermetic LCC Package
- DC Response, Gas Damping
- 5,000Hz Bandwidth

### APPLICATIONS

- Harsh Environments
- Vibration & Shock Monitoring
- Impact Testing
- Safe and Arming
- Munitions Testing
- Automotive Safety Testing
- Drop Testing
- Biomechanics Testing
- Pile Driving
- Embedded Applications
- Instrumentation
- Machinery

## PERFORMANCE SPECIFICATIONS

All values are typical at +24°C, 80Hz and 5Vdc excitation unless otherwise stated. TE reserves the right to update and change these specifications without notice.

### PARAMETERS

| DYNAMIC                         |         |         |         |          |           |            | Notes            |
|---------------------------------|---------|---------|---------|----------|-----------|------------|------------------|
| Range (g)                       | ±50     | ±100    | ±200    | ±500     | ±2,000    | ±6,000     |                  |
| Sensitivity (mV/g) <sup>1</sup> | 0.6-1.5 | 0.3-0.6 | 0.3-0.6 | 0.15-0.3 | 0.06-0.15 | 0.025-0.15 | @5Vdc Excitation |
| Frequency Response (Hz)         | 0-1,000 | 0-1,200 | 0-1,400 | 0-2,000  | 0-4,500   | 0-5,000    | ±5%              |
| Natural Frequency (Hz)          | 4,000   | 6,000   | 8,000   | 15,000   | 24,000    | 26,000     |                  |
| 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>    | 5,000   | 5,000   | 5,000   | 10,000   | 10,000    | 10,000     |                  |

### ELECTRICAL

|                               |                                |  |  |  |  |  |              |
|-------------------------------|--------------------------------|--|--|--|--|--|--------------|
| Zero Acceleration Output (mV) | ±25                            |  |  |  |  |  | Differential |
| Excitation Voltage (Vdc)      | 2 to 10                        |  |  |  |  |  |              |
| Input Resistance (Ω)          | 3,000-5,000                    |  |  |  |  |  |              |
| Output Resistance (Ω)         | 3,000-5,000                    |  |  |  |  |  |              |
| 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

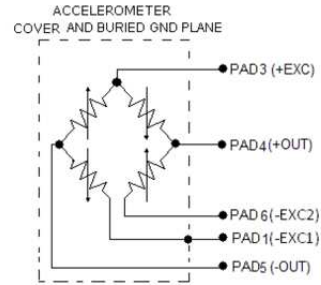
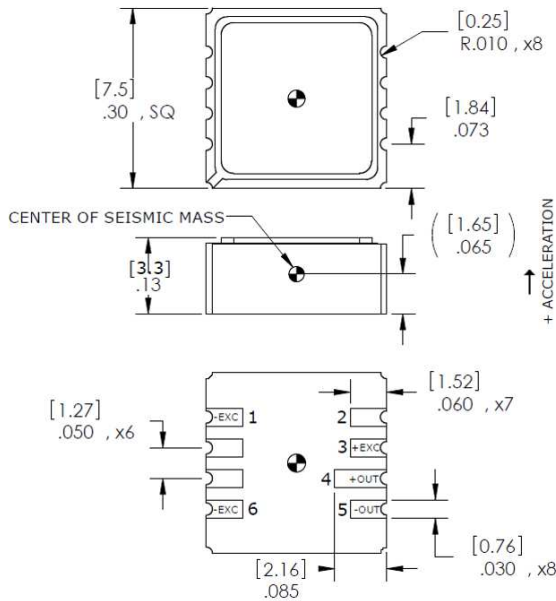
<sup>3</sup> 10,000g shock limit in normal axis; 5,000g in transverse axes

### CALIBRATION SUPPLIED

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

# MODEL 3038 ACCELEROMETER

## DIMENSIONS



## ORDERING INFORMATION

3038-GGGG-ZZ

| \_\_\_\_\_ Options (No options, leave blank)  
| \_\_\_\_\_ Range (0100 is 100g)

Options  
-01 10Vdc Calibration

| Part Number | Range  |
|-------------|--------|
| 3038-0050   | 50g    |
| 3038-0100   | 100g   |
| 3038-0200   | 200g   |
| 3038-0500   | 500g   |
| 3038-2000   | 2,000g |
| 3038-6000   | 6,000g |

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