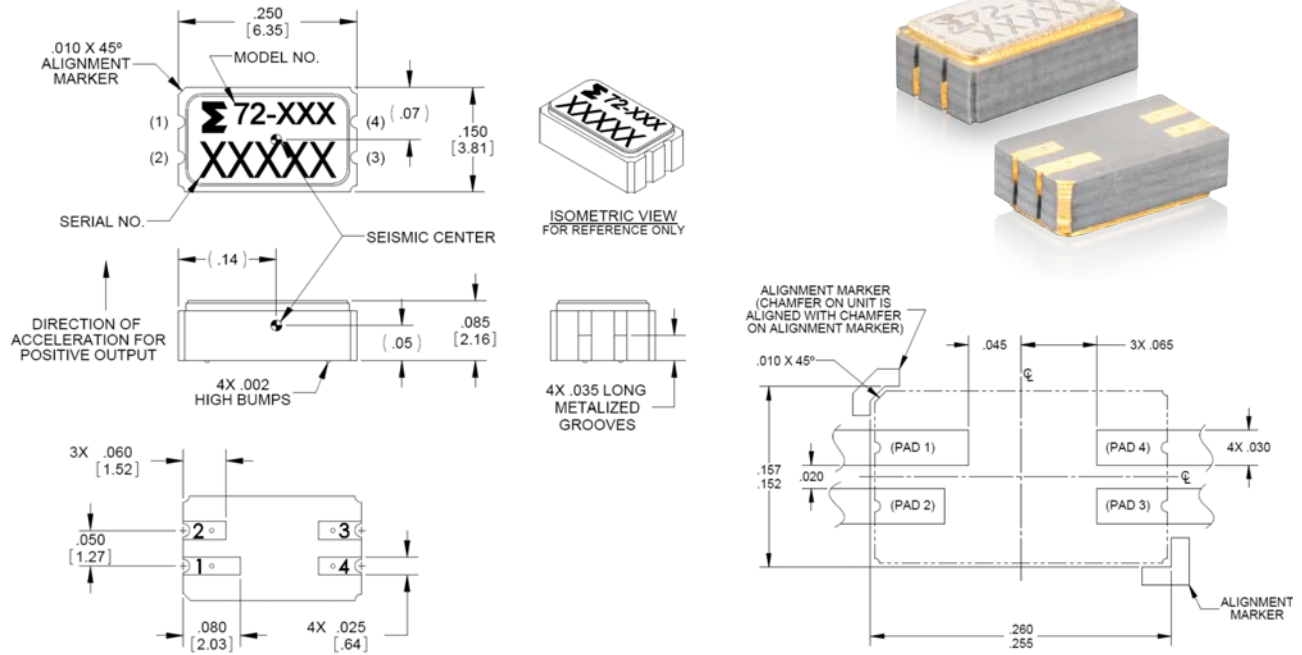


# Piezoresistive accelerometer

## Model 72



### Key features

- 2,000, 20,000 and 60,000 g ranges
- Lightly damped to attenuate resonance
- DC response
- Minimal zero shift after shock
- Miniature seam sealed SMT package (0.16 grams)
- High overrange capability
- Integral ESD protection

### Description

The Endevco model 72 series are low mass accelerometers suitable for SMT mounting. The accelerometers are intended to be used in a wide range of acceleration, vibration, and shock applications. The model 72 features minimal mass loading, broad frequency response, minimum zero shift following a shock event and a Class 3 Rating (>4000 V – Human Body Model) for ESD Protection. For high g applications, the strength of the solder joints is not sufficient to withstand high forces, so the model 72 must be epoxied (underfilled) to the PCB, or hard potted.

The model 72 uses a unique micro-machined, piezoresistive sensor with light gas damping to attenuate resonant amplitudes, and mechanical stops to reduce breakage under overload conditions. The monolithic sensor incorporates the latest MEMS technology for ruggedness, stability and reliability to 4X overrange. The accelerometer features a four-active arm bridge circuit. With a frequency response extending down to dc (steady state acceleration) and a minimum post shock zero shift, this accelerometer is ideal for measuring long duration shocks.

U.S. Patent 6,988,412 applies to this unit.

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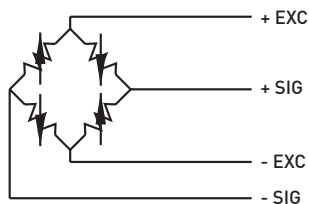
All specifications are referenced at +75°F (+24°C) and 5 Vdc, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

| Specifications                    |  |   |            |            |
|-----------------------------------|--|---|------------|------------|
| Dynamic characteristics           |  | -2K   | -20K       | -60K       |
| Range                             | g  | 2000  | 20000      | 60000      |
| Sensitivity (min/typ)             | μV/V/g   | 15/30   | 0.8/1.6    | 0.25/0.5   |
| Non-linearity                     | %  | ±2.0  | ±2.0       | ±2.0       |
| Zero measurand output             | mV/V   | ±20   | ±20        | ±20        |
| Transverse sensitivity            | %  | 3.0   | 3.0        | 3.0        |
| Frequency response (±1db typical) | Hz   | 0 to 7500   | 0 to 20000 | 0 to 26000 |
| Thermal zero shift                |  |   |            |            |
| -54° to 71°C                      | %FSO/°C  | 0.06  | 0.06       | 0.06       |
| -65° to 160°F                     | %/°F   | -0.11   | -0.11      | -0.11      |
| Thermal sensitivity shift         |  |   |            |            |
| -54° to 71°C                      | %/°C   | -0.2  | -0.2       | -0.2       |
| -65° to 160°F                     | %/°F   | -0.11   | -0.11      | -0.11      |
| Electrical characteristics        |  |   |            |            |
| Excitation                        | Vdc  | 5 Standard/15 Maximum                             |            |            |
| Resistance                        | ohms   | 6,500 +/- 2,500                                   |            |            |
| Physical characteristics          |  |   |            |            |
| Case                              | Alumina Leadless Chip Carrier (LCC) with .002 inch bumps to facilitate epoxy underfill |   |            |            |
| Lid                               | Kovar with Nickel plating  |   |            |            |
| Solder pads                       | Tungsten with ENIG plating   |   |            |            |
| Weight                            | g  | 0.16  |            |            |
| Environmental characteristics     |  |   |            |            |
| Shock limit                       | g  | 10,000  | 80,000     | 240,000    |
| Temperature                       |  |   |            |            |
| Operating                         |  | -54°C to + 71°C (-65°F to + 160°F)                |            |            |
| Storage                           |  | -65°C to + 121°C (-85°F to + 250°F)               |            |            |
| Humidity/Altitude                 |  | Hermetic (<10X-3 atm-cc/sec)                      |            |            |
| ESD Protection                    |  | >4,000V - Human Body Model                        |            |            |
| Calibration data                  |  |   |            |            |
| Sensitivity @ 5V                  |  | 2K tested at 1,000g; 20K and 60K tested at 5,000g |            |            |
| ZMO @ 5V                          |  | mV  |            |            |
| Input and output resistance       |  | ohms  |            |            |

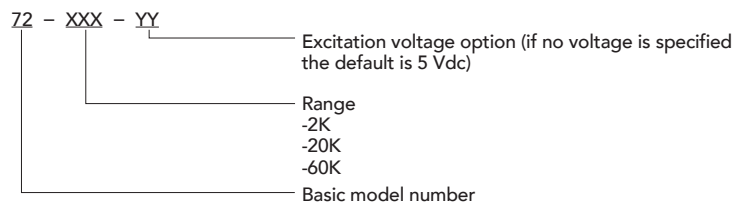
## Notes

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

2. Model number definition:



SCHEMATIC



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