

Piezoresistive MEMS DC Response Circuit Board Mountable Low Cost

The Model 3022 is a silicon MEMS accelerometer in a Wheatstone bridge configuration. The accelerometer is packaged on a ceramic substrate with an epoxy sealed ceramic cover and is designed for adhesive mounting. The accelerometer is offered in ranges from ±2g to ±200g range and provides a flat frequency response to minimum 2000Hz. The silicon MEMS sensor is gas damped and incorporates overrange stops for high-g shock protection.

For a similar accelerometer designed for bolt mounting, see the Model 3028.

FEATURES

- Adhesive Mounted
- ±0.5% Non-linearity
- Open Wheatstone Bridge
- DC Response
- Gas Damping
- Built-in Overrange Stops
- Low Power Consumption

APPLICATIONS

- Vibration & Shock Monitoring
- Motion Control
- Impact & Shock Testing
- Modal Analysis
- Embedded Applications
- Machinery



Dimensions



FRONT VIEW

REAR VIEW



Model 3022 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. Measurement Specialties' family of <u>DC Response Embedded Accelerometers</u> are used for vibration/shock monitoring, structural analysis, motion control, impact testing, and transportation study. These MEMS sensors feature internal gas damping and outstanding shock survivability.

Parameters DYNAMIC Range (g) Sensitivity (mV/g) ¹ Frequency Response (Hz) Natural Frequency (Hz) Non-Linearity (%FSO) Transverse Sensitivity (%) Damping Ratio Shock Limit (g)	±2 8.0-20.0 0-150 700 ±0.5 3 0.7 5000	±5 6.0-15.0 0-250 800 ±0.5 3 0.7 5000	±10 3.0-6.0 0-400 1000 ±0.5 3 0.7 5000	±20 1.5-3.0 0-600 1500 ±0.5 3 0.7 5000	±50 0.6-1.5 0-1000 4000 ±0.5 3 0.7 5000	± 100 0.3-0.6 0-1500 6000 ± 0.5 3 0.7 5000	± 200 0.15-0.3 0-2000 ± 0.5 3 0.6 5000	Notes @5Vdc Excitation ±5%
ELECTRICALZero Acceleration Output (mV)Excitation Voltage (Vdc)Input Resistance (Ω)Output Resistance (Ω)Insulation Resistance (M Ω)Residual Noise (μ V RMS)Ground Isolation	+25 2 to 10 2500- 6500 2500- 6500 >100 10 Isolated fr	±25 2 to 10 2500- 6500 2500- 6500 >100 10 om Mounting	±25 2 to 10 2500- 6500 2500- 6500 >100 10 g Surface	+25 2 to 10 2500- 6500 2500- 6500 >100 10	+25 2 to 10 2500- 6500 2500- 6500 >100 10	+25 2 to 10 2500- 6500 2500- 6500 >100 10	+25 2 to 10 2500- 6500 2500- 6500 >100 10	Differential @50Vdc Maximum
ENVIRONMENTAL Thermal Zero Shift (%FSO/°C) Thermal Sensitivity Shift (%/°C) Operating Temperature (°C) Compensated Temperature (°C) Storage Temperature (°C) PHYSICAL Case Material Weight (grams) Mounting	-0.09 -0.09 -0.09 -0.09 -0.09 -0.09 -0.09 -0.15 -0.15 -0.15 -0.15 -0.15 -0.15 -0.15 -40 to +125 Not Compensated -40 to +125 Ceramic 3.1 Adhesive or solder						Typical Typical See Note 2	

¹ Output is ratiometric to excitation voltage

² Order model 3022-XXX-10254 for temperature compensation resistor values included in the calibration certificate.

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Ordering Info



Model Number+Range+Electrical Connection



_Electrical Connection (P=pins, N=solder pads) ____Range (010 is 10g)

Example: 3022-010-P Model 3022, 10g, Pins