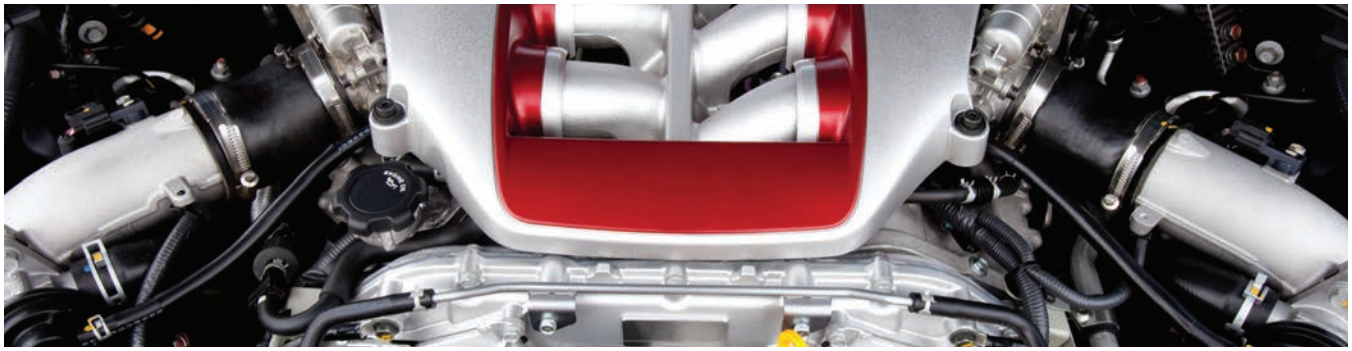
PCB PIEZOTRONICS
AN MTS COMPANY



SERIES **339A**

ACCELEROMETERS WITH EXCELLENT THERMAL STABILITY

- Operating temperature from -100 to +356 °F (-73 to +180 °C)
- Temperature coefficient as low as 0.005 %/ °F (0.009 %/ °C)
- 1 mV/g, 10 mV/g, 50 mV/g and 100 mV/g sensitivities
- Measurement frequency up to 10 kHz at ± 5%
- Titanium housed and hermetically sealed
- Available in stud, adhesive, and through hole mounting configurations
- Models TLD339A34, TLD339A36 & TLD339A37 feature TEDS

TYPICAL APPLICATIONS

- Powertrain Development & NVH
- Vehicle Systems NVH
  - Engine
  - Turbocharger
  - Exhaust
  - Brake
- Component and System Performance
  - Vehicle Road Load & Durability
  - Climatic Chamber Testing

CE

FOR POWERTRAIN TESTING

PCB® single and triaxial ICP® accelerometers are designed with a low temperature coefficient of sensitivity, wide operating temperature range, and high overload shock limits. These characteristic make them ideal for test applications with large thermal shifts where tight control of amplitude sensitivity data is required such as powertrain vibration testing, powertrain NVH, certain vehicle systems NVH tests, road load data acquisition, and durability testing in climatic chambers. With a temperature coefficient as low as 0.005 %/°F (0.009 %/ °C), these titanium housed and hermetically sealed units are available with sensitivities from 1 mV/g to 100 mV/g, a measurement frequency up to 10 kHz, and an operating temperature range from -100 to +356 °F (-73 to +180 °C). To alleviate the effects of high frequency overloads caused by metal-to-metal inputs, a low pass filter has been incorporated in all models, ensuring accurate data in the frequency range of interest. The UHT-12™ sensing element is a crystal designed for more accurate, lower noise measurements during large temperature variations. UHT-12™ technology reduces the effects of temperature variation and phenomenon such as pyroelectricity that generates “spikes” and disrupts the behavior of the accelerometer and test results. Sensors are available in stud, adhesive and through hole mounting configurations.

SPECIFICATIONS

Model Number	320C52	320C53	339A30	339A31	339B31	339B32	TLD339A34 [1]	TLD339A36 [1]	TLD339A37 [1]
Performance									
Measurement Range	± 500 g pk	± 5000 g pk	± 500 g pk	± 500 g pk	± 500 g pk	± 500 g pk	± 100 g pk	± 500 g pk	± 50 g pk
Sensitivity (± 10 %)	10 mV/g	1 mV/g (± 20 %)	10 mV/g	10 mV/g	10 mV/g	10 mV/g	50 mV/g	10 mV/g	100 mV/g
Broadband Resolution (1 to 10000 Hz)	0.004 g rms	0.04 g rms	0.008 g rms	0.008 g rms	0.008 g rms	0.003 g rms	0.005 g rms	0.003 g rms	0.002 g rms
Frequency Range (± 5 %)	1 to 10000 Hz	1 to 5000 Hz	2 to 8000 Hz	2 to 6000 Hz	2 to 8000 Hz	2 to 10000 Hz	2 to 5000 Hz	2 to 5000 Hz	0.3 to 4000 Hz
Frequency Range (± 10 %)	0.6 to 15000 Hz	0.6 to 10000 Hz	—	1 to 8000 Hz	1.5 to 11000 Hz	—	1 to 8000 Hz	1 to 8000 Hz	0.2 to 7000 Hz
Electrical Filter Corner Frequency	≥ 35 kHz	≥ 20 kHz	> 14 kHz	> 13 kHz	> 14 kHz	> 14 kHz	> 30 kHz	> 13 kHz	> 15 kHz
Resonant Frequency (x or y axis)	≥ 50 kHz	≥ 50 kHz	≥ 25 kHz	≥ 25 kHz	≥ 50 kHz	≥ 45 kHz	≥ 35 kHz	≥ 35 kHz	≥ 35 kHz
Resonant Frequency (z axis)	—	—	≥ 55 kHz	≥ 25 kHz	≥ 50 kHz	≥ 45 kHz	≥ 35 kHz	≥ 35 kHz	≥ 35 kHz
Non-Linearity	≤ 1 %	≤ 1 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %	≤ 1 %	≤ 1 %	≤ 1 %
Transverse Sensitivity	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Environmental									
Overload Limit (Shock)	± 5000 g pk	± 10000 g pk	± 5000 g pk	± 5000 g pk	± 5000 g pk	± 5000 g pk	± 5000 g pk	± 5000 g pk	± 5000 g pk
Temperature Range (operating)	-100 to +325 °F (-73 to +163 °C)	-100 to +325 °F (-73 to +163 °C)	-65 to +325 °F -54 to +163 °C	-65 to +325 °F (-54 to +163 °C)	-65 to +356 °F (-54 to +180 °C)	-65 to +325 °F (-54 to +163 °C)	-65 to +325 °F (-54 to +163 °C)	-65 to +325 °F (-54 to +163 °C)	-65 to +356 °F (-54 to +180 °C)
Temperature Coefficient of Sensitivity	± 0.005 %/°F (± 0.009 %/°C)	± 0.005 %/°F (± 0.009 %/°C)	≤ 0.011 %/°F ≤ 0.020 %/°C	≤ 0.011 %/°F (≤ 0.020 %/°C)	0.012 %/°F (0.022 %/°C)	≤ 0.011 %/°F (≤ 0.020 %/°C)	≤ 0.03 %/°F (≤ 0.06 %/°C)	≤ 0.03 %/°F (≤ 0.06 %/°C)	≤ 0.011 %/°F (≤ 0.020 %/°C)
Electrical									
Excitation Voltage	19 to 30 VDC	19 to 30 VDC	18 to 30 VDC	18 to 30 VDC	18 to 30 VDC	18 to 30 VDC	21 to 30 VDC	21 to 30 VDC	21 to 30 VDC
Constant Current Excitation	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 20 mA	2 to 4 mA [2]
Spectral Noise (1 Hz)	750 µg/√Hz	7500 µg/√Hz	1700 µg/√Hz	1700 µg/√Hz	4800 µg/√Hz	1187 µg/√Hz	2000 µg/√Hz	2080 µg/√Hz	210 µg/√Hz
Spectral Noise (10 Hz)	150 µg/√Hz	1500 µg/√Hz	500 µg/√Hz	500 µg/√Hz	560 µg/√Hz	178 µg/√Hz	400 µg/√Hz	250 µg/√Hz	40 µg/√Hz
Spectral Noise (100 Hz)	50 µg/√Hz	500 µg/√Hz	200 µg/√Hz	200 µg/√Hz	150 µg/√Hz	48 µg/√Hz	100 µg/√Hz	50 µg/√Hz	20 µg/√Hz
Spectral Noise (1000 Hz)	25 µg/√Hz	250 µg/√Hz	100 µg/√Hz	100 µg/√Hz	60 µg/√Hz	25 µg/√Hz	50 µg/√Hz	20 µg/√Hz	12 µg/√Hz
Spectral Noise (10000 Hz)	—	—	—	—	—	—	30 µg/√Hz	19 µg/√Hz	10 µg/√Hz
Physical									
Sensing Element	UHT-12™	UHT-12™	UHT-12™	UHT-12™	UHT-12™	UHT-12™	Quartz	Quartz	UHT-12™
Sensing Geometry	Shear	Shear	Shear	Shear	Shear	Shear	Shear	Shear	Shear
Housing Material	Titanium	Titanium	Titanium	Titanium	Titanium	Titanium	Titanium	Titanium	Titanium
Sealing	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic	Hermetic
Size (H x L x W) in (mm)	0.23 x 0.65 x 0.38 (5.84 x 16.4 x 9.6)	0.23 x 0.65 x 0.3 (5.84 x 16.4 x 9.6)	0.4 in Cube (10.2 mm Cube)	0.55 x 0.4 x 0.4 (14.0 x 10.2 x 10.2)	0.4 in Cube (10.2 mm Cube)	0.28 x 0.47 x 0.47 (7.0 x 12.0 x 12.0)	0.55 in Cube (14.0 mm Cube)	0.55 in Cube (14.0 mm Cube)	0.55 in Cube (14.0 mm Cube)
Weight	1.85 gm	1.85 gm	4.0 gm	5.5 gm	4.2 gm	3.6 gm	10.5 gm	10.5 gm	10.5 gm
Electrical Connector	5-44 Coaxial	5-44 Coaxial	8-36 4-Pin	8-36 4-Pin	1/4-28 4-Pin	8-36 4-Pin	1/4-28 4-Pin	1/4-28 4-Pin	1/4-28 4-Pin
Mounting	Through Hole	Through Hole	Adhesive	5-40 Stud	10-32 Female	Adhesive	5-40 Stud	5-40 Stud	5-40 Stud
Supplied Cable	—	—	034K10	034K10	010S10	034K10	—	—	010S10
Notes									

[1] TEDS Capable of Digital Memory and Communication Compliant with IEEE 1451.4
[2] Increased current up to 20 mA acceptable to 250 °F (121 °C)

As with all PCB instrumentation, these sensors are complemented with toll-free applications assistance, 24-hour technical support, and are backed by a no-risk policy that guarantees total customer satisfaction or your money refunded.

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PCB Piezotronics, Inc. is a designer and manufacturer of microphones, vibration, pressure, force, torque, load, and strain sensors, as well as the pioneer of ICP® technology used by design engineers and predictive maintenance professionals worldwide for test, measurement, monitoring, and control requirements in automotive, aerospace, industrial, R&D, military, educational, commercial, OEM applications, and more. With a worldwide customer support team, 24-hour SensorLine℠, and a global distribution network, PCB® is committed to Total Customer Satisfaction. Visit www.pcb.com for more information. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corporation. Additional information on MTS can be found at www.mts.com.

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