

Model: 3991A3020KG

High Amplitude MEMS Shock Accelerometer

MEMS Shock Accelerometer, 20 Kg, adhesive mount with substrate (ITAR Controlled)

	ENGLISH	SI	
Performance			
Sensitivity ($\pm 50\%$) (at 10 VDC excitation)	0.010 mV/g	0.001 mV/(m/s ²)	[1]
Sensitivity	0.001 mV/V/g	0.0001 mV/V/(m/s ²)	[3]
Measurement Range	± 0 to 20000 g	± 0 to 196100 m/s ² pk	
Frequency Range (1 dB)	0 to 10000 Hz	0 to 10000 Hz	
Resonant Frequency	>60000 Hz	>60000 Hz	
Damping Ratio	5 % Critical	5 % Critical	[2]
Non-Linearity	$\pm 1\%$	$\pm 1\%$	
Transverse Sensitivity	$\leq 3\%$	$\leq 3\%$	
Environmental			
Overload Limit (Shock)	± 60000 g pk	± 588400 m/s ² pk	[4]
Overload Limit (Mechanical Stops)	≥ 30000 g	≥ 294200 m/s ² pk	
Temperature Range (Operating)	-65 to 250 °F	-54 to 121 °C	
Temperature Coefficient of Sensitivity	-0.11 %/°F	-0.20 %/°C	[2]
Zero g Offset Temperature Shift	± 10 mV	± 10 mV	[5]
Base Strain Sensitivity	0.10 g/ $\mu\epsilon$	0.98 (m/s ²)/ $\mu\epsilon$	[2]
Electrical			
Excitation Voltage (Maximum)	15.0 VDC	15.0 VDC	
Current Consumption	<3 mA	<3 mA	
Input Resistance (± 2000 Ohm)	6000 Ohm	6000 Ohm	[2][1]
Output Resistance (± 2000 Ohm)	6000 Ohm	6000 Ohm	[2][1]
Offset Voltage (at 10 VDC excitation)	± 40 mVDC	± 40 mVDC	[1]
Settling Time	0.01 sec	0.01 sec	[6]
Physical			
Sensing Element	Piezoresistive MEMS	Piezoresistive MEMS	
Sensing Geometry	Full Active	Full Active	
Size - Height	0.052 in	1.32 mm	
Size - Length	0.170 in	4.32 mm	
Size - Width	0.160 in	4.06 mm	
Weight	0.0013 oz	0.04 gm	[2]

All specifications are at room temperature unless otherwise specified.

Product Notes

[1] Verified with test data provided on supplied calibration certificate.

[2] Typical.

[3] Sensitivity is proportional to excitation voltage, and at other excitation values, sensitivity can be predicted from the 10VDC calibrated value with a small ($\sim 0.5\%$) increase in uncertainty.

[4] Half-sine pulse duration, ≥ 20 μ sec.

[5] -65 to +250 °F, ref. 75 °F (-54 to +121 °C, ref. 24 °C)

[6] Settling Time is the maximum time after power-up for the Offset Voltage to be within $\pm 2\%$ of Measurement Range output of the final offset value. Mounting surface must be at thermal equilibrium.

Accessories

Supplied

ACS-62 Shock Calibration of Piezoresistive High Amplitude Accelerometers (1)