

MODEL 3028 Accelerometer

Piezoresistive MEMS, DC Response

Millivolt Output

Low Cost

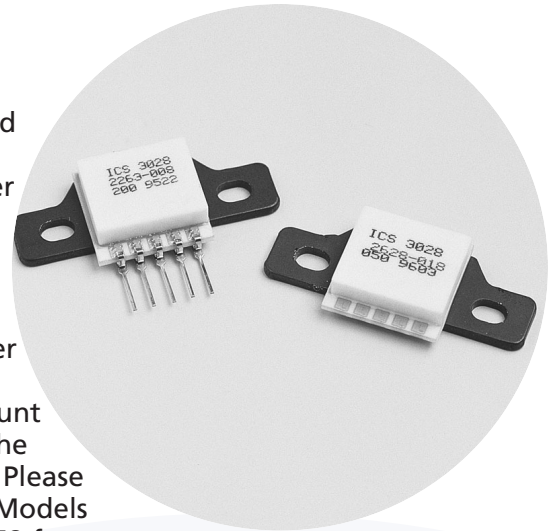
DESCRIPTION

The Model 3028 is a piezoresistive silicon accelerometer packaged on a ceramic substrate with a metal bracket which can be used to bolt the sensor to the mounting location.

The accelerometer consists of a micro machined silicon mass suspended by multiple beams from a silicon frame. Piezoresistors located in the beams change their resistance as the motion of the suspended mass changes the strain in the beams. Silicon caps on the top and bottom of the device are added to provide over-range stops. This design provides for a very low profile, high shock

resistance, durability and built-in damping over a wide usable bandwidth.

For an accelerometer with an adhesive mount design, see the Model 3022. Please refer to the Models 3052 and 3058 for accelerometers with integral temperature compensation.



FEATURES

- ◆ Bolt Mount
- ◆ $\pm 0.5\%$ Non-linearity (typical)
- ◆ DC Response
- ◆ Gas Damping
- ◆ Built-in Over-range Stops
- ◆ Low Power

APPLICATIONS

- ◆ Vibration/Shock Monitoring
- ◆ Modal Analysis
- ◆ Motion Control
- ◆ Impact Testing
- ◆ Transportation

standard ranges

Range	g	Range	g
± 2	•	± 50	•
± 5	•	± 100	•
± 10	•	± 200	•
± 20	•		

MSI Sensors
1000 Lucas Way
Hampton, VA 23666 USA
www.msisensors.com

Customer Service:
Tel: 1-757-766-1500 (Toll
Free: 1-800-745-8008)
Fax: 1-757-766-4297

Vibration Sensors Technical
Support:
Tel: 1- 949-716-5377
Fax: 1- 949-916-5677
Email: vibration@msisensors.com
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Model 3028 Accelerometer

performance specifications

Supply Voltage: 5.0 VDC

Ambient Temperature: 25°C (Unless otherwise specified)

RANGE

PARAMETERS	±2G	±5G	±10G	±20G	UNITS	NOTES
Frequency Response [MIN]	0-250	0-300	0-400	0-600	Hz	1
Mounted Resonant Frequency [MIN]	700	800	1000	1500	Hz	
Sensitivity (MIN/MAX)	8.0/20.0	6.0/15.0	3.0/6.0	1.5/3.0	mV/g	2, 3

RANGE

PARAMETERS	±50G	±100G	±200G	UNITS	NOTES
Frequency Response [MIN]	0-1000	0-1500	0-2000	Hz	1
Mounted Resonant Frequency [MIN]	2000	3000	4000	Hz	
Sensitivity (MIN/MAX)	0.6/1.5	0.3/0.6	0.15/0.3	mV/g	2, 3

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Zero Acceleration Output		5.0	25.0	±mV	3
Damping Ratio	0.4	0.7	0.9		
Non-linearity		0.5	1.0	±% Span	4
Transverse Sensitivity		1.0	3.0	±% Span	
Input & Output Resistance	2.5	3.5	6.5	kΩ	3
Temperature Error - Span (0°C to +50°C)	-0.3	-0.15	0	%/°C	
Temperature Error - Zero (0°C to +50°C)	-0.1	-0.15	+0.1	mV/°C	
Supply Voltage	2.0	5.0	10.0	VDC	
Output Noise		1.0		µV p-p	5
Output Load Resistance	5			MΩ	
Shock Limits	5000g for ≤ 20g range; 10,000g for ≥ 50g range				
Operating Temperature	-40°C to +125°C				
Storage Temperature	-40°C to +125°C				
Weight (with pins)	3.6 Grams				
Materials	Alumina ceramic substrate with alumina ceramic cap and aluminum base plate				
Mounting/Torque	wo slotted holes for 4-40 screws/6 in - lbs. torque				

Notes

1. The frequency response is defined as the range of frequencies over which the device sensitivity is within ±5% of the DC value.
2. Output voltage increases for positive acceleration; output voltage decreases for negative acceleration.
3. Actual test data for this parameter is included on the calibration sheet provided with each sensor.
4. Best Fit Straight Line. For full scale ranges of 10g or less, the maximum non-linearity is ±2%.
5. 10 Hz to 1 kHz.

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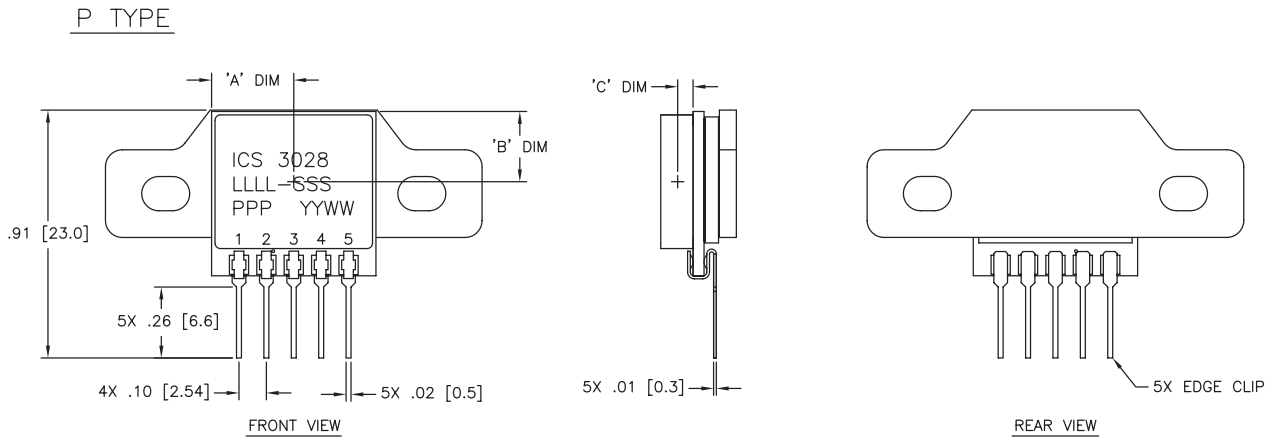
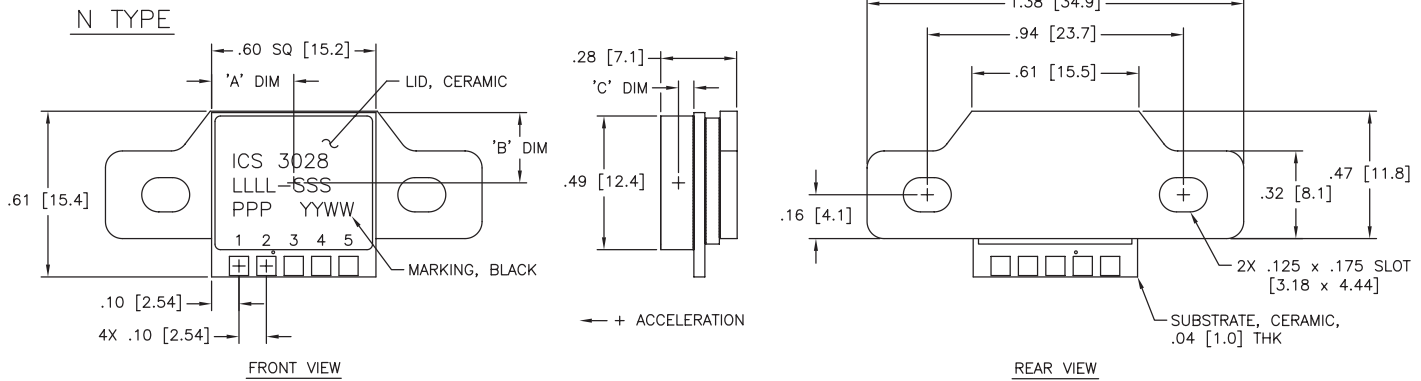
Vibration Sensors Technical Support:
 Tel: 1- 949-716-5377
 Fax: 1- 949-916-5677
 Email: vibration@msisensors.com

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 Fax: 1-757-766-4297



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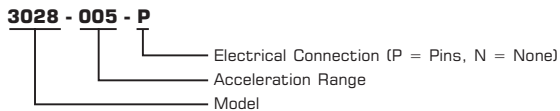
dimensions



ALL DIMENSIONS ARE IN INCHES [mm]

LTR	2 - 20 g	50 - 200 g
"A" DIM	0.300 ± 0.005 [7.62 ± 0.13]	0.265 ± 0.005 [6.73 ± 0.13]
"B" DIM	0.250 ± 0.005 [6.35 ± 0.13]	0.240 ± 0.005 [6.10 ± 0.13]
"C" DIM	0.032 ± 0.004 [0.81 ± 0.10]	0.032 ± 0.004 [0.81 ± 0.10]

ordering information



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electrical schematic

