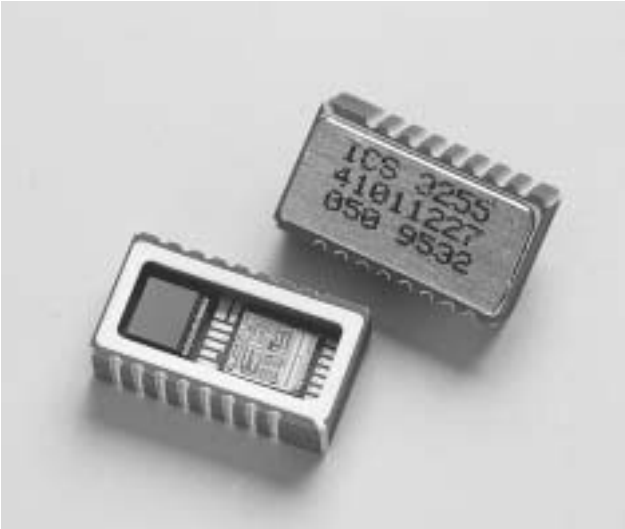
PC Board Mountable Accelerometer
0.5 to 4.5 VDC Output
Integral Temperature Compensated
Low Cost

- Frontal Impact Air Bag Systems
- Side Impact Air Bag Systems
- Vibration/Shock Monitoring
- Crash Recorder
- Aerospace



FEATURES

- Surface Mount Package
- ±0.5% Non-linearity (Typical)
- Self Test Function
- Dc Response
- Built-in Damping
- Built-in Overrange Stops

STANDARD RANGES

Range	g
±25	●
±50	●
±100	●
±250	●
±500	●

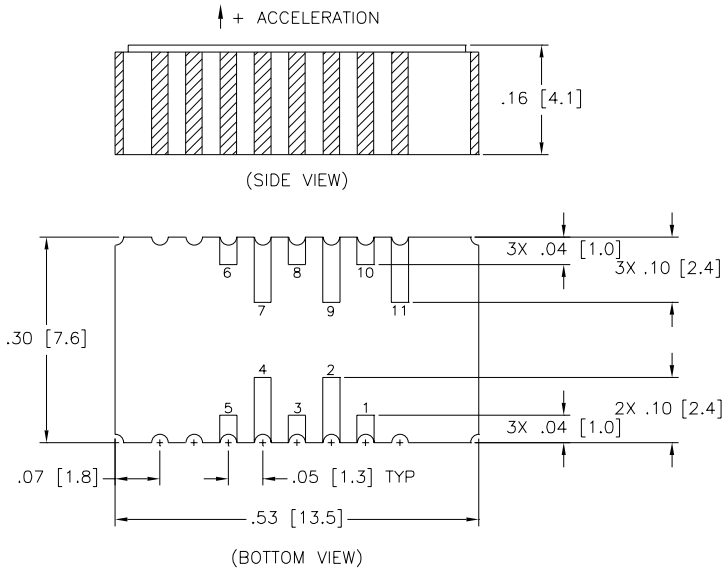
DESCRIPTION

The Model 3255 is a two-chip accelerometer designed for low cost surface mount applications. The package can be mounted in one of two orientations, allowing the measurement axis to be either parallel or perpendicular to the mounting surface without the use of costly brackets.

This 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. Each sensor is individually serialized.

A patented self-test feature is also built into the sensor. By applying a voltage to the self-test pin, an electrostatic force is created that attracts the seismic mass towards the top cap, simulating an acceleration and allowing proper sensor function to be verified.

DIMENSIONS



PERFORMANCE SPECIFICATIONS

Supply Current: 5.0 VDC
Ambient Temperature: 25°C (Unless otherwise specified)

	RANGE				
PARAMETERS	±25G	±50G	±100G	UNITS	NOTES
Bandwidth (MIN)	0-1000	0-1000	0-1500	Hz	8
Sensitivity (MIN / TYP/ MAX)	76.0/80.0/84.0	38.0/40.0/42.0	19.0/20.0/21.0	mV/g	1, 4

	RANGE			
PARAMETERS	±250G	±500G	UNITS	NOTES
Bandwidth (MIN)	0-2000	0-2400	Hz	8
Sensitivity (MIN / TYP/ MAX)	7.6/8.0/8.4	3.8/4.0/4.2	mV/g	1, 4

	ALL RANGES				
PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Zero Acceleration Output	2.3	2.5	2.7	Volts	1, 4
Non-Linearity		0.2	1.0	±% Span	2
Transverse Sensitivity		1	3	±% Span	
Supply Voltage	4.5	5.0	7.0	Volts	3
Supply Current			10	mA	
Output Noise		10		mV p-p	5
Self-Test Input Voltage	-30		0	Volts	6, 7
Self-Test Response (Vst = -5V)	-0.89	-1.48	-2.07	G	6, 7
Self-Test Input Current (Vst = -5V)			0.1	mA	6, 7
Self-Test Accuracy	-5		5	%	4, 6, 7
Output Source Current (load to ground)	1.0			mA	
Output Sink Current (supply to load)	0.5			mA	
Acceleration Limits			2000	G	
Operating Temperature	-40°C to +85°C				
Storage Temperature	-40°C to +125°C				
Weight	1.5 Grams				

Notes

1. The output voltage increases from the Zero Acceleration Output for positive acceleration and decreases for negative acceleration.
2. Best Fit Straight Line.
3. Output is ratio metric with supply voltage in the range of (5.0 ± 0.5) V.
4. Includes effects over operating temperature range.
5. 1 Hz to 10 kHz.
6. Applying the self-test input voltage simulates an acceleration. The sensor output is proportional to the square of the voltage difference between the self-test input and the positive supply. When not using the self-test function, the self-test input pin should be connected to the positive supply voltage. For detailed description refer to Technical Note TN010.
7. Self-test input voltage is with respect to supply voltage. For example, if supply voltage is 5 VDC then Vst = -5 V is equivalent to ground.
8. The useful frequency range is defined as the range of frequencies over which the device sensitivity is within ±5% of the DC value.
9. The alarm output is a digital output which is 0 V during normal operation and 5 V when the output voltage of the accelerometer die is outside the normal range. This is the case if there is a malfunction of the accelerometer or a broken wire bond to the sensor.

ORDERING INFORMATION

3255 - 050

- 050 — Acceleration Range
- 3255 — Model

CONNECTIONS

PAD	FUNCTION
1	Alarm Function
2	Signal Output
3	Ground
4	+5V Supply
5	Self Test
6 thru 11	No Electrical Connection

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Feel free to contact customer service with any questions at
Toll free 1(800)745-8008; Phone (757)766-1500; Fax (757)766-4297