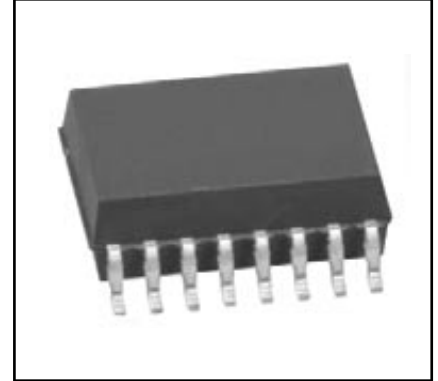
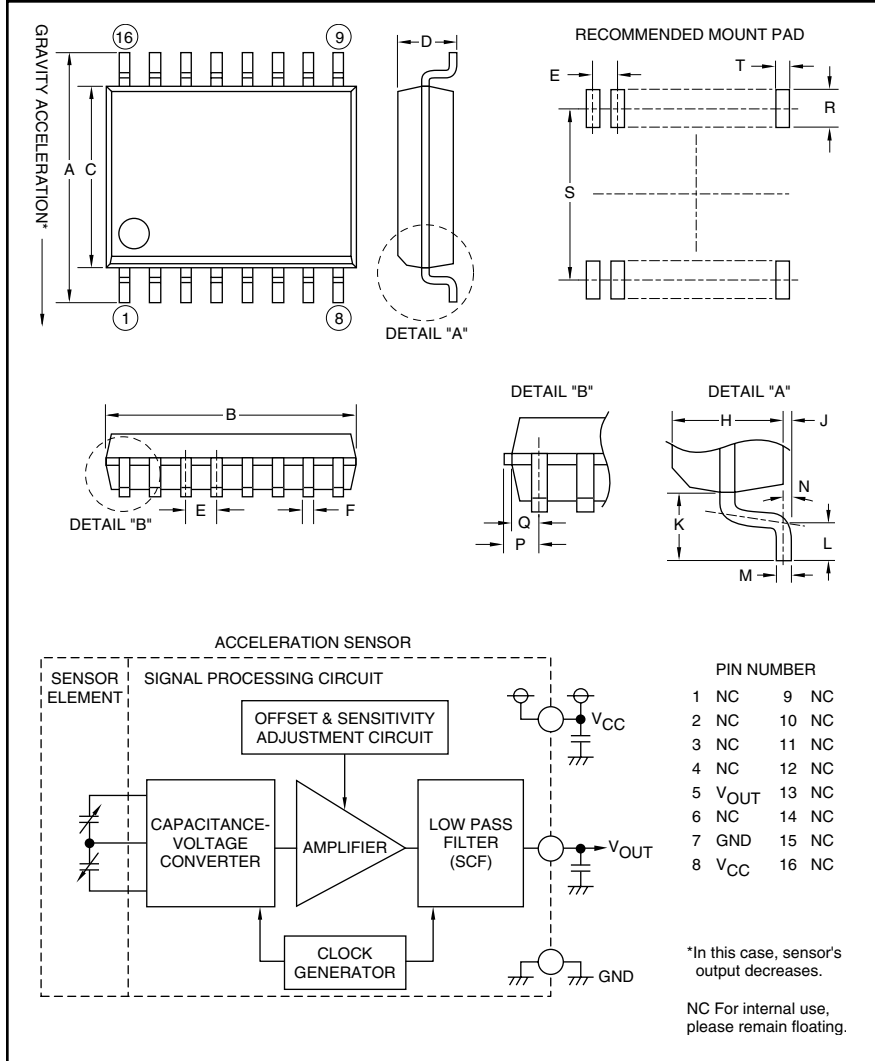


Intellimod™ Module ±2g Acceleration Sensor 4.75 – 5.25 Volts



Description:

The MAS1390P is a ±2g acceleration sensor designed so the sensor element and the signal processing circuit are integrated in one package that is small and can be mounted directly on a printed board. This design helps reduce the overall size of the systems.

Features:

- Capacitive Type Acceleration Sensor
- Output Proportional to Supply
- 16-pin Plastic SOP
- Wide Operation Temperature Range, Small Size and Lightweight

Applications:

- Inclination Meter
- Video Projector
- Car Navigation
- Virtual Reality Input Devices
- Vibration Measurement

Ordering Information:

MAS1390P is a ±2g Acceleration Sensor
4.75 – 5.25 Volts

Outline Drawing and Circuit Diagram

| Dimensions | Inches | Millimeters |
|------------|---------------|-------------|
| A | 0.41±0.01 | 10.3±0.3 |
| B | 0.41±0.004 | 10.3±0.1 |
| C | 0.3±0.004 | 7.5±0.1 |
| D | 0.104 Max. | 2.65 Max. |
| E | 0.05 | 1.27 |
| F | 0.0165±0.0028 | 0.42±0.07 |
| H | 0.09 | 2.3 |
| J | 0.008±0.004 | 0.2±0.1 |
| K | 0.06 | 1.4 |

| Dimensions | Inches | Millimeters |
|------------|--------------|-------------|
| L | 0.0315±0.008 | 0.8±0.2 |
| M | 0.1±0.002 | 0.25±0.05 |
| N | 8° Max. | 8° Max. |
| P | 0.034 Max. | 0.855 Max. |
| Q | 0.028 | 0.705 |
| R | 0.05 Min. | 1.27 Min. |
| S | 0.375 | 9.53 |
| T | 0.03 | 0.76 |

MAS1390P
±2g Acceleration Sensor
 4.75 – 5.25 Volts

Absolute Maximum Ratings, $T_a = 25^\circ\text{C}$ unless otherwise specified

| Characteristics | Symbol | MAS1390P | Units |
|--|----------------|--|--------------------|
| Maximum Operating Voltage | $V_{CC(max.)}$ | -0.3 ~ 7 | Volts |
| Storage Temperature | T_{stg} | -40 ~ 105 | $^\circ\text{C}$ |
| Maximum Operating Acceleration | $A_{CC(max.)}$ | ±9800 (±1000) | m/s^2 (g) |
| Operating Voltage ($T_a = -30 \sim 85$) | V_{CC} | 4.75 ~ 5.25 | Volts |
| Operating Temperature | T_{opr} | -30 ~ 85 | $^\circ\text{C}$ |
| Rated Acceleration ($T_a = -30 \sim 85$) | $A_{CC(opr)}$ | Typ. = -19.6 ~ 19.6 (-2 ~ 2) Min. = -14.7 ~ 14.7 (-1.5 ~ 1.5) | m/s^2 (g) |

Electrical and Mechanical Characteristics, $V_{CC} = 5\text{V}$ unless otherwise specified

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|--|-----------|--|---------------|-----------------|-----------------|--------------------------------------|
| Main Axis Sensitivity | S | $f = \text{DC}, T_a = 25^\circ\text{C}$ | 96.9 (970) | 102.0 (1000) | 107.1 (1030) | $\text{mV}/(\text{m/s}^2)$ (mV/g) |
| | | $f = \text{DC}, T_a = -30 \sim 85^\circ\text{C}$ | 91.8 (950) | 102.0 (1000) | 112.2 (1050) | $\text{mV}/(\text{m/s}^2)$ (mV/g) |
| Offset Voltage | V_O | $A_{CC} = 0 \text{ m/s}^2$ (0g), $T_a = 25^\circ\text{C}$ | 2.300 | 2.500 | 2.700 | Volts |
| | | Δ from 25°C , $A_{CC} = 0 \text{ m/s}^2$ (0g), $T_a = -30 \sim 85^\circ\text{C}$ | -1.5 | 0 | 1.5 | $\text{mV}/^\circ\text{C}$ |
| Upper Cut-off Frequency | f_{cH} | $T_a = -30 \sim 85^\circ\text{C}$ | 160 | — | — | Hz |
| Output Linearity | L_O | $A_{CC} = -19.6 \sim 19.6 \text{ m/s}^2$ (-2 ~ 2g) $T_a = 25^\circ\text{C}$ | -2 | 0 | 2 | %F.S. |
| Sensitivity Ratio between Main and Other Axis | S_O/S | $T_a = 25^\circ\text{C}$ | — | — | 5 | % |
| Output Drive Capability | I_{odc} | $A_{CC} = 0 \text{ m/s}^2$ (0g), $T_a = 25^\circ\text{C}$ | -0.2 | — | 0.2 | mA |
| Supply Current | I_{CC} | $A_{CC} = 0 \text{ m/s}^2$ (0g), $T_a = 25^\circ\text{C}$ | — | 3.5 | 5.0 | mA |
| Output Noise | N_O | $A_{CC} = 0 \text{ m/s}^2$ (0g) with External Capacitors, $T_a = -30 \sim 85^\circ\text{C}$ | — | 8 | 15 | mVp-p |

