



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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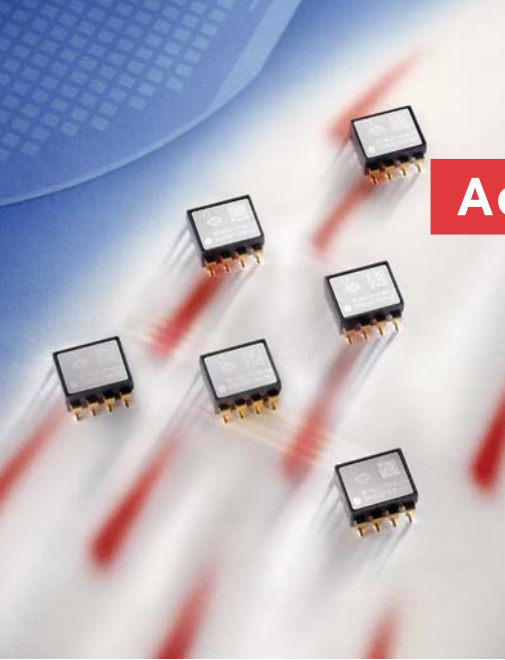
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SCA620 Series

Accelerometer



FEATURES

- Available ranges ± 1.7 g and ± 12 g
- 8-pin plastic surface mount DIP package mountable with pick and place machines
- Enhanced failure detection
- Digitally activated electrostatic self test
- Calibration memory parity check
- Continuous connection failure detection
- Bi-directional acceleration measurement
- Controlled frequency response in the sensing element
- Single +5 V supply; ratiometric voltage output in the range 4.75 ... 5.25 V
- Lead-free reflow solderable lead-free component

BENEFITS

- Exceptional reliability, unprecedented accuracy and excellent stability over temperature and time
- Outstanding overload and shock durability
- No additional components required

APPLICATIONS

- Acceleration measurement
- Inclination measurement
- Motion measurement
- Vibration measurement

For customised product please contact VTI Technologies

ELECTRICAL CHARACTERISTICS

| Parameter | Condition | Min. | Typ. | Max. | Units |
|-----------------------------|--------------------|-------|------|------|-------|
| Supply voltage Vdd | | 4.75 | | 5.25 | V |
| Current consumption | Vdd = 5 V; No load | | 2.0 | 4.0 | mA |
| Operating temperature | | -40 + | | 125 | °C |
| Resistive output load | Vout to Vdd or Vss | 20 | | | kOhm |
| Capacitive load | Vout to Vdd or Vss | | | 20 | nF |
| Output noise ⁽¹⁾ | DC...4 kHz | | | 5 | mVrms |

PERFORMANCE CHARACTERISTICS

| Parameter | Condition/Comment | SCA620-CF8H1A | SCA620-CHCV1A | Units |
|--|-----------------------------|-------------------------|---------------|-------|
| Measuring range ⁽²⁾ | Nominal | ± 1.7 | ± 12 | g |
| Measuring direction ⁽³⁾ | | Horizontal | Vertical | |
| Zero point (nom.) ⁽⁴⁾ | Mounting position | Vdd/2 | Vdd/2 | V |
| Sensitivity | @ room temperature | 1.2 ⁽⁵⁾ | 0.15 | V/g |
| Zero point error ⁽⁶⁾ | -40...125 °C | ± 125 | 700 | mg |
| Sensitivity error | -40...125 °C | ± 4 ⁽⁸⁾ | ± 4 | % |
| Sensitivity error ⁽⁷⁾ | -25...85 °C | ± 3 ⁽⁸⁾ | ± 3 | % |
| Typical non-linearity ⁽⁷⁾ | Over measuring range | ± 40 ⁽⁹⁾ | ± 300 | mg |
| Cross-axis sensitivity ⁽¹⁰⁾ | | 4 | 4 | % |
| Frequency response | -3 dB point ⁽¹¹⁾ | 50 \pm 30 | 400 \pm 150 | Hz |
| Ratiometric error ⁽¹²⁾ | Vdd = 4.75...5.25 V | 2 | 2 | % |

VDD = 5.00 V, UNLESS OTHERWISE SPECIFIED

Note 1 The noise density of CF8H1A is 20 μ g/ \sqrt Hz.

Note 2 The measuring range is limited by sensitivity, offset and supply voltage rails of the device.

Note 3 Measuring direction perpendicular to the mounting plane.

Note 4 Vertical versions in +1 g position pins down, horizontal versions leg row 1-4 pointing downwards.

Note 5a Sensitivity specified as $[V_{out}(+1g) - V_{out}(-1g)] / 2$ [V/g].

Note 6 Zero point error specified as $(V_{out}(+0g) - V_{dd}/2) / V_{sens}$ [g] (room temp. error included); V_{sens} = Nominal sensitivity.

Note 7 Typical tolerance, not 100 % tested.

Note 8 Sensitivity error specified as $\{[(V_{out}(+1g) - V_{out}(-1g)) / 2] - V_{sens}\} / V_{sens} \times 100$ % [room temp. error included]; V_{sens} = Nominal sensitivity.

Note 9 Relative to straight line between ± 1 g.

Note 10 The cross-axis sensitivity determines how much acceleration, perpendicular to the measuring axis, couples to the output. The total cross-axis sensitivity is the geometric sum of the sensitivities of the two axes, which are perpendicular to the measuring axis.

Note 11 The output has true DC (0 Hz) response.

Note 12 Supply voltage noise also couples to the output, due to the ratiometric (output proportional to supply voltage) nature of the accelerometer.

The ratiometric error is specified as:

$$RE = 100\% \times \left[1 - \frac{V_{out}(@V_x) \times \frac{5.00V}{V_x}}{V_{out}(@5V)} \right]$$

ABSOLUTE MAXIMUM RATINGS

| Parameter | Value | Units |
|---------------------------------------|-------------------------------|-------|
| Acceleration (powered or non-powered) | 20000 | g |
| Supply voltage | -0.3 to +7.0 | V |
| Voltage at input / output pins | -0.3 to V _{dd} + 0.3 | V |
| Temperature range | -55 to +125 | °C |

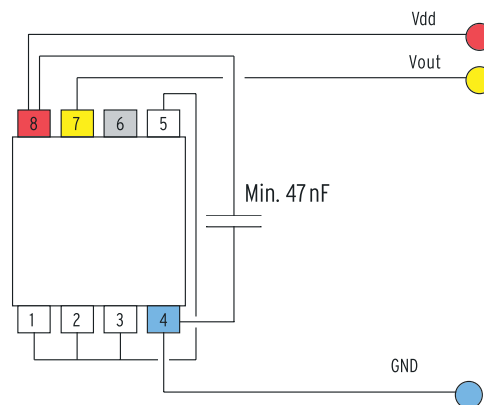
ELECTRICAL CONNECTION

Pin# Pin Name Connection

| Pin# | Pin Name | Connection |
|------|----------|--|
| 1 | | Open or capacitively connected to GND for EMC* |
| 2 | | Open or capacitively connected to GND for EMC* |
| 3 | | Open or capacitively connected to GND for EMC* |
| 4 | GND | Negative supply voltage (VSS) |
| 5 | | Open or capacitively connected to GND for EMC* |
| 6 | ST | Self-test control |
| 7 | VOUT | Sensor analog output |
| 8 | VDD | Positive supply voltage (VDD) |

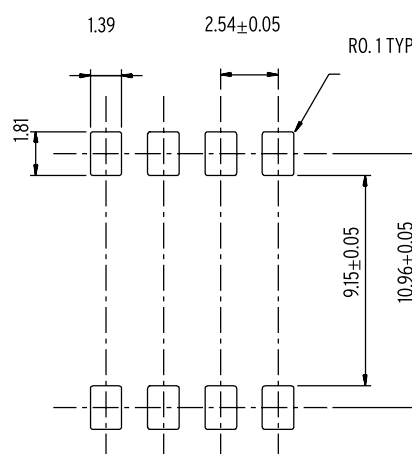
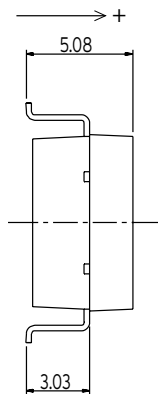
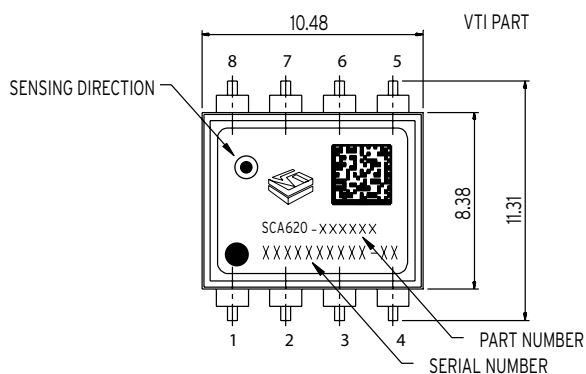
*) recommended capacity min. 20 pF - Effectiveness should be tested and if necessary adapted in the respective connection.

RECOMMENDED CIRCUIT



DIMENSIONS

The accelerometer weighs under 1 g.
The size of the part is approximately (w x h x l) 9 x 5 x 11 mm. Pin pitch is standard 100 mils.



Acceleration in the direction of the arrow will increase the output voltage.