

MEMS 3-axis accelerometer

A small surface mounted MEMS sensor offering best-in-class characteristics for inclination measurements including user selectable measurement range, and features better than 10 mg offset stability

Features

- 3-axis high performance accelerometer with ± 1.5 to $\pm 6g$ user selectable measurement range
- Extensive self-diagnostics features
- Excellent bias stability and low noise level
- Mechanically damped sensing element design for superior vibration robustness
- SPI digital interface
- $-40^{\circ}\text{C} \dots +125^{\circ}\text{C}$ operating range
- 3.0V...3.6V supply voltage with 1.2mA current consumption
- Proven capacitive 3D-MEMS technology
- Product platform qualified according to AEC-Q100 standard

Applications

SCA3300 is targeted at applications demanding high stability with tough environmental requirements.

Typical applications include:

- Professional Leveling
- Angle measurement and control
- Tilt compensation
- Inertial Measurement Units (IMUs) for heavy machine and automotive (ADAS)
- Motion Analysis and Control
- Navigation Systems
- Intelligent Transmission Control

Typical performance overview

Parameter	SCA3300-D01
Operating Range	$-40 \dots +125^{\circ}\text{C}$
Measurement range options	$\pm 6g/70\text{Hz}$
	$\pm 3g/70\text{Hz}$
	$\pm 1.5g/70\text{Hz}$
	$\pm 1.5g/10\text{Hz}$
Offset Temperature Error	$\pm 15\text{ mg} / \pm 0.86^{\circ}$
Sensitivity Temperature Error	$\pm 0.3\%$
Linearity $\pm 1g$ range	$\pm 1\text{mg}$
Linearity $\pm 6g$ range	$\pm 15\text{mg}$
Noise Density	$37\text{ ug}/\sqrt{\text{Hz}}$



Size

7.6 x 3.3 x 8.6 mm

Figure 1. Vibration rectification error

An example of superior vibration robustness: DC Offset error during vibration. Sine sweep 500...5kHz 4g amplitude and 5kHz...25kHz 2g amplitude.

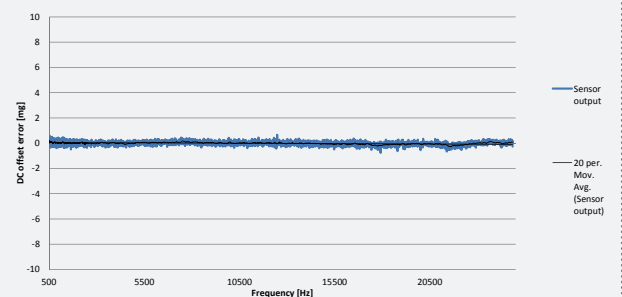


Figure 2. Long term stability

An example of ground breaking stability: Typical offset long term stability for X, Y, Z axis (HTOL for 1000h, $V_{\text{supply}}=3.6\text{V}$, $T=+125^{\circ}\text{C}$).

