

Angular Rate and Dual-Axis Linear Acceleration Combi-Sensor

CMS300



Actual size

CMS390



Actual size

Key features

- Small (CMS300: 10.4 x 6.0 x 2.2mm
CMS390: 10.4 x 6.7 x 2.7mm)
- Proven and robust silicon MEMS vibrating ring gyro and dual-axis accelerometer
- Excellent bias over temperature (1.75°/s, 30mg)
- Flat and orthogonal mounting options (CMS300 and CMS390)
- User selectable dynamic ranges (150°/s, 300°/s, 2.5g and 10g)
- Digital (SPI®) output mode
- User selectable bandwidth (Rate; 45, 55, 90 or 110Hz
Acc; 45, 62, 95 or 190Hz)
- Range and bandwidth independently selectable for each axis
- Low power consumption (8mA) from 3.3V supply
- High shock and vibration rejection
- Temperature range -40 +125°C
- Hermetically sealed ceramic LCC surface mount package for temperature and humidity resistance
- Integral temperature sensor
- RoHS compliant
- AEC Q100 tested

Typical applications

- Measurement and control
- Navigation and personal navigation
- Inertial Measurement Units
- Inclinator/tilt sensors
- Low cost AHRS and attitude measurement
- Levelling
- Robotics

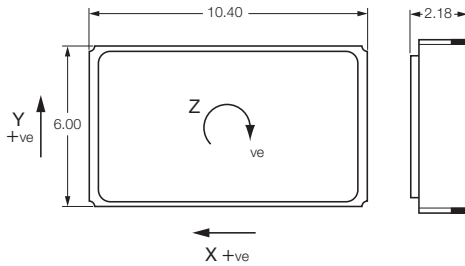


Angular Rate and Dual-Axis Linear Acceleration Combi-Sensor

For full technical datasheets please go to our website where the documents can be downloaded

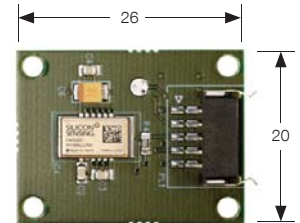
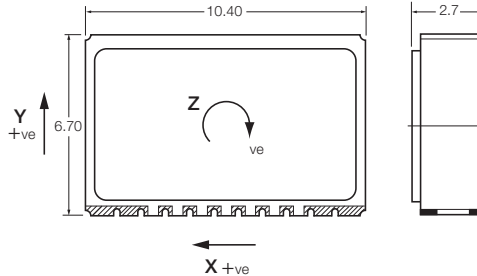
CMS300

All dimensions in millimetres

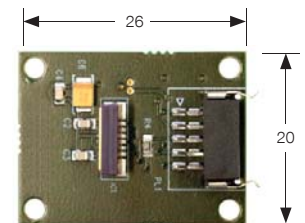


CMS390

All dimensions in millimetres



Orion™ Evaluation Board - CMS300 (P/N CMS300-02-0302)



Orion™ Evaluation Board - CMS390 (P/N CMS390-02-0302)

Typical Data

Parameter	Typical
Ordering Part Number	CMS300, CMS390
Number of sense axes	Single axis angular rate (Z) and 2-axis linear acceleration (X, Y)

Angular Rate Channel

Dynamic range	$\pm 150^\circ/\text{s}$, $\pm 300^\circ/\text{s}$ (set by user via SPI®)
Scale factor	204.8 lbs $^\circ/\text{s}$ ($\pm 150^\circ/\text{s}$), 102.4 lbs $^\circ/\text{s}$ ($\pm 300^\circ/\text{s}$)
Resolution	0.005 $^\circ/\text{s}$ (150 $^\circ/\text{s}$), 0.01 $^\circ/\text{s}$ (300 $^\circ/\text{s}$)
SF over temperature	$< \pm 1\%$
SF non-linearity	$< \pm 0.15^\circ/\text{s}$ (150 $^\circ/\text{s}$), $< \pm 0.30^\circ/\text{s}$ (300 $^\circ/\text{s}$)
Bias over temperature (-40 $^\circ\text{C}$ to +125 $^\circ\text{C}$)	$\pm 1.0^\circ/\text{s}$
Bandwidth (-3dB)	45Hz, 55Hz, 90Hz, 110Hz (independently set by user via SPI®)
Noise (RMS in 45Hz)	0.06 $^\circ/\text{s}$

Linear Acceleration Channels

Dynamic range	$\pm 2.5\text{g}$, $\pm 10\text{g}$ (each axis independently set by user via SPI®)
Scale factor	12,800 lsb/g ($\pm 2.5\text{g}$), 3,200 lsb/g ($\pm 10\text{g}$)
Resolution	0.079mg (2.5g), 0.313mg (10g)
SF over temperature	$\pm 1\%$
SF non-linearity	$< \pm 3\text{mg}$ (2.5g), $< \pm 5\text{mg}$ (10g)
Bias over temperature (-40 $^\circ\text{C}$ to +125 $^\circ\text{C}$)	$\pm 20\text{mg}$ (2.5g)
Bandwidth (-3dB)	45Hz, 62Hz, 95Hz, 190Hz (independently set by user via SPI®)
Noise (RMS in 45Hz)	1mg

General

Temperature	-40 $^\circ\text{C}$ to +125 $^\circ\text{C}$ (operating), -55 $^\circ\text{C}$ to +150 $^\circ\text{C}$ (storage)
Shock	95g 6ms $\frac{1}{2}$ sine (operating), 10,000g 0.5ms $\frac{1}{2}$ sine (unpowered)
Vibration	8.85g rms 10Hz - 5kHz
Start-up time	150ms
Supply voltage	3.15V to 3.45V
Current consumption	-
Mass	0.4g (CMS300) 0.6g (CMS390)

Silicon Sensing Systems Limited
Cliffatford Road, Southway,
Plymouth, Devon
PL6 6DE United Kingdom

T +44 (0)1752 723330
F +44 (0)1752 723331
E sales@siliconsensing.com
W siliconsensing.com

Silicon Sensing Systems
Japan Limited
1-10 Fuso-Cho,
Amagasaki,
Hyogo 6600891, Japan

T +81 (0)6 6489 5868
F +81 (0)6 6489 5919
E sssj@spp.co.jp
W siliconsensing.com

Specification subject to change
without notice.

© Copyright 2013
Silicon Sensing Systems Limited
All rights reserved. Printed in England 07/13

CMS300-00-0100-131 Rev 3
DCR No. 710004100