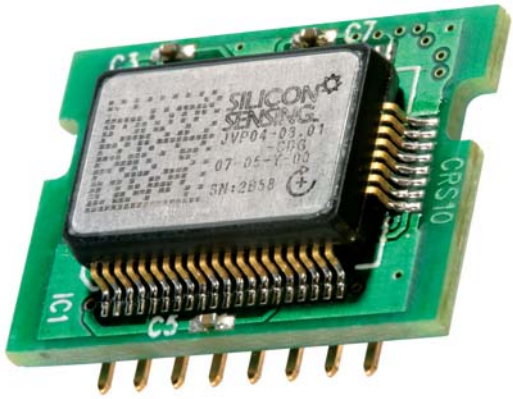
CRS10

Digital Angular Rate Sensor



Using the latest digital silicon MEMS technology, an all-new mass-produced gyroscope for all applications.

Angular rate sensors are used whenever rate of turn sensing is required without a fixed point of reference. The sensor's primary output is via a digital SPI bus interface, proving rate information at up to 1kHz. An analogue interface is also provided for maximum flexibility, derived from the digital gyro information.

High performance motion sensing, with comprehensive fault test coverage, even under severe shock and vibration.

Whatever your application, the unique and patented silicon ring technology gives advanced and stable performance over time and temperature, overcoming the mount sensitivity problems experienced with simple beam or tuning fork based sensors.

Key Features

- Digital and analogue outputs
- User-configurable rate range and bandwidth
- High temperature operation
- Excellent performance over temperature
- Very repeatable low drift characteristic
- Low mass, size and profile
- High integrity - comprehensive fault coverage
- Surface mount brackets available

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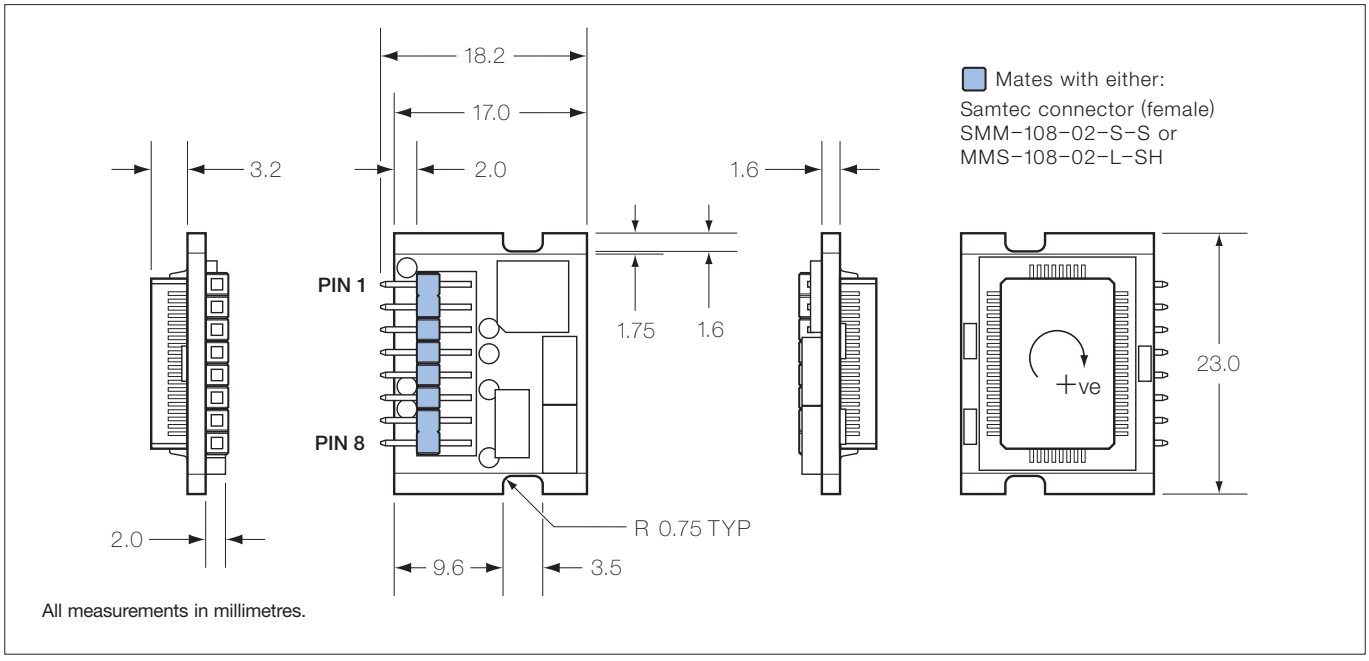

All measurements in millimetres.

Specification

* User configurable

Specification (Typical Data)	Analogue	Digital
Angular Rate Range	±75°/s default *	±300°/s fixed
Output	Ratiometric	SPI bus
Scale Factor		
Nominal	24mV/°/s default *	32 bits/°/s fixed
Initial accuracy (at +20°C)	< ±4%	< ±1%
Variation over temperature range	< ±2.25%	< ±2%
Nonlinearity	< 0.15% of full scale	
Cross-axis sensitivity	< 2.5%	
Bias		
Setting tolerance (at +20°C)	< ±0.5°/s	< ±0.3°/s
Variation over temperature range	< ±2.5°/s	< ±2°/s
Ratiometric error	< ±1°/s	N/A
Drift vs. time	< ±0.1°/s (t > 500ms to t < 5s) < ±0.1°/s (t > 5s)	
g sensitivity	< ±0.01°/s/g on any axis	
Bandwidth	> 75Hz (−3dB) default *	
Quiescent Noise	< 1°/s rms (broadband)	
Environment (Operating)		
Temperature	−40°C to +125°C	
Linear acceleration	< 100g	
Shock	100g	
Vibration	9g rms (20Hz to 2kHz, random)	
Mass	< 10 gram	
Electrical		
Supply voltage	+4.75V to +5.25V	
Supply current	< 60mA (steady state)	
Noise and ripple	< 15mV rms (DC to 100Hz)	
Start-up time	< 0.5s	
RoHS Compliance	Yes	

Pin Connections

1	+5V
2	Reset
3	SPI-Out
4	SPI-In
5	SPI-Clk
6	SPI-Sel
7	0V
8	Analogue Rate Output

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Specification subject to change without notice.