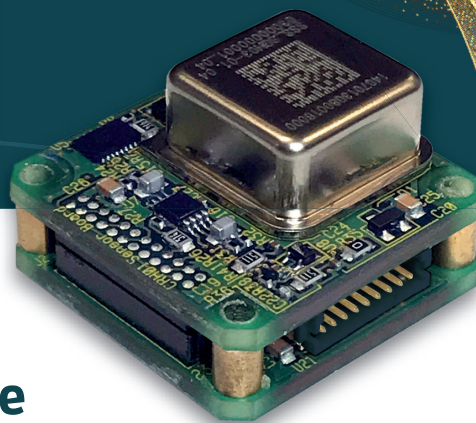


CRH03 (OEM)



High Performance Unhoused Single Axis Gyroscope

CRH03 (OEM) is a class leading high performance standalone gyroscope utilising the latest iteration of Silicon Sensing's resonating ring gyroscope which is driven using discrete electronics to achieve a viable, cost effective alternative to Fibre Optic Gyro (FOG) and Dynamically Tuned Gyro (DTG) performance.

CRH03 (OEM) offers the pinnacle of Silicon MEMS gyroscope technology. The sensing ring represents decades of refinement, offering ultra-high reliability alongside industry leading performance. An on-board temperature sensor allows the performance to be further tuned based on the operating environment. The resonant frequency of the ring is also taken into consideration to maintain optimisation with aging, temperature and shock effects with respect to the host environment, leading to an ultimate product where performance in bias instability, angle random walk and low noise are of critical importance.

For endless applications, the unique and patented silicon ring technology gives advanced and stable performance over time and temperature, overcoming mount sensitivity problems associated with simple beam or tuning fork based sensors.

Silicon Sensing Systems is a market leader in silicon MEMS gyroscopes, accelerometers and inertial measurement systems, specialising in high performance, reliability and affordability. With a strong heritage in inertial sensing that can be traced back over 100 years, all sensors are based on in-house patented designs which are produced in its own state of the art MEMS foundry. Silicon Sensing has delivered over 40 million sensors to thousands of satisfied customers worldwide, and continues to drive performance through technical expertise and continuous innovation.

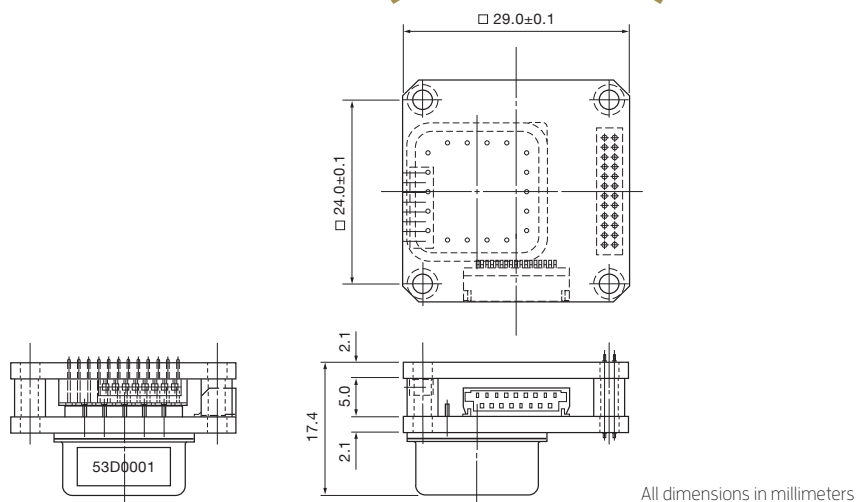
KEY FEATURES

- Proven and robust silicon MEMS vibrating ring structure
- Two rate ranges available: $\pm 10^\circ/\text{s}$ and $\pm 200^\circ/\text{s}$
- FOG-like performance
- Low Bias instability - $0.04^\circ/\text{hr}$ ($100^\circ/\text{s}$)
- Excellent angle random walk - $0.006^\circ/\sqrt{\text{hr}}$ ($100^\circ/\text{s}$)
- Low noise - $0.12^\circ/\text{s rms}$ ($100^\circ/\text{s}$)
- Precision analogue output
- High shock and vibration rejection
- -40°C to $+85^\circ\text{C}$ operating temperature range
- Temperature sensor output for precise thermal compensation
- MEMS frequency output for precise thermal compensation
- RoHS compliant

APPLICATIONS

- Aerospace applications
- Platform stabilisation
- Precision surveying and north finding
- Maritime guidance and control
- Gyro compassing and heading control
- Autonomous vehicles, UAVs and ROVs
- Rail track monitoring
- Robotics
- Drilling equipment and guidance
- Inertial measurement units
- AHRS (Attitude and Heading Reference System)

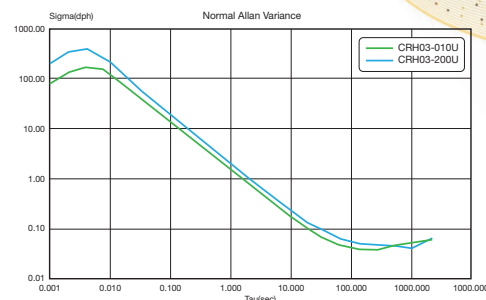
CRH03 (OEM)



Typical Data

| Parameter | Specification | |
|-----------------------------|----------------------------|-------------|
| Part Number | -010U | -200U |
| Output | Analogue (non-ratiometric) | |
| Rate range | ±10°/s | ±200°/s |
| Scale Factor | | |
| Nominal | 200mV/°/s | 10mV/°/s |
| Tolerance at 25°C (1σ) | 0.17% | |
| Variation over temperature | ±0.15% | ±0.3% |
| Non-linearity | ±0.02% | |
| Bias | | |
| Tolerance at 25°C (1σ) | 0.017°/s | 0.333°/s |
| Variation over temperature | ±0.1°/s | ±0.15°/s |
| Bias instability | 0.03°/hr | 0.05°/hr |
| Bandwidth and Noise | | |
| Bandwidth (nominal) | 50Hz | 100Hz |
| Wideband noise | 0.050°/s rms | 0.12°/s rms |
| Angle random walk | 0.005°/√hr | 0.008°/√hr |
| Misalignment | | |
| Cross-axis sensitivity (1σ) | 1% | |
| Environmental Properties | | |
| Temperature range | -40°C to +85°C | |
| Operational shock | 95g x 6ms | |
| Shock (powered survival) | 1,000g x 1ms | |
| Linear Accel | 0.02°/s/g | |
| Properties | | |
| Start-up time | 750ms (max) | |
| Supply voltage | +4.85 to 5.25 Volts | |
| Power | 0.15W | |
| Mass | 30 grams | |

Allan Variance CRH03 (OEM)



| Part Number | Rate Range |
|-------------|--------------------------|
| CRH03-010U | $\pm 10^\circ/\text{s}$ |
| CRH03-200U | $\pm 200^\circ/\text{s}$ |

Ordering Information: Other variants available upon request. Please contact the sales team for details.

Pin Connections

| | |
|-----------------------|-----------------------------|
| 3 FRQ | 15 GND |
| 8 Temp Output | 16 +5V (4.9 to 5.25) |
| 9 REFL | |
| 10 Ref | |
| 12 Rate Output | |

For full technical datasheets please visit:
www.siliconsensing.com



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CRH03-01-0100-131 Rev 1 DCR No. 710018172