



CRG20

Angular Rate Sensor



CRG20 uses the latest (capacitive) silicon MEMS sensor technology from Silicon Sensing. The gyro is optimised for high-volume production programmes where both performance and cost are key drivers.

This new 'gyro on a chip' is derived from Silicon Sensing's high volume supply to the automotive industry, now being made available to broader markets. To aid initial evaluation, a range of development tools is available, from simple break-out boards to USB-based PC interface boards.

Fully digital closed loop control eliminates any temperature and aging effects associated with analogue electronics, and provides exceptionally stable performance over a wide range of operating conditions.

CRG20 is underpinned by Silicon Sensing's commitment to the technical backup and long-term support necessary to major procurement programmes.

Key Features

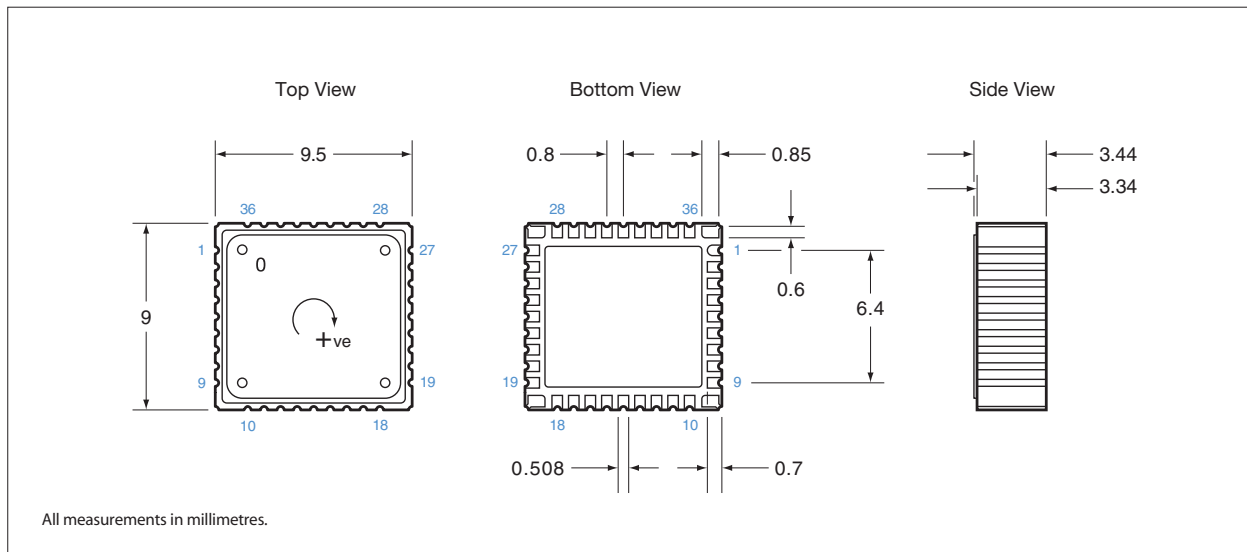
- Affordable high-volume solution
- Leadless Chip Carrier construction
- Supplied on tape and reel
- Excellent performance over temperature
- Integrated temperature sensor
- Digital (SPI®) and analogue outputs
- Development facilities available
- Several rate range options
- Electronically-readable serial number



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Typical Data

| | CRG20 all variants | CRG20-01 | CRG20-02 CRG20-22 |
|---|--|--------------------------------|----------------------------|
| Output format | Digital (SPI) | Analogue voltage (ratiometric) | |
| Rate Range | $\pm 300^\circ/\text{s}$ | $\pm 75^\circ/\text{s}$ | $\pm 300^\circ/\text{s}$ |
| Scale Factor | | | |
| Nominal | 0.03125°/bit | 26.67mV/°/s | 6.67mV/°/s |
| Variation over temperature range | $< \pm 0.7\%$ | 0.9% | |
| Nonlinearity | $< \pm 0.06\%$ | $< \pm 0.1\%$ | |
| Bias | | | |
| Variation over temperature range | $< \pm 0.4^\circ/\text{s}$ | $< \pm 1.0^\circ/\text{s}$ | $< \pm 1.0^\circ/\text{s}$ |
| Angular Random Walk | 0.3°/rt hr | | |
| Bias instability | 5°/hr | | |
| Bandwidth (typical) | $\leq 40\text{Hz}$ (CRG20-1), $\leq 75\text{Hz}$ (CRG20-02), $\leq 90\text{Hz}$ (CRG20-22) | | |
| Quiescent Noise | | | |
| 1 to 25Hz | 0.2°/s rms | 0.3°/s rms | |
| Environment | | | |
| Temperature (operating) | -40°C to $+105^\circ\text{C}$ | | |
| Linear acceleration | $< 100\text{g}$ | | |
| Shock | 95g | | |
| Vibration | 9g rms (20Hz to 2kHz, random) | | |
| Cross-axis sensitivity | $< +2\%$ | | |
| Mass | 0.8 gram | | |
| Electrical | | | |
| Supply voltage (-20°C to $+80^\circ\text{C}$) | $+4.75\text{V}$ to $+5.25\text{V}$ | | |
| Supply current | 60mA | | |
| Noise and ripple | $< 5\text{mV}$ peak to peak | | |
| Start-up time | $< 0.5\text{s}$ | | |
| RoHS Compliant | Yes | | |



Development facilities available
please enquire

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