

# CRS07 (unpackaged)

## Angular Rate Sensor



A robust and affordable mass-produced miniature gyroscope for applications in which space is critical.

Angular rate sensors are used wherever rate of turn sensing is required without a fixed point of reference. The sensor will output a DC voltage proportional to the rate of turn and input voltage.

High performance motion sensing even under severe shock and vibration.

Whatever your application, the unique silicon ring technology, coupled with closed loop electronics, 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

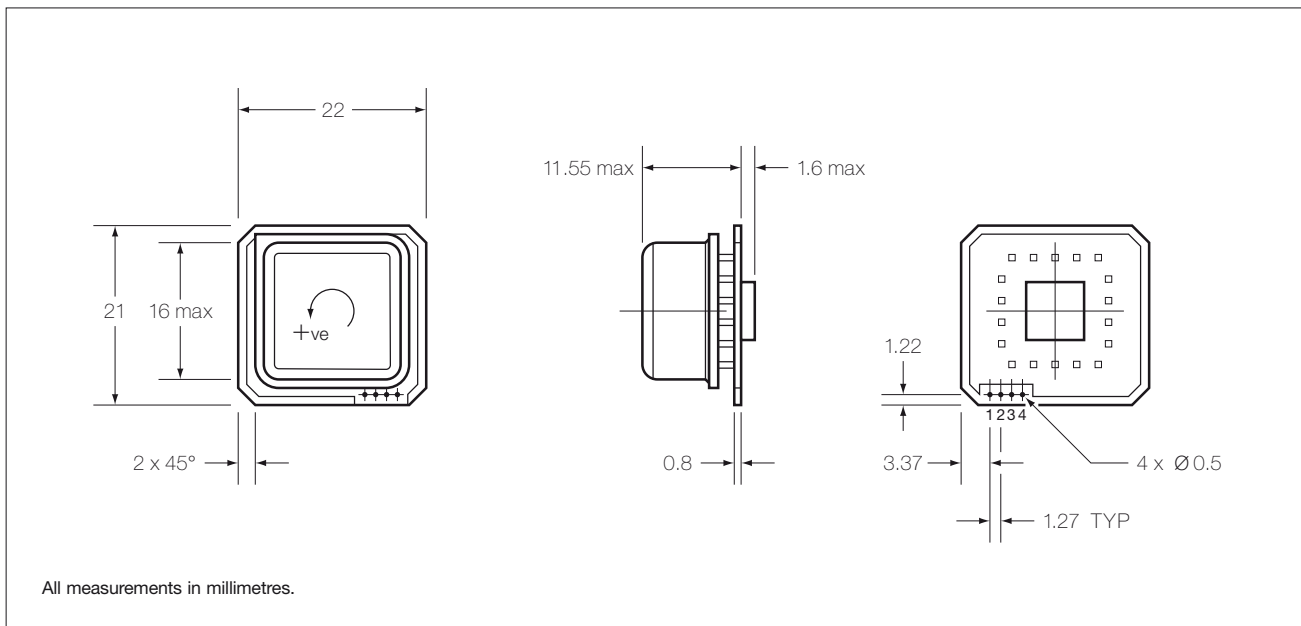
- Ultra-small size
- High rate range option
- Excellent performance over temperature
- Repeatable drift characteristic
- High shock and vibration operation



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### Typical Data

|                                  | CRS07-11S   | CRS07-13S                |
|----------------------------------|---|--------------------------|
| <b>Angular Rate Range</b>        | $\pm 573^\circ/\text{s}$  | $\pm 100^\circ/\text{s}$ |
| <b>Output</b>                    | Analogue voltage (ratiometric)                                      |                          |
| <b>Scale Factor</b>              |   |                          |
| Nominal                          | 3.49mV/°/s  | 20mV/°/s                 |
| Variation over temperature range | < $\pm 5\%$   |                          |
| Nonlinearity                     | < $\pm 0.5\%$ of full scale   |                          |
| <b>Bias</b>                      |   |                          |
| Setting tolerance                | < $\pm 30^\circ/\text{s}$   | < $\pm 3^\circ/\text{s}$ |
| Variation over temperature range | < $\pm 30^\circ/\text{s}$   | < $\pm 3^\circ/\text{s}$ |
| Ratiometric error                | < $\pm 1^\circ/\text{s}$  |                          |
| Drift vs. time                   | < $\pm 0.55^\circ/\text{s}$ in any 30s period (after start-up time) |                          |
| g sensitivity                    | < $\pm 0.1^\circ/\text{s/g}$ on any axis                            |                          |
| <b>Bandwidth</b>                 | > 30Hz (-3dB)   | > 10Hz (-3dB)            |
| <b>Quiescent Noise</b>           | < 1 mV rms  |                          |
| <b>Environment</b>               |   |                          |
| Temperature                      | -20°C to +60°C  | -40°C to +85°C           |
| Linear acceleration              | < 100g  |                          |
| Shock                            | 200g (1ms, 1/2 sine)  |                          |
| Vibration                        | 2g rms (20Hz to 2kHz, random)                                       |                          |
| Cross-axis sensitivity           | < 5%  |                          |
| <b>Mass</b>                      | < 10 gram   |                          |
| <b>Electrical</b>                |   |                          |
| Supply voltage                   | +4.75V to +5.25V  |                          |
| Supply current                   | < 35mA (steady state)   |                          |
| Noise and ripple                 | < 15mV rms (DC to 100Hz)  |                          |
| Start-up time                    | < 0.2s  |                          |
| <b>RoHS Compliance</b>           | Yes (R & S suffix)  |                          |

### Pin Connections

|   |             |
|---|-------------|
| 1 | +5V         |
| 2 | 0V          |
| 3 | Rate Output |
| 4 | Not Used    |

Specification subject to change without notice.

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