



# 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

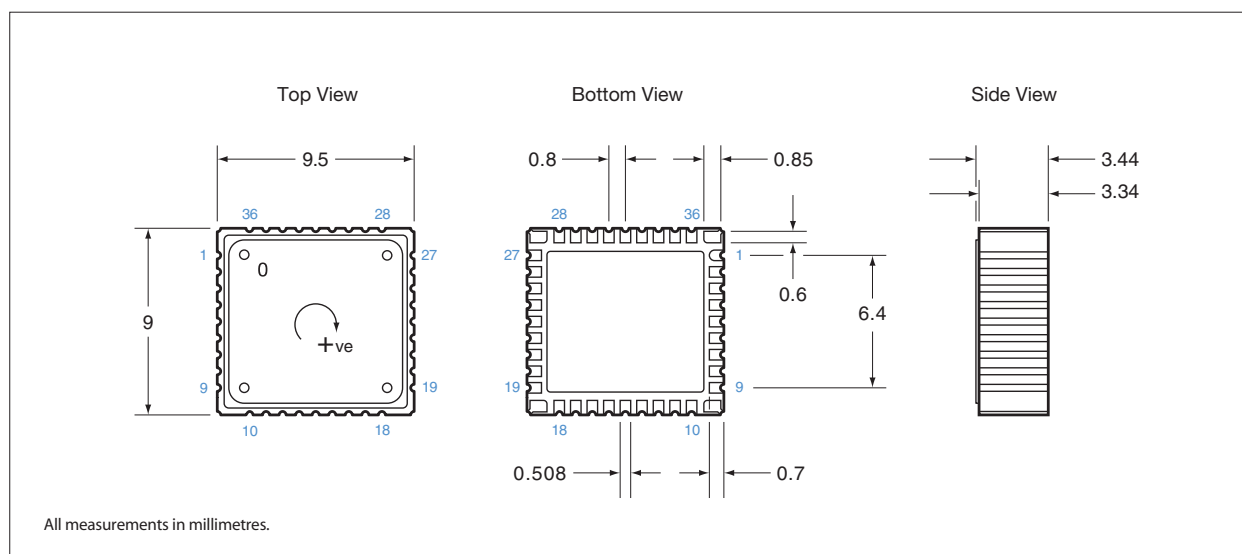
- Affordable high-volume solution
- Leadless Chip Carrier construction
- Supplied on tape and reel
- Excellent performance over temperature
- Integrated temperature sensor
- Digital (SPI®) and analogue outputs
- Development facilities available
- Several rate range options
- Electronically-readable serial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



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### Typical Data

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



Development facilities available  
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