

CRG20

Angular Rate Sensor



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

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.

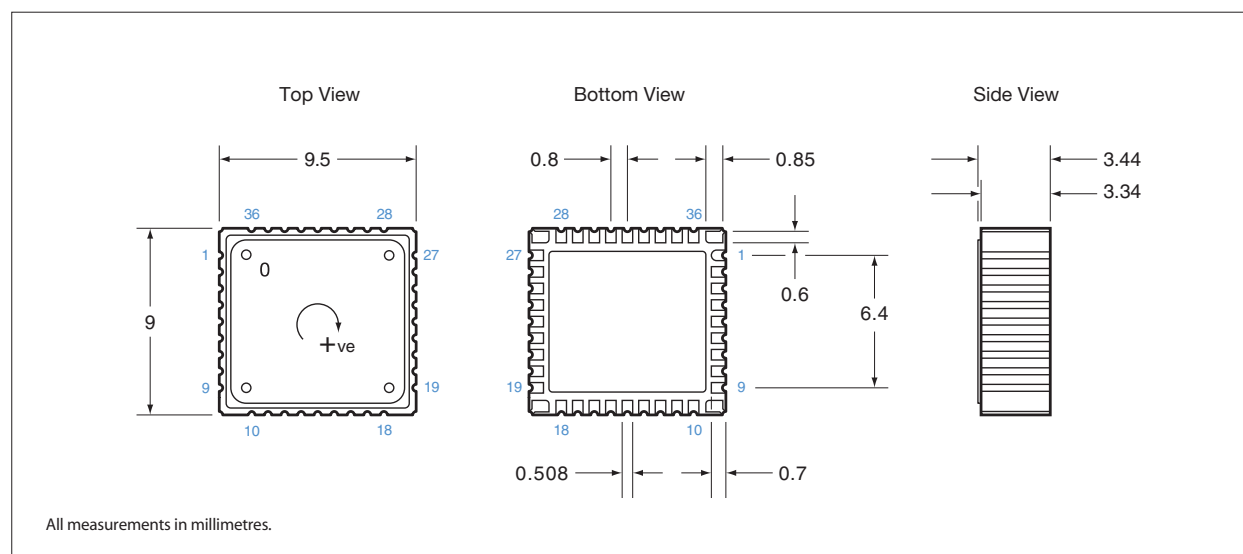
CRG20 is underpinned by Silicon Sensing's commitment to the technical backup and long-term support necessary to major procurement programmes.



© Silicon Sensing is an Atlantic Inertial Systems, Sumitomo Precision Products joint venture company

CRG20

Angular Rate Sensor



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 $^\circ/\text{bit}$	26.67mV/ $^\circ/\text{s}$	6.67mV/ $^\circ/\text{s}$
Variation over temperature range	$< \pm 0.7\%$	0.9%	
Nonlinearity	$< \pm 0.06\%$	$< \pm 0.1\%$	
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 $^\circ/\text{rt hr}$		
Bias instability	5 $^\circ/\text{hr}$		
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 $^\circ/\text{s rms}$	0.3 $^\circ/\text{s rms}$	
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

Silicon Sensing Systems Limited
Clifford Road Southway
Plymouth Devon
PL6 6DE United Kingdom
T: +44 (0)1752 723330
F: +44 (0)1752 723331
E: sales@siliconsensing.com
W: siliconsensing.com

Silicon Sensing Systems Japan Limited
1-10 Fuso-Cho
Amagasaki
Hyogo 6600891 Japan
T: +81 (0)6 6489 5868
F: +81 (0)6 6489 5919
E: sssj@spp.co.jp
W: siliconsensing.com

Specification subject to change without notice.

© Copyright 2009
Silicon Sensing Systems Limited
All rights reserved.
Printed in England 12/09

Silicon Sensing Systems Limited Registered in England & Wales No. 3635234 Clifford Road, Southway, Plymouth, Devon PL6 6DE
The device mark Silicon Sensing is a registered trade mark of Silicon Sensing Systems Community Trade Mark 003587664

CRG20-00-0100-131 Rev 3
DCR No. 620000255

Headquarter Switzerland:
Pewatron AG
Thurgauerstrasse 66
CH-8050 Zurich
Phone +41 44 877 35 00
info@pewatron.com

Office Germany:
Pewatron Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim
Phone +49 89 374 288 87-0
info.de@pewatron.com



PEWATRON
SENSORS · POWER SOLUTIONS

We are here for you. Addresses and Contacts.

Sales Germany & Austria

Postcode 00000 – 31999
Postcode 38000 – 39999
Postcode 80000 – 99999
Austria

Kurt Stritzelberger

Phone +49 89 260 52 80
Mobile +49 171 803 41 35

kurt.stritzelberger@pewatron.com

Postcode 32000 – 37999
Postcode 40000 – 79999

Gerhard Vetter

Phone +49 674 394 75 75
Mobile +49 163 762 74 30

gerhard.vetter@pewatron.com

Geometrical sensors
Sensor elements

Thorsten Ravagni

Phone +49 60 479 53 627

thorsten.ravagni@pewatron.com

Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei

Phone +41 44 877 35 18
Mobile +41 76 279 37 26

basil.frei@pewatron.com

Postcode 1000 – 2999

Christian Mohrenstecher

Mobile +41 76 444 57 93

christian.mohrenstecher@pewatron.com

Sales International Key Accounts

Peter Felder

Phone +41 44 877 35 05
Mobile +41 79 406 49 83

peter.felder@pewatron.com

Sales Other Countries / Product Management

Pressure Sensors

Philipp Kistler
Phone +41 44 877 35 03
philipp.kistler@pewatron.com

Accelerometers / Level Flow sensor elements

Thorsten Ravagni
Phone +49 60 479 53 627
thorsten.ravagni@pewatron.com

Drive technology CH Postcode 5000 – 9999 / DE

Roman Homa
Mobile +41 76 444 00 86
roman.homa@pewatron.com

Gas sensors / Gas sensor modules Load cells

Dr. Thomas Clausen
Phone +41 44 877 35 13
thomas.clausen@pewatron.com

Power supplies

Sebastiano Leggio
Phone +41 44 877 35 06
sebastiano.leggio@pewatron.com

Drive technology CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher
Mobile +41 76 444 57 93
christian.mohrenstecher@pewatron.com

Flow / Level / Medical products

Dr. Adriano Pittarelli
Phone +49 8245 774 95 44
adriano.pittarelli@pewatron.com

Linear position sensors Angle sensors

Eric Letsch
Phone +41 44 877 35 14
eric.letsch@pewatron.com

Current sensors Power solutions

Osman Coban
Phone +49 71 635 363 898
osman.coban@pewatron.com