

SiRRS01[®]

Ruggedised Angular Rate Sensor



The SiRRS01[®] angular rate sensor has evolved from the highly successful Vibrating Structure Gyroscope developed for aerospace applications which has been in service since 1990.

This MEMS implementation of our VSG technology, offers continued advancement in miniaturisation and reliability. Designed to provide high performance operation under harsh environmental conditions, the SiRRS01[®] is ideally suited for a wide range of applications.

The SiRRS01[®] is underpinned by Silicon Sensing's commitment to the technical backup and long term support necessary for major procurement programmes.

Key features

- Micro machined silicon (MEMS) technology
- Affordable, robust and rugged design
- Hermetically sealed
- Excellent shock and vibration performance
- Long life and exceptional reliability
- Comprehensive Built In Test (BIT)
- Integrated temperature sensor
- Compact and lightweight
- Low power consumption
- Sensor modelling data available



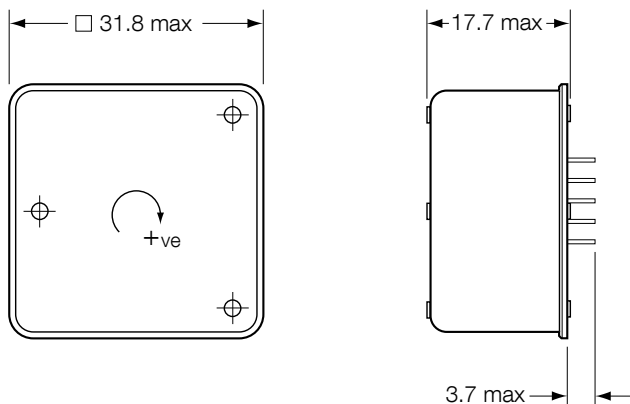
SiRRS01[®]

Ruggedised Angular Rate Sensor



For full technical datasheets please go to our website where the documents can be downloaded

All dimensions in millimetres



Typical Data

SiRRS-01	
Angular Rate Range	$\pm 110^\circ/\text{s}$ (other ranges available - see table)
Scale Factor	
Nominal	18.18mV/ $^\circ/\text{s}$
Variation over temperature range	< $\pm 3\%$
Non-linearity	$\pm 1\%$ of full scale
Repeatability	$\pm 0.05\%$ 1 σ
Bias	
Setting (at +20°C)	< $\pm 0.3^\circ/\text{s}$
Variation over temperature range	< $\pm 3^\circ/\text{s}$
Instability	5 $^\circ/\text{hr}$
Repeatability	$\pm 0.03^\circ/\text{s}$ 1 σ
Angular Random Walk	< 0.38 $^\circ/\sqrt{\text{hr}}$
g sensitivity	< 7 $^\circ/\text{hr}/\text{g}$
Bandwidth	> 50Hz (90° phase)
Noise (in-band)	< 0.35 $^\circ/\text{s}$ rms
Environment	
Operating temperature	-40°C to +75°C
Relative humidity	95%
Shock (operational)	60g (30ms, 1/2 sine)
Vibration (operational)	10g rms (20Hz to 2kHz)
Cross-axis sensitivity	< +2%
Mass	< 35 gram
Electrical	
Supply voltage	+5V, 0V, -5V
Supply current	< 50mA (each, steady state)
General	
Built In Test (BIT)	Command BIT, Alarm BIT
Start-up time	300ms
Temperature output	16.9mV/ $^\circ\text{C}$ (0V at 25°C)
MTBF	300,000hr
RoHS Compliant	No

Pin Number	Rate Range
RRS01-01	$\pm 110^\circ/\text{s}$
RRS01-03	$\pm 300^\circ/\text{s}$
RRS01-05	$\pm 50^\circ/\text{s}$
RRS01-07	$\pm 1,500^\circ/\text{s}$
RRS01-09	$\pm 200^\circ/\text{s}$

Pin Connections

	9 Case Ground
-5V	4 8 Rate Reference
Command BIT	3 7 Rate Output
Alarm BIT	2 6 0V
+5V	1 5 Temperature

DSPM Industria[®]
sensori & trasduttori

Via Paolo Uccello 4 - 20148 Milano
Tel +39 02 48 009 757 Fax +39 02 48 002 070
info@dspmindustria.it www.dspmindustria.it

Specification subject to change without notice.

© Copyright 2013
Silicon Sensing Systems Limited
All rights reserved. Printed in England 07/13

RRS01-00-0100-131 Rev 1
DCR No. 710005039