



SiRRS02® MEMS RATE SENSOR

PROVEN PERFORMANCE

Delivers high performance in harsh conditions

The Collins SiRRS02® micro electro-mechanical system (MEMS) rate sensor uses the design of our highly successful silicon vibrating structure gyro SiVSG® MEMS angular rate sensor to deliver improved bias and noise performance – significantly outperforming similar products on the market today. The SiRRS02® is suitable for most commercial, aerospace and military applications.

Collins Aerospace has a long and respected heritage in the design and development of inertial sensors and today specializes in MEMS products.

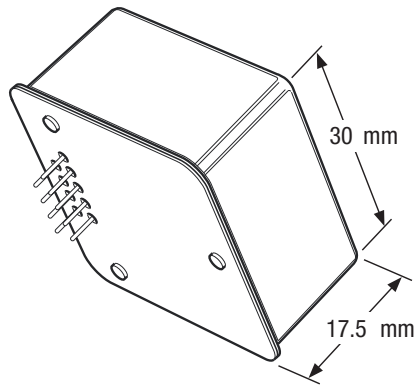


PEDIGREE

- Selected by over 60 customers worldwide – over 130,000 MEMS products delivered
- Used in missile and weapons navigation, platform stabilization and navigation
- Rigorous performance and simulated aging ensures conformance to specification throughout the life cycle



SiRRS02



PRODUCT FEATURES

Excellent shock and vibration performance
Improved performance in the critical parameters of bias and noise
Range available from 50 deg/sec to 300 deg/sec

INCREASED FUNCTIONALITY AVAILABLE

Bias performance after thermal compensation	
Temperature output provided for compensation (Pin 5)	16.9mV/°C
General	
Built-in test (BIT)	Commanded, alarm

PARAMETERS

Power requirements

Input voltage	+5V, -5V
Input current	42mA

Performance (typical)

Input ranges	±50°/s	(RRS02-55)
	±110°/s	(RRS02-51)
	±200°/s	(RRS02-59)
	±300°/s	(RRS02-53)
Output full scale	±2V	
Scale factor (nominal)	40mV/°/s	(RRS02-55)
	18.18mV/°/s	(RRS02-51)
	10mV/°/s	(RRS02-59)
	6.67mV/°/s	(RRS02-53)
Scale factor calibration (at 20° C)	1%	
Scale factor variation over temp	≤3%	
Linearity	1%	
Bias calibration (at 20° C)	±0.3°/s	
Bias variation over temp	≤1.5°/s	
G sensitivity	7°/h/g	
Start-up time	300ms	
Output noise (in band)	0.1°/s rms	(RRS02-55)
	0.12°/s rms	(RRS02-51)
	0.15°/s rms	(RRS02-59)
	0.2°/s rms	(RRS02-53)
Bandwidth (90° phase lag)	50 Hz	
	60 Hz	(RRS02-09)

Pin connections

	9	Case ground	
-5V	4	8	Rate reference
Commanded BIT	3	7	Rate output
Alarm BIT	2	6	0V
+5V	1	5	Temperature

Environmental

Operating temperature	-40° C to 85° C
Operation vibration	10g rms
Shock	1000g 1ms
Weight	Mass <35gm
Size (mm)	30 mm x 30 mm x 17.5 mm

Specifications subject to change without notice.