

Silicon Sensing UK copy of SPP (Japan) originated

Product Specification

for

CRS03-11-PS Rev 4

(Commercial Rate Sensor)



PRODUCT SPECIFICATION FOR SINGLE AXIS
SILICON VIBRATING STRUCTURE GYRO (CRS03-11)

DOC. NUMBER

SST - 0014

4

ジャイロCRS03-11仕様書(書類番号SST-0014)

住友精密工業株式会社 センサ 開発室 2004.4.29 SSS UK

NOTICE:

User and/or Purchaser [Customer] shall indemnify and hold Silicon Sensing Systems Japan Limited ("SSSJL"), Silicon Sensing Systems Limited and its affiliates, including its members, shareholders, managers, directors, officers, employees, agents and representatives, harmless from and against any and all liabilities, claims, demands, actions, costs or expenses (including all reasonable legal or litigation costs), by whomever asserted and regardless of nature or kind, including without limitation and/or product liability claims ansing from the use of any Gyro product supplied by SSSJL to [Customer], claims for personal injuries (including death) and damage to property, whether in tort or under contract, directly or indirectly, in whole or in part, attributed to or arising from the use by [Customer] of any Gyro product supplied by SSSJL to [Customer] for any purpose including but without limitation, installing the Gyro product on a product, equipment, or vehicle of any kind, or using the Gyro product for training or simulation purposes in relation to a product, equipment, or vehicle of any kind, or using the Gyro product for the support or maintenance of a product, equipment, or vehicle of any kind. SSSJL shall promptly notify [Customer] of any such claim for which indemnification will be sought. [Customer] shall have the right at its expense to assume and control the defence of such claims and SSSJL shall provide reasonable co-operation and information to [Customer] in order for [Customer] to defend the claims. [Customer] may not settle any such claim without the prior written consent of SSSJL, which consent may not be unreasonably withheld. Gyro product supplied by SSSJL is not warranted in any way for any period regardless of the existing laws and/or regulations unless agreed by and between SSSJ and [Customer] prior to purchasing Applications that require extra reliability and quality possibly affecting the safety of living things (e.g. transport, combustion, security, etc.) or any applications which are thought to be beyond the focus of the product, should be consulted with SSS first, © Reproduction in any form prohibited. 禁無断転載 本書類の日本語部 は参考用であり英語部を正とする。

	4		P1: Notice revised P3: Fig.1 amended P1,2,3 (All revised)			04.04.26	小南山中山 村口
	С	SCN-0211				02.02.25	RT TK KK KS TN KH
	В	SCN-0199	P1,2			01.10.1	RT TK KS KY
	A	SCN-0140	Р3			00.10.3	RT TK KS KY
	REV.	MODIFY No.	REVISED PAGES			DATE	CHECKED
	Silicon Sensing Systems Japan Ltd. 1-10 Fuso-cho,Amagasaki,Hygo 660-0891 Japan Tel +81-6-6489-5868 FAX +81-6-6489-5910 E-Mail:sssj@spp.co.jp			DATE	APPROVED	CHECKED	PREPARED
				00.2.17	00.2.17 Tokue	Kitamura Sakamoto	Yoshioka

1. DESCRIPTION・概要

The silicon vibrating structure gyroscope (Si-VSG) is a solid state single axis rate sensor. It is a stand alone unit and dc output is proportional to the rate of rotation and supply voltage.

The new concept ring-shaped micro-machined resonator shows distinguished resistance against external shocks and vibrations over a wide range of temperature.

本シリコン振動ジャイロは1軸ソリッドステート角速度センサであり角速度と供給電圧に比例した直流電圧を出力する。マイクロマシニングのリング型振動子により広い温度範囲で外部衝撃や振動に対し優れた耐性を発揮するものである。

2. MODEL NUMBER·製品型名

CRS03 - 11

CRS03 Basic Model Number 基本製品番号
-xx Design Number タイプ識別番号

3. MECHANICAL DESCRIPTION·外形

The nominal dimensions are shown in Fig.1. 図 1 参照

4. PERFORMANCE

	Parameter	Min	Тур	Max	Unit単位	Notes 備考
Absolute Maximum	Supply voltage 電源	0.00	5,00	6.00	V	
Ratings	Storage temperature保存温度	• 40		8 5	deg C	
絶対最大定格	Operatable Acceleration 動作可能加速度			981.0	m/sec ²	
Operating conditions	Supply voltage 電源	4.75	5.00	5.25	V	
動作環境	Temperature 温度	- 20	23	60	deg C	Not condensing 結露無し

The following specifications apply for Vdd=5.00V and Temp=23deg C unless otherwise specified. 特に指定なき場合下記はVdd=5.00V、温度23℃を条件とする

Parameter 項目	Limit 限度	Unit 単位	Notes 備考
Rate range 測定範囲	+/- 573	deg/sec	Reference 参考値
Rate range 測定範囲	+/- 10	rad/sec	
Scale Factor 感度	3.490	mV/(deg/sec) typ.	Reference 参考値
Scale Factor 感度	4	% of Vdd/(rad/sec) typ.	
Initial Scale Factor accuracy 感度初期設定確度	+/• 5	%	
Scale Factor variation with temp.感度温度変動	+/- 5	%	Operating temp, range
Bias ゼロ点	50	% typ. of Vdd	
Bias initial error tin点初期設定誤差	+/- 0.1	V	
Bias variation with temp.t 口点温度変動	+/- 0.1	V	Operating temp. range
Quiescent noise 静止パズ	< 1	mVrms typ, (3~30Hz)	
Bandwidth 帯域	55	Hz typ.	Gain (* 3dB)
Bandwidth 帯域	> 30	Hz	Gain(-3dB)
Power up time 起動時間	< 0.5	Sec	From Vdd = 4.50V
Current dissipation 消費電流	< 50	mA ·	170mA when initializing(起動時)

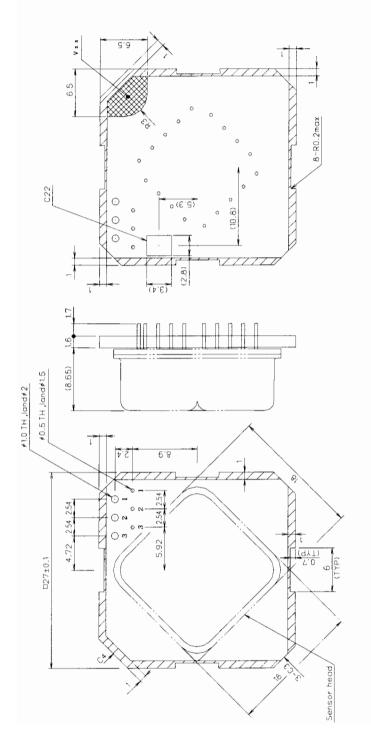
5. TYPICAL RATE OUTPUT・出力電圧

$$Vo = \frac{1}{2} \times Vdd + \left(Ra \times SF \times \frac{Vdd}{5}\right)$$
 (Unit:Volts typ.)

where Vo: Rateout (V), Vdd: Supply voltage (V), Ra: Applied rate (deg/s), SF: Scale Factor (V/ (deg/s)) ここで Vo:ジャイロ出力(V), Vdd:電源電圧(V), Ra:角速度, SF:感度(V/(deg/sec))

6. SOLDERING

The product may not be subjected to beyond the maximum storage temperature (e.g. solder reflow chamber) at any time. Hand soldering is recommended. 本製品は何時も最高保存温度以上の環境(例えば半田リフロー内)に置かれてはならない。従い手半田が推奨される。



Signal	VDD (+5V)	(GN5) SSA	Rate Output	15g(MAX)
Pin Number	1	2	3	Weight: 1

Remarks: Metal-can (sensorhead) must not be grounded or connected other circuit. センサ缶は接地或いは他の回路への接続を禁止する。 Shaded area has no parts for installation-clamping by non-conductives. 斜線部は固定用部位のため部品実装無し。

Fig.1 CRS03-11