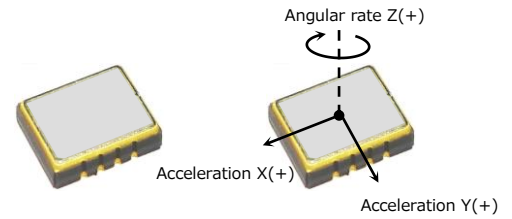


COMBINED SENSOR
FOR AUTOMOTIVEProduct number
XC1011SD: X2E0000210002xx

XC1011SD

- Combined sensor integrating gyro sensor and dual-axis G sensor in one package
- Ultra-small and low power consumption using the original Double-T structure quartz crystal element
- High reliability by installing the diagnosis function
- Excellent performance of shock-resistance and vibration-resistance
- Digital output: angular rate (Yaw) / acceleration (X, Y-axis) 16bit, Temperature 11bit with SPI
- Conforms to AEC-Q100, Support evaluation of hardware elements in ISO26262 (ASIL D)



Recommended Application

- Electric Stability Control System

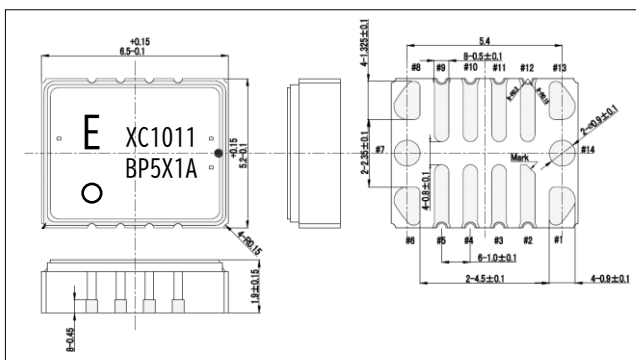
Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks	
Supply Voltage	V _{DD}	3.3 V ±0.165 V		
Storage Temperature	T _{STG}	-40 °C ~ +105 °C		
Operating Temperature	T _{OPR}	-40 °C ~ +105 °C		
Angular rate sensor	Sensitivity	S _y	175 ±5 LSB/(°/s)	T _a =+25°C
	Bias	V ₀	±525 LSB (±3 °/s)	T _a =+25°C, S _o =175 LSB/(°/s)
	Rate range	DR _y	±160 °/s	
	Non-linearity	NL _y	±1 % FS	FS= ±160 °/s
	Frequency characteristic	F _{cy}	52.6 ±2.6 Hz	-3dB bandwidth
Acceleration sensor	Cross axis sensitivity	CS _y	±5 %	
	Sensitivity	S _a	1092 ±22 LSB/G	T _a =+25°C, S _a =1092LSB/G, without PCB mount
	Zero G offset	0G	±57 mG	
	Acceleration range	DR _a	±30 G	Lo-range, Mid-range
	Frequency characteristic	Non-linearity	NL _a	±43 LSB
Fc1		52.6 ±2.6 Hz	Lo-range, -3dB bandwidth	
	Fc2	200 ±10 Hz	Mid-range, -3dB bandwidth	
Cross axis sensitivity	CS _a	±3 %		
Current consumption	I _{op}	20 mA Max.	Stationary and No-communication	
Start-up time	T _{ACT}	300 ms Max.	from V _{DD} rise-up 90%	

Product Name XC1011SD 50.300 kHz
 (Standard form) ① ② ③
 ① Model ② Package type ③ Frequency (not necessary to specify)

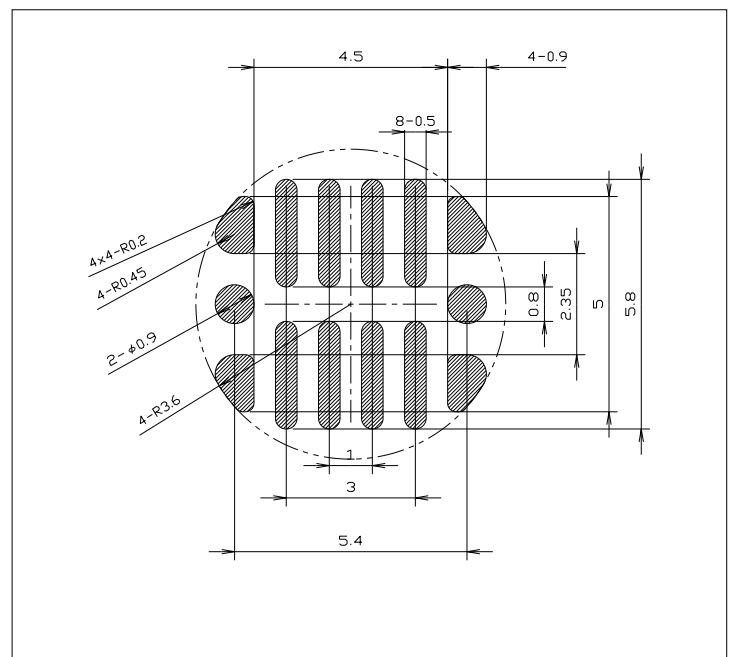
External Dimensions

(Unit: mm)



Footprint (Recommended)

(Unit: mm)



Pin Function

Pin	Connection	Pin	Connection
1	N.C.	8	N.C.
2	SS	9	V _{DDL}
3	MISO	10	V _{DD}
4	SCLK	11	VREFAD
5	MOSI	12	GND
6	N.C.	13	N.C.
7	N.C.	14	N.C.

Do not connect "N.C." pins externally devices.

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs, Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired IATF 16949 certification that is requested strongly by major automotive manufacturers as standard.

IATF 16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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