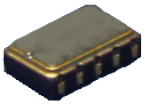
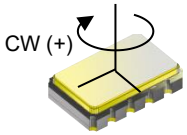
GYRO SENSOR (Digital Output)

XV7021BB

Product number
XV7021BB: X2A000311xxxx00

- Excellent bias temperature coefficient 0.0016 (°/s)/°C Typ.
- Low angle random walk 0.065 °/√h Typ.
- Integrated user-selectable digital filter and detuning frequency eliminate filter
- SPI or I²C serial interface
- Angular rate output (16 bits or 24 bits resolution)
- Operating temperature -20 °C to +80 °C
- Embedded temperature sensor
- Low current consumption 900 µA Typ.





Recommended Application

- Anti-vibration and attitude control for industrial applications etc.
- Motion detection for human machine interface

*The I²C-Bus is a trademark of NXP Semiconductors

Specifications (characteristics)

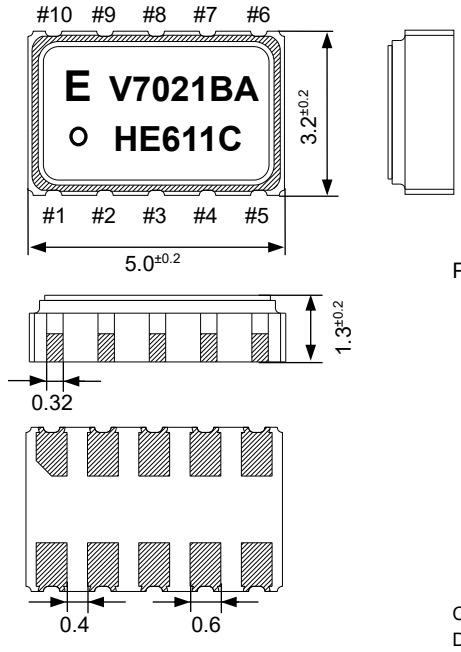
Item	Symbol	Specifications	Conditions / Remarks
Supply voltage	V_{DDM}	2.7 V to 3.6 V	
Supply voltage for interface	V_{DDI}	1.65 V to 3.6 V	
Storage temperature	T_{STG}	-40 °C to +85 °C	
Operating temperature	T_{OPR}	-20 °C to +80 °C	
Scale factor	S_o	70 LSB/(°/s) ±2 %	16 bits, T_a = +25 °C
		17920 LSB/(°/s) ±2 %	24 bits, T_a = +25 °C
Scale factor variation over temperature	S_{pt}	±3.0 %	V_{DDM} = 3 V, T_a = +25 ºC reference
Bias	ZRL	±1 °/s (0 LSB Typ.)	T_a = +25 °C
Bias variation over temperature A	ZRL_{ta}	±0.25 °/s	-10 °C to +50 °C, T_a = +25 ºC reference
Bias variation over temperature B	ZRL_{tb}	±1 °/s	-20 °C to +80 °C, T_a = +25 ºC reference
Bias temperature coefficient	ZRL_s	0.0016 (°/s)/°C Typ.	V_{DDM} = 3 V, Average of absolute value, ΔT = 1 ºC
Rate range	I	±400 °/s	
Non-linearity	NI	±0.5 %FS	T_a = +25 °C
Cross-axis sensitivity	CS	±5 %	T_a = +25 °C
Current consumption	I_{op1}	900 µA Typ.	
Sleep current	I_{op3}	3 µA Typ.	
Noise density	N_d	0.0015 (º/s)/√Hz	@ 10Hz, LPF default setting
Angle random walk	N	0.065 º/√h	

Product Name (Standard form)

XV702 1 B B * *
① ②③④ ⑤ ⑥

① Model ② Detection axis (1: Z axis) ③ Package type (B: Ceramics 5032 size)
④ Output (B: SPI/I²C) ⑤ Frequency ⑥ Custom recognition (not necessary to specify)

External Dimensions (Unit: mm)

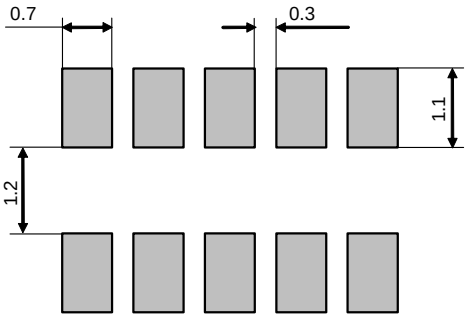


Pin map

Pin	Connection
1	MOSI/SDA
2	SS
3	V_{DDL}
4	Reserved1
5	GND
6	V_{DDM}
7	Reserved2
8	V_{DDI}
9	MISO/SA0
10	SCLK/SCL

Connect “Reserved1” pin to GND.
Do not connect “Reserved2” pin externally.

Footprint (Recommended) (Unit: mm)



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).