Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

CRYSTAL OSCILLATOR
PROGRAMMABLE
OUTPUT : CMOS

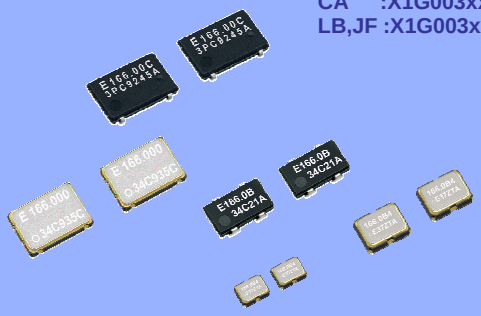
SG-8003 series

- Frequency range : 1 MHz to 166 MHz
- Supply voltage : 1.8 V / 2.5 V / 3.0 V / 3.3V
- Function : Output enable(OE) or Standby($\overline{ST}$)

- Short mass production lead time by PLL technology.
- SG-Writer available to purchase.
  Please contact Epson or local sales representative.

Pb Free RoHS Compliant

Product Number (please contact us)
CG :X1G004xx1xxxx00
CE :Q33519Exxxxxx00
CA :X1G003xx1xxxx00
LB,JF :X1G003xxxxxxx00



Specifications (characteristics)

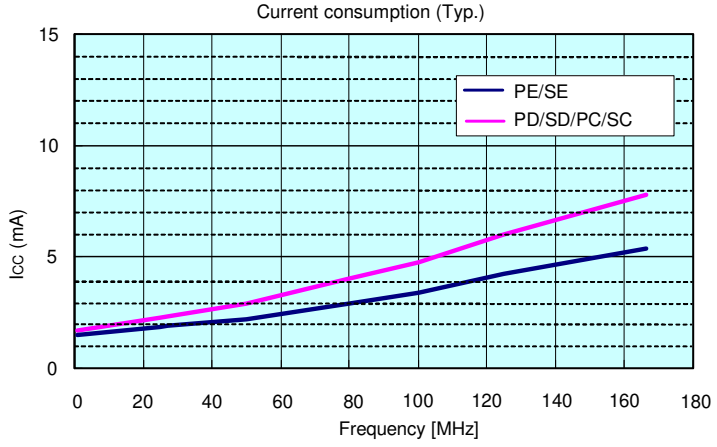
Item	Symbol	Specifications PE / SE	PD / SD	PC / SC	Conditions / Remarks
Output frequency range	f_0	1 MHz to 166 MHz			
Supply voltage	V_{CC}	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 2.8 V	3.3 V Typ. 2.7 V to 3.6 V	
Storage temperature	T_stg	-40 °C to +85 ℃			Storage as single product.
Operating temperature	T_use	-20 °C to +70 ℃ / -40 °C to +85 ℃			
Frequency tolerance	f_tol	B: $\pm50 \times 10^{-6}$, C: $\pm100 \times 10^{-6}$			-20 °C to +70 °C
		L:$\pm50 \times 10^{-6}$, M: $\pm100 \times 10^{-6}$			-40 °C to +85 °C
Current consumption	I_{CC}	3.5 mA Max.	4.0 mA Max.		No load condition, 1 MHz≦f_0≦25 MHz
		5.0 mA Max.	6.5 mA Max.		No load condition, 25 MHz＜f_0≦50 MHz
		6.0 mA Max.	8.5 mA Max.		No load condition, 50 MHz＜f_0≦75 MHz
		7.0 mA Max.	10.5 mA Max.		No load condition, 75 MHz＜f_0≦100 MHz
		8.5 mA Max.	12.5 mA Max.		No load condition, 100 MHz＜f_0≦125 MHz
		10.0 mA Max.	15.0 mA Max.		No load condition, 125 MHz＜f_0≦166 MHz
Output disable current	I_dis	8 mA Max.			OE=GND (PE,PD,PC)
Stand-by current	I_std	50 µA Max.			$\overline{ST}$ =GND (SE,SD,SC)
Symmetry	SYM	45 % to 55 %			50 % V_{CC} level, L_CMOS ≤ 15 pF
Output voltage	V_{OH}	90 % V_{CC} Min.		V_{CC} -0.4 V Min.	I_{OH}=-4 mA(PD,SD,PE,SE), -8.0 mA(PC,SC)
	V_{OL}	10 % V_{CC} Max.		0.4 V Max.	I_{OL}= 4 mA(PD,SD,PE,SE), 8.0 mA(PC,SC)
Output load condition (CMOS)	L_CMOS	15 pF Max.			
Input voltage	V_{IH}	80 % V_{CC} Min.			OE terminal or $\overline{ST}$ terminal
	V_{IL}	20 % V_{CC} Max.			
Rise and Fall time	t_r/ t_f	5.0 ns Max.			1 MHz≦f_0＜80 MHz, 20 % V_{CC} to 80 % V_{CC} level, L_CMOS=15 pF
		2.5 ns Max.			80 MHz≦f_0≦166 MHz
Start-up time	t_str	5 ms Max.			t=0 at 90 % V_{CC}
Frequency aging	f_aging	±3 × 10^{-6} / year Max.			+25 ℃, First year, V_{CC}=1.8 V, 2.5 V, 3.3 V

Product Name (Standard form)
SG-8003 CG 166.000000MHz P E B
① ② ③ ④⑤⑥
①Model ②Package type ③Frequency
④Function (P: Output enable, S:Standby)
⑤Supply voltage ⑥Frequency tolerance

⑤Supply voltage	
C	3.3 V Typ.
D	2.5 V Typ.
E	1.8 V Typ.

⑥Frequency tolerance	
B	±50 × 10^{-6} / -20 to +70℃
C	±100 × 10^{-6} / -20 to +70℃
L	±50 × 10^{-6} / -40 to +85℃
M	±100 × 10^{-6} / -40 to +85℃

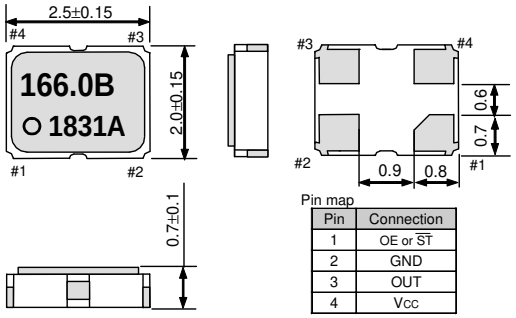
Current consumption



External dimensions (Unit:mm)

SG-8003CG

Actual size

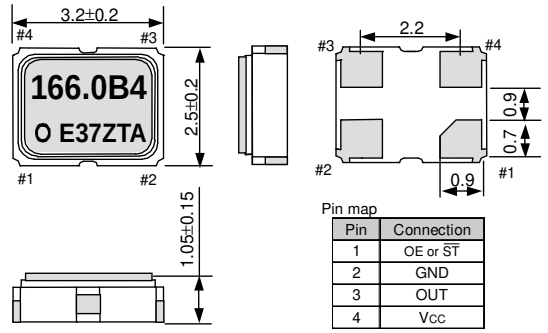


Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

SG-8003CE

Actual size

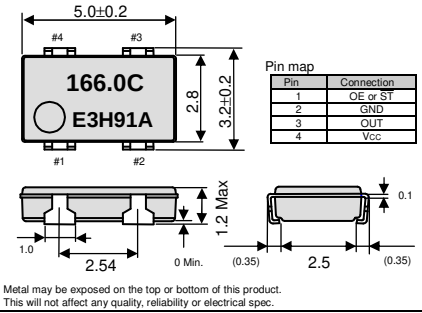


Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

SG-8003LB

Actual size



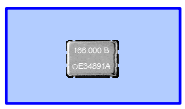
Pin map

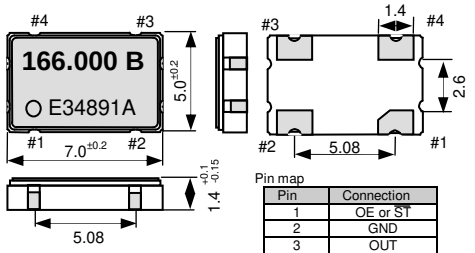
Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

Metal may be exposed on the top or bottom of this product.
This will not affect any quality, reliability or electrical spec.

SG-8003CA

Actual size



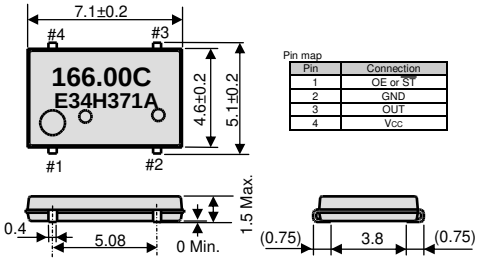


Pin map

Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

SG-8003JF

Actual size

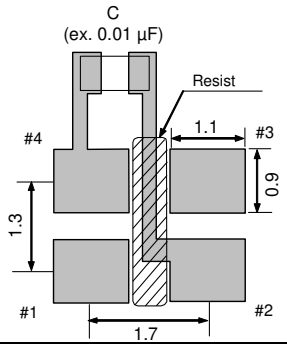


Pin map

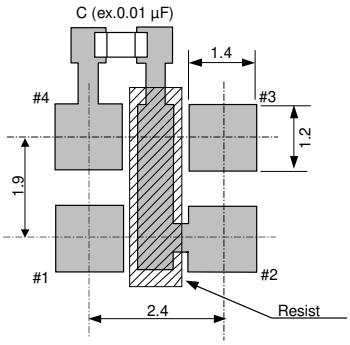
Pin	Connection
1	OE or $\overline{ST}$
2	GND
3	OUT
4	Vcc

Footprint (Recommended) (Unit:mm)

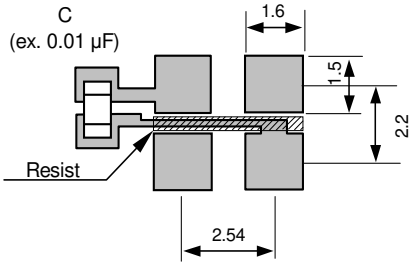
SG-8003CG



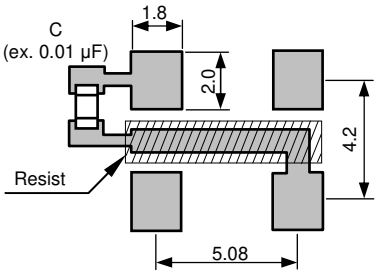
SG-8003CE



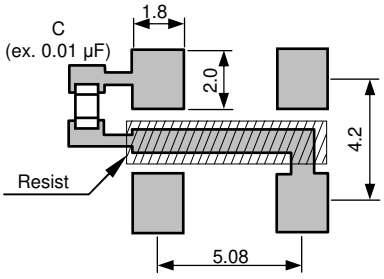
SG-8003LB



SG-8003CA



SG-8003JF



Note.
OE Pin (PE, PD, PC)
OE Pin = "H" or "open" : Specified frequency output.
OE Pin = "L" : Output is low level (weak pull - down)

$\overline{ST}$ Pin (SE, SD, SC)
$\overline{ST}$ Pin = "H" or "open" : Specified frequency output.
$\overline{ST}$ Pin = "L" : Output is low level (weak pull - down), oscillation stops.

To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

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 ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 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	►Pb free.
RoHS Compliant	►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.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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