

CRYSTAL OSCILLATOR PROGRAMMABLE

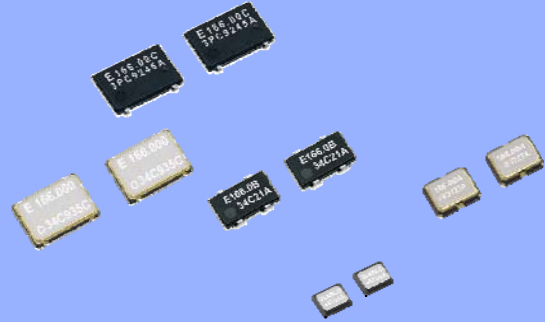
SG-8003 series

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

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



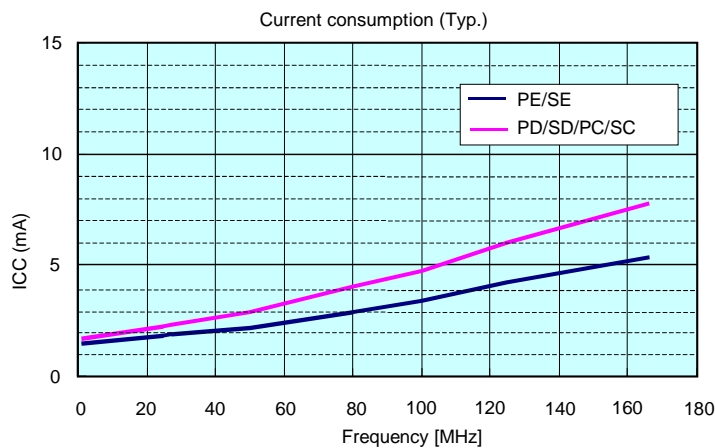
Product Number (please contact us)
X1G003xx1xxx00



Specifications (characteristics)

Item	Symbol	Specifications			Remarks
		PE / SE	PD / SD	PC / SC	
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 °C			Store as bare product.
Operating temperature	T_{use}	-20 °C to +70 °C / -40 °C to +85 °C			
Frequency tolerance	f_{tol}	B: $\pm 50 \times 10^{-6}$, C: $\pm 100 \times 10^{-6}$			-20 °C to +70 °C
		L: $\pm 50 \times 10^{-6}$, M: $\pm 100 \times 10^{-6}$			-40 °C to +85 °C
Current consumption	I_{CC}	3.5 mA Max.	4.0 mA Max.		No load condition, 1 MHz $\leq f_0 \leq 25$ MHz
		5.0 mA Max.	6.5 mA Max.		No load condition, 25 MHz $< f_0 \leq 50$ MHz
		6.0 mA Max.	8.5 mA Max.		No load condition, 50 MHz $< f_0 \leq 75$ MHz
		7.0 mA Max.	10.5 mA Max.		No load condition, 75 MHz $< f_0 \leq 100$ MHz
		8.5 mA Max.	12.5 mA Max.		No load condition, 100 MHz $< f_0 \leq 125$ MHz
		10.0 mA Max.	15.0 mA Max.		No load condition, 125 MHz $< f_0 \leq 166$ MHz
Output disable current	I_{dis}	8 mA Max.			$\overline{OE} = GND$ (PE,PD,PC)
Stand-by current	I_{std}	50 μ A Max.			$\overline{ST} = GND$ (SE,SD,SC)
Symmetry	SYM	45 % to 55 %			50 % V_{CC} level, $L_{CMOS} \leq 15$ 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 $\leq f_0 < 80$ MHz 20 % V_{CC} to 80 % V_{CC}
		2.5 ns Max.			80 MHz $\leq f_0 \leq 166$ MHz level, $L_{CMOS} = 15$ pF
Start-up time	t_{str}	5 ms Max.			$t = 0$ at 90 % V_{CC}
Frequency aging	f_{aging}	$\pm 3 \times 10^{-6}$ / year Max.			+25 °C, First year, $V_{CC} = 1.8$ V, 2.5 V, 3.3 V

Current consumption



External dimensions

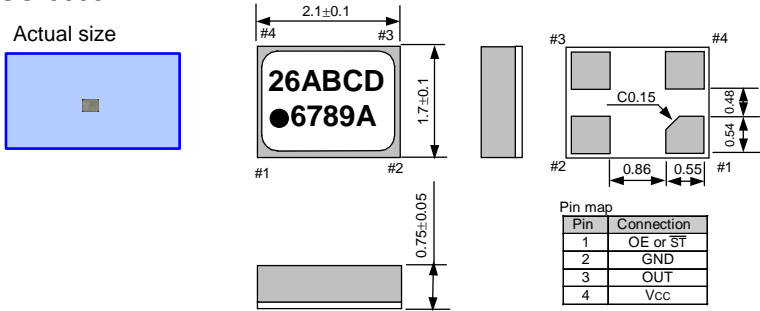
(Unit:mm)

Footprint (Recommended)

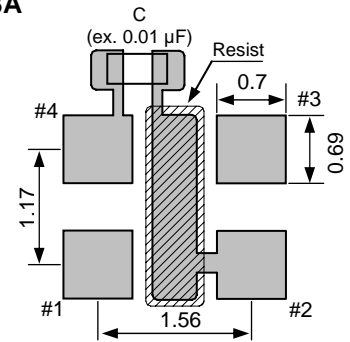
(Unit:mm)

SG-8003BA

Actual size

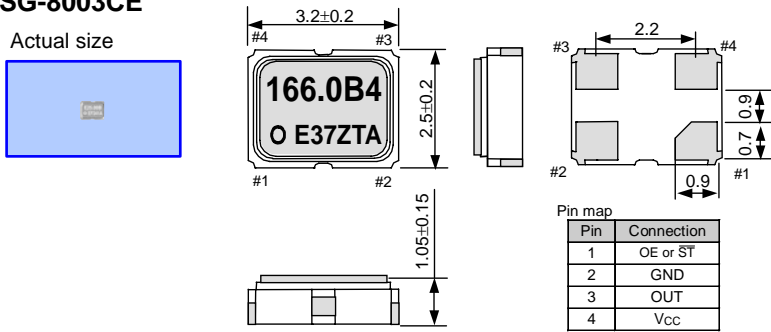


SG-8003BA

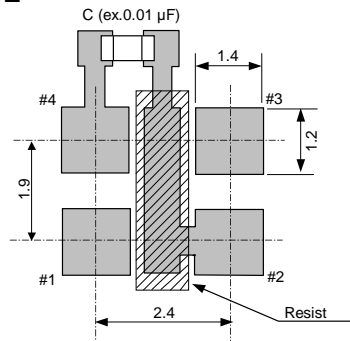


SG-8003CE

Actual size

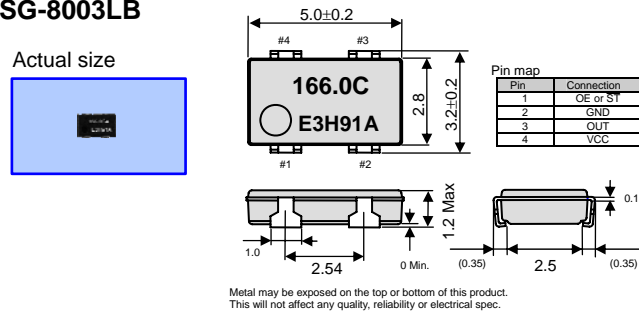


SG-8003CE

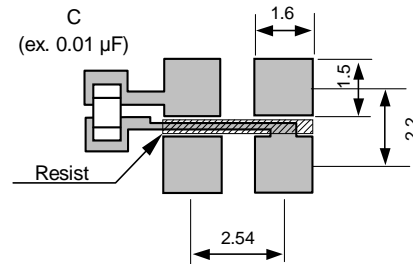


SG-8003LB

Actual size

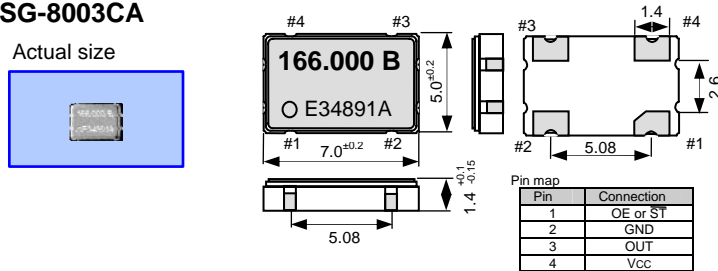


SG-8003LB

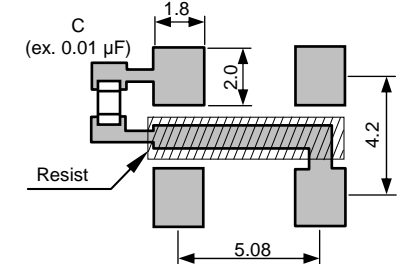


SG-8003CA

Actual size

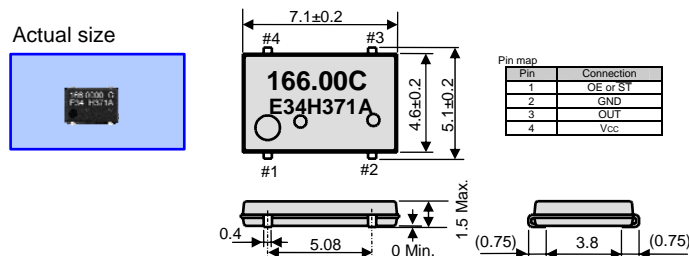


SG-8003CA

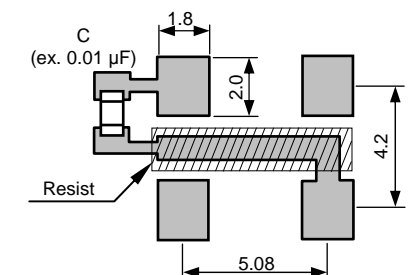


SG-8003JF

Actual size



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)

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

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

“QMEMS” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, “Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.

Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications

and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers “Digital Convergence” solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.



QMEMS

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PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, 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,

Epson Toyocom 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.
	► 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.)
	► The products have been designed for high reliability applications such as Automotive.

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