

CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS



Product Number
SG2016CAA: X1G005341xxxx00
SG2520CAA: X1G005951xxxx16

SG2016CAA

SG2520CAA

- Frequency : 19 standard frequencies
- Supply voltage : 1.8 V to 3.3 V Typ.
- Function : Standby (\overline{ST})
- Operation temperature : -40 °C to +125 °C
- AEC-Q200 compliant



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks	
Output frequency	f_o	8 MHz 10 MHz 11.2896 MHz 12 MHz 12.288 MHz 14.7456 MHz 16.6666 MHz 20 MHz 22.5792 MHz 24 MHz 24.576 MHz 25 MHz 27 MHz 33 MHz 33.3333 MHz 40 MHz 48 MHz 50 MHz 54 MHz		
Supply voltage	V_{CC}	T: 1.60 V to 3.63 V		
Storage temperature	T_{stg}	-55 °C to +125 °C	Storage as single product.	
Operating temperature	T_{use}	H: -40 °C to +105 °C J: -40 °C to +125 °C		
Frequency tolerance	f_{tol}	J: $\pm 50 \times 10^{-6}$ L: $\pm 100 \times 10^{-6}$		
Current consumption	I_{cc}	$V_{CC} = 1.8 V \pm 10 \%$	No load condition, 8 MHz $\leq f_o \leq 20$ MHz	
		$V_{CC} = 2.5 V \pm 10 \%$		No load condition, 20 MHz $< f_o \leq 40$ MHz
		$V_{CC} = 3.3 V \pm 10 \%$		No load condition, 40 MHz $< f_o \leq 54$ MHz
Stand-by current	I_{std}	2.7 μA Max. 3.1 μA Max. 3.3 μA Max.	$\overline{ST} = GND$	
Symmetry	SYM	45 % to 55 %	50 % V_{CC} level, $L_{CMOS} \leq 15$ pF	
Output voltage	V_{OH}	90 % V_{CC} Min.	V_{OH} 1.8 V $\pm 10 \%$ 2.5 V $\pm 10 \%$ 3.3 V $\pm 10 \%$	
	V_{OL}	10 % V_{CC} Max.	I_{OH} -1.5 mA -3 mA -4 mA	
	V_{OH}	$V_{CC} - 0.4$ V Min.	I_{OL} 1.5 mA 3 mA 4 mA	
	V_{OL}	0.4 V Max.	V_{OH} 1.8 V $\pm 10 \%$ 2.5 V $\pm 10 \%$ 3.3 V $\pm 10 \%$	
Output load condition	L_{CMOS}	15 pF Max.	I_{OH} -3 mA -4 mA -6 mA	
			I_{OL} 3 mA 4 mA 6 mA	
Input voltage	V_{IH}	80 % V_{CC} Min.		
	V_{IL}	20 % V_{CC} Max.	\overline{ST} terminal	
Rise time and Fall time	t_r / t_f	3 ns Max. 3.5 ns Max. (@1.8 V $\pm 10 \%$)	20 % V_{CC} to 80 % V_{CC} level, $L_{CMOS} = 15$ pF	
Start-up time	t_{str}	5 ms Max.	$t = 0$ at 90 % V_{CC}	
Frequency aging	f_{age}	$\pm 3 \times 10^{-6}$ / year Max.	+25 °C, First year	

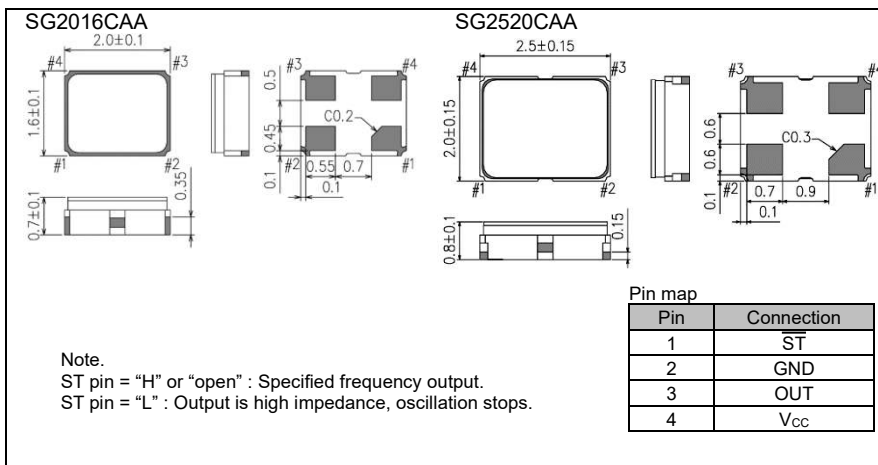
Product Name **SG2016CAA** 25.000000MHz I J H A
 (Standard form) Model Name Frequency ①②③ Standard Specification A

①Supply voltage	
T	1.8 V to 3.3 V Typ.

②Frequency tolerance / ③Operating temperature	
JH	$\pm 50 \times 10^{-6}$ / -40 °C to +105 °C
LJ	$\pm 100 \times 10^{-6}$ / -40 °C to +125 °C

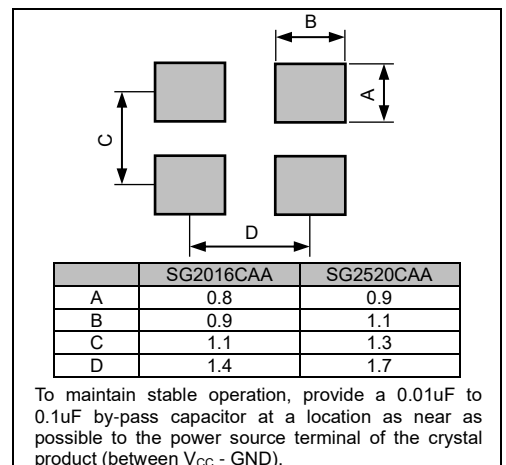
External dimensions

(Unit:mm)



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.

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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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