

NEW



Product Number (please contact us)
 SG-210SCH: X1G003931xxxx00
 SG-210SDH: X1G003941xxxx00
 SG-210SEH: X1G003951xxxx00

**CRYSTAL OSCILLATOR
 LOW-JITTER SPXO**

SG-210S*H

- Frequency range : 80.000 MHz to 170.000 MHz
Fundamental mode oscillator
- Supply voltage : 1.8 V / 2.5 V / 3.3 V
- Output : CMOS
- Function : Standby(\overline{ST})
- External dimensions : 2.5 × 2.0 × 0.8 mm



Actual size



Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks
		SG-210SEH	SG-210SDH	SG-210SCH	
Output frequency range	f_o	80.000 MHz to 170.000 MHz 100MHz, 106.25MHz, 125MHz, 133.33MHz, 150MHz, 156.25MHz			Standard frequency. *1
Supply voltage	V_{cc}	1.8 V ± 10%	2.5 V ± 10%	3.3 V ± 10%	*2
Storage temperature	T_{stg}	-40 °C to +125 °C			Storage as single product.
Operating temperature	T_{use}	-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}	6.0 mA Max.	7.0 mA Max.	9.0 mA Max.	No load condition, 80 MHz ≤ f_o ≤ 125 MHz
		8.0 mA Max.	9.0 mA Max.	11.0 mA Max.	No load condition, 125 MHz < f_o ≤ 170 MHz
Stand-by current	I_{std}	10.0 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.			$I_{OH} = -4$ mA
	V_{OL}	10 % V_{cc} Max.			$I_{OL} = 4$ mA
Output load condition (CMOS)	L_{CMOS}	15 pF Max.			
Input voltage	V_{IH}	80 % V_{cc} Min.			\overline{ST} terminal
	V_{IL}	20 % V_{cc} Max.			
Rise time / Fall time	t_r / t_f	3 ns Max.	2 ns Max.		20 % V_{cc} to 80 % V_{cc} level, $L_{CMOS} \leq 15$ pF
Start-up time	t_{str}	5 ms Max.			$T=0$ at 90 % V_{cc}
Jitter *3	tp-p	22 ps Typ.	20 ps Typ.		Peak to Peak
Phase Jitter	tpj	0.7 ps Max.	0.6 ps Max.		Offset frequency: 12kHz to 20MHz
Frequency aging	f_{aging}	$\pm 5 \times 10^{-6}$ / year Max.			+25 °C, First year

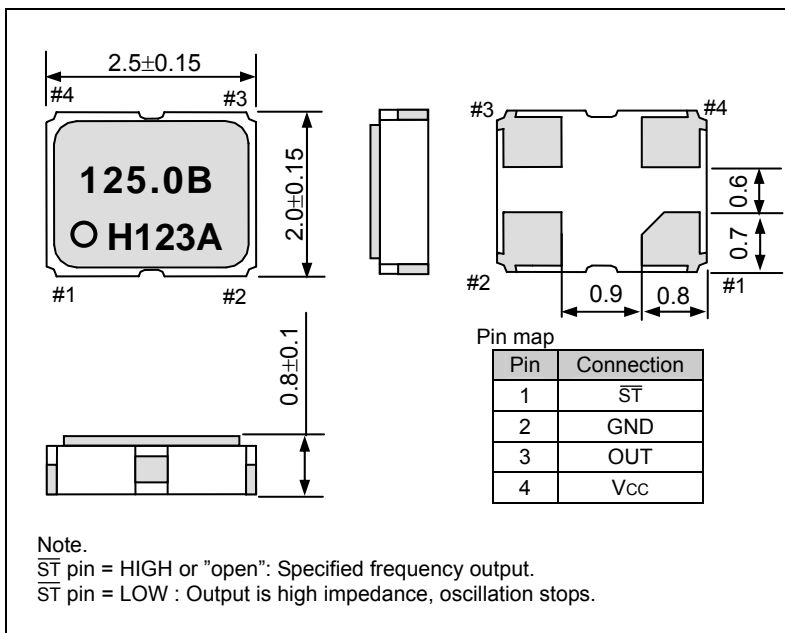
*1 Please contact us for requirements not listed in the specification.

*2 $f_o \geq 157$ MHz: $V_{cc} \pm 5\%$

*3 Based on SIA-3100C signal integrity analyzer made from WAVECREST.

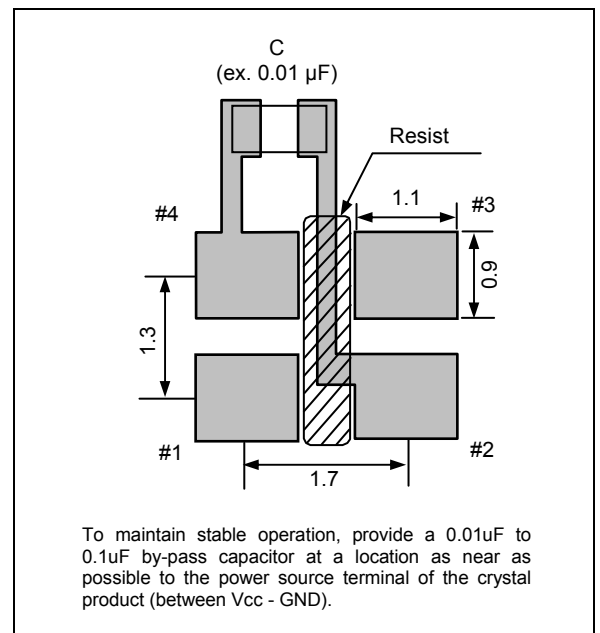
External dimensions

(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.




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.
	► 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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