



CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS

SG-210 STF

- Frequency range : 1 MHz to 75 MHz
- Supply voltage : 1.6 V to 3.6 V
- Function : Standby($\overline{ST}$)
- External dimensions : $2.5 \times 2.0 \times 0.8$ mm
- Operation temperature : -40 to +105 °C



Product Number (please contact us)
X1G004171xxxx00



Actual size



Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks
Output frequency range	f _o	1MHz to 75MHz			Please contact us about available frequencies.
Supply voltage	V _{cc}	1.6V to 3.6V			
		1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 3.0 V	3.3 V Typ. 2.7 V to 3.6 V	
Storage temperature	T _{stg}	-40 °C to +125 °C			
Operating temperature	T _{use}	-40 °C to +85 °C / -40 °C to +105 °C			
Frequency tolerance	f _{tol}	S: ±25 × 10 ⁻⁶			-20 °C to +70 °C
		L: ±50 × 10 ⁻⁶			-40 °C to +85 °C
		Y: ±50 × 10 ⁻⁶ , W: ±100 × 10 ⁻⁶			-40 °C to +105 °C
Current consumption	I _{cc}	1.5 mA Max.	1.6 mA Max.	1.8 mA Max.	No load condition 1MHz<f _o ≤20MHz
		1.8 mA Max.	2.0 mA Max.	2.2 mA Max.	No load condition 20MHz<f _o ≤40MHz
		2.1 mA Max.	2.4 mA Max.	2.6 mA Max.	No load condition 40MHz<f _o ≤60MHz
		2.4 mA Max.	2.8 mA Max.	3.0 mA Max.	No load condition 60MHz<f _o ≤75MHz
Stand-by current	I _{std}	2.1 μA Max.	2.5 μA Max.	2.7 μA Max.	ST =GND
Symmetry	SYM	45 % to 55 %			50 % V _{cc} level L _{CMOS} ≤ 15 pF
Output voltage	V _{OH}	V _{cc} -0.4V Min.			
	V _{OL}	0.4V Max.			
Output load condition (CMOS)	L _{CMOS}	15 pF Max.			
Input voltage	V _{IH}	80 % V _{cc} Min.			ST terminal
	V _{IL}	20 % V _{cc} Max.			
Rise time and Fall time	t _r / t _f	4 ns Max.	3 ns Max.		20 % V _{cc} to 80 % V _{cc} level,L _{CMOS} =15 pF
Start-up time	t _{str}	3 ms Max.			t=0 at 90 % V _{cc} +85°C,(+105 °C.)
Frequency aging	f _{aging}	±3 × 10 ⁻⁶ / year Max.			+25 °C, First year, V _{cc} =1.8 V, 2.5 V, 3.3 V
Phase noise	C/N	-145 dBc/Hz Typ.			@1kHz ,f _o =48MHz
		-158 dBc/Hz Typ.			@100kHz ,f _o =48MHz
		-161 dBc/Hz Typ.			@Floor Lv.

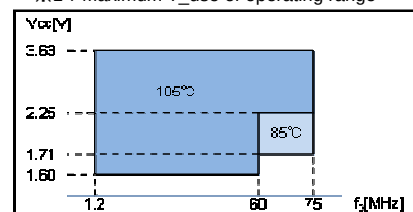
Product Name
(Standard form)

SG-210 S T F 25.000000MHz L

- ① Model ② Function (S: Standby)
③ Supply voltage ④ Frequency
⑤ Frequency tolerance

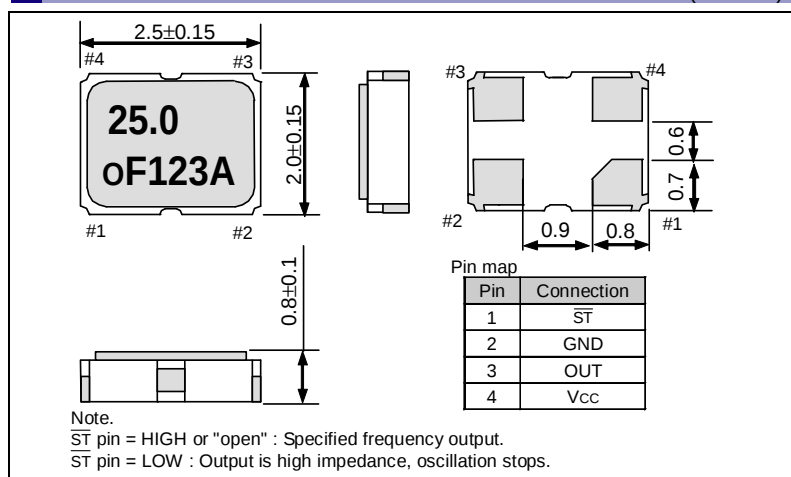
③ Supply voltage
T 1.6 to 3.6 V

⑤ Frequency tolerance	
S	$\pm 25 \times 10^{-6}$ / -20 to +70 °C
L	$\pm 50 \times 10^{-6}$ / -40 to +85 °C
Y	$\pm 50 \times 10^{-6}$ / -40 to +105 °C
W	$\pm 100 \times 10^{-6}$ / -40 to +105 °C

※1 : Maximum T_{use} of operating range

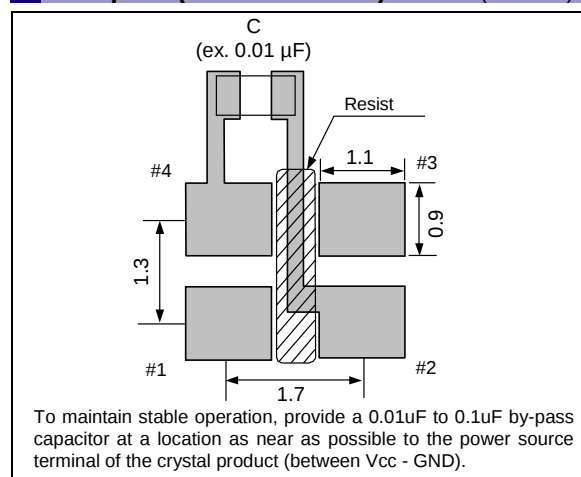
External dimensions

(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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	► 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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