

**CRYSTAL OSCILLATOR (SPXO)**  
**OUTPUT : CMOS**

**SG-210 STF**

- Frequency range : 1 MHz to 75 MHz
- Supply voltage : 1.8 V to 3.3 V Typ.
- Function : Standby( $\overline{ST}$ )
- External dimensions : 2.5 × 2.0 × 0.8 mm
- Operation temperature : -40 °C to +105 °C



Product Number (please contact us)  
 X1G004171xxxx00



Actual size

**Specifications (characteristics)**

Item	Symbol	Specifications	Conditions / Remarks		
Output frequency range	$f_o$	1 MHz to 75 MHz	Please contact us about available frequencies.		
Supply voltage	$V_{CC}$	1.60 V to 3.63 V	1 MHz $\leq f_o \leq$ 60 MHz, $T_{use} = +105^\circ\text{C}$ Max.		
		1.71 V to 3.63 V	60 MHz $< f_o \leq$ 75 MHz, $T_{use} = +85^\circ\text{C}$ Max.		
		2.25 V to 3.63 V	60 MHz $< f_o \leq$ 75 MHz, $T_{use} = +105^\circ\text{C}$ Max.		
Storage temperature	$T_{stg}$	-40 °C to +125 °C	Storage as single product.		
Operating temperature	$T_{use}$	-40 °C to +85 °C / -40 °C to +105 °C	See of figure *1		
Frequency tolerance	$f_{tol}$	S: $\pm 25 \times 10^{-6}$	-20 °C to +70 °C		
		L: $\pm 50 \times 10^{-6}$	-40 °C to +85 °C		
		Y: $\pm 50 \times 10^{-6}$ , W: $\pm 100 \times 10^{-6}$	-40 °C to +105 °C		
Current consumption	$I_{CC}$	$V_{CC} = 1.8 \text{ V} \pm 10\%$	$V_{CC} = 2.5 \text{ V} \pm 10\%$	$V_{CC} = 3.3 \text{ V} \pm 10\%$	No load condition, 1 MHz $< f_o \leq$ 20 MHz
		1.5 mA Max.	1.6 mA Max.	1.8 mA Max.	No load condition, 20 MHz $< f_o \leq$ 40 MHz
		1.8 mA Max.	2.0 mA Max.	2.2 mA Max.	No load condition, 40 MHz $< f_o \leq$ 60 MHz
		2.1 mA Max.	2.4 mA Max.	2.6 mA Max.	No load condition, 60 MHz $< f_o \leq$ 75 MHz
		2.4 mA Max.	2.8 mA Max.	3.0 mA Max.	$\overline{ST} = \text{GND}$
Stand-by current	$I_{std}$	2.1 $\mu\text{A}$ Max.	2.5 $\mu\text{A}$ Max.	2.7 $\mu\text{A}$ Max.	
Symmetry	SYM	45 % to 55 %	50 % $V_{CC}$ level, $L_{CMOS} \leq 15 \text{ pF}$		
Output voltage	$V_{OH}$	$V_{CC} - 0.4 \text{ V Min.}$			
	$V_{OL}$	0.4 V Max.			
Output load condition (CMOS)	$L_{CMOS}$	15 pF Max.			
Input voltage	$V_{IH}$	80 % $V_{CC}$ Min.			
	$V_{IL}$	20 % $V_{CC}$ Max.		$\overline{ST}$ terminal	
Rise time and Fall time	$tr/ tf$	3 ns Max.			
		3.5 ns Max. (@1.8 V $\pm 10\%$ )		20 % $V_{CC}$ to 80 % $V_{CC}$ level, $L_{CMOS} = 15 \text{ pF}$	
Start-up time	$t_{str}$	3 ms Max.	$t = 0$ at 90 % $V_{CC}$		
Frequency aging	$f_{aging}$	$\pm 3 \times 10^{-6}$ / year Max.	+25 °C, First year		
Phase noise	C/N	-145 dBc/Hz Typ.	@1 kHz, $f_o = 48 \text{ MHz}$		
		-158 dBc/Hz Typ.	@100 kHz, $f_o = 48 \text{ MHz}$		
		-161 dBc/Hz Typ.	@Floor Lv.		

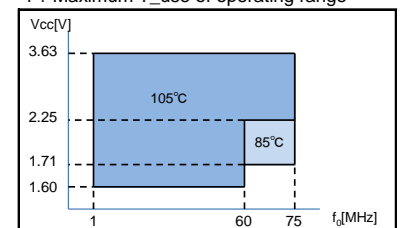
Product Name  
 (Standard form)

**SG-210 S T F 25.000000MHz L**  
 ① ② ③ ④ ⑤  
 ① Model ② Function (S:Standby)  
 ③ Supply voltage ④ Frequency  
 ⑤ Frequency tolerance

③ Supply voltage	
T	1.60 to 3.63 V See of figure *1

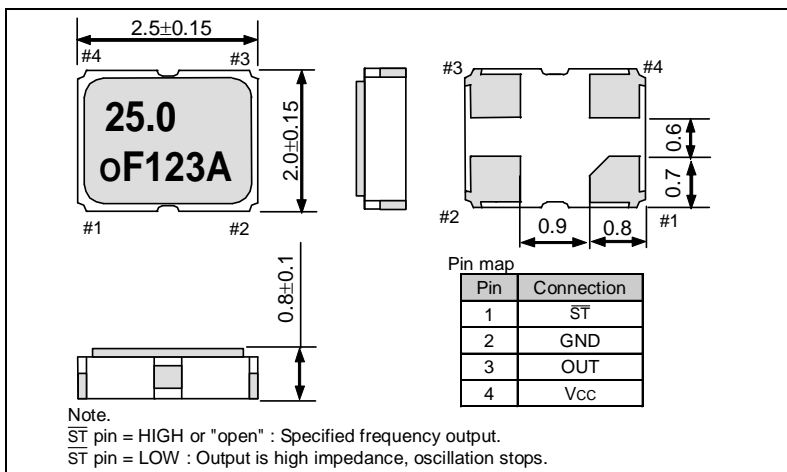
⑤ Frequency tolerance	
S	$\pm 25 \times 10^{-6}$ / -20 °C to +70 °C
L	$\pm 50 \times 10^{-6}$ / -40 °C to +85 °C
Y	$\pm 50 \times 10^{-6}$ / -40 °C to +105 °C
W	$\pm 100 \times 10^{-6}$ / -40 °C to +105 °C

\*1 : Maximum  $T_{use}$  of operating range



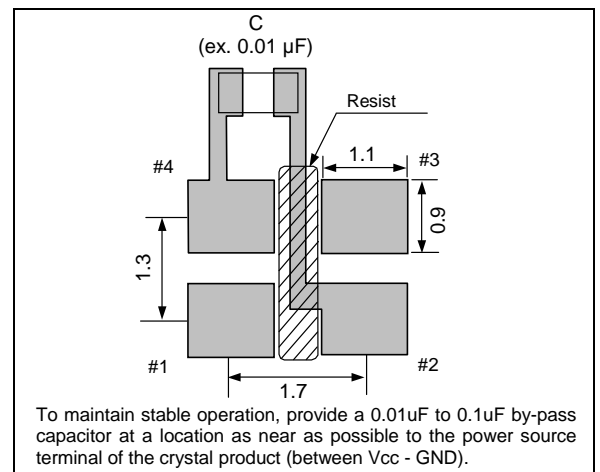
**External dimensions**

(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.

## 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.)
	► 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 ).

## Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied data, circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of customer damage or infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.  
/ Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Epson:

[SG-210STF 6.1440ML3](#) [SG-210STF 3.5795ML3](#) [SG-210STF 13.5600ML3](#) [SG-210STF 7.5000ML3](#) [SG-210STF 25.0000ML3](#) [SG-210STF 62.5000ML3](#) [SG-210STF 8.2500ML3](#) [SG-210STF 27.0000ML3](#) [SG-210STF 48.0000MS3](#) [SG-210STF 12.2880MS3](#) [SG-210STF 30.0000ML3](#) [SG-210STF 1.2288ML3](#) [SG-210STF 15.6250ML3](#) [SG-210STF 9.8304ML3](#) [SG-210STF 6.7800ML3](#) [SG-210STF 5.6448ML3](#) [SG-210STF 6.2500ML3](#) [SG-210STF 19.4400ML3](#) [SG-210STF 31.2500ML3](#) [SG-210STF 19.6608ML3](#) [SG-210STF 13.5000ML3](#) [SG-210STF 13.0000ML3](#) [SG-210STF 10.0000ML3](#) [SG-210STF 50.0000MS3](#) [SG-210STF 33.3000ML3](#) [SG-210STF 74.1760ML3](#) [SG-210STF 50.0000ML3](#) [SG-210STF 24.0000MW3](#) [SG-210STF 75.0000ML3](#) [SG-210STF 5.0000ML3](#) [SG-210STF 1.8432ML3](#) [SG-210STF 12.0000ML3](#) [SG-210STF 24.5760ML3](#) [SG-210STF 36.0000ML3](#) [SG-210STF 72.0000ML3](#) [SG-210STF 12.5000ML3](#) [SG-210STF 33.3300ML3](#) [SG-210STF 4.0960ML3](#) [SG-210STF 66.6670ML3](#) [SG-210STF 18.0000ML3](#) [SG-210STF 3.0720ML3](#) [SG-210STF 4.9152ML3](#) [SG-210STF 1.0000ML3](#) [SG-210STF 8.0000MY3](#) [SG-210STF 25.0000MY3](#) [SG-210STF 26.0000ML3](#) [SG-210STF 20.0000ML3](#) [SG-210STF 4.8000ML3](#) [SG-210STF 54.0000ML3](#) [SG-210STF 1.5000ML3](#) [SG-210STF 2.0000ML3](#) [SG-210STF 1.5360ML3](#) [SG-210STF 4.5000ML3](#) [SG-210STF 2.4576ML3](#) [SG-210STF 2.0480ML3](#) [SG-210STF 22.5792ML3](#) [SG-210STF 38.4000ML3](#) [SG-210STF 15.0000ML3](#) [SG-210STF 2.5000ML3](#) [SG-210STF 1.2000ML3](#) [SG-210STF 3.0000ML3](#) [SG-210STF 12.2880ML3](#) [SG-210STF 14.7456ML3](#) [SG-210STF 32.7680ML3](#) [SG-210STF 19.2000ML3](#) [SG-210STF 4.0000ML3](#) [SG-210STF 16.5000ML3](#) [SG-210STF 27.1200ML3](#) [SG-210STF 6.0000ML3](#) [SG-210STF 33.3330MW3](#) [SG-210STF 6.7500ML3](#) [SG-210STF 8.1920ML3](#) [SG-210STF 32.0000ML3](#) [SG-210STF 3.6864ML3](#) [SG-210STF 9.6000ML3](#) [SG-210STF 28.63636ML3](#) [SG-210STF 16.0000ML3](#) [SG-210STF 7.3728ML3](#) [SG-210STF 8.0000ML3](#) [SG-210STF 6.5000ML3](#) [SG-210STF 16.6665ML3](#) [SG-210STF 33.3330ML3](#) [SG-210STF 16.3480ML3](#) [SG-210STF 11.2896MS3](#) [SG-210STF 33.0000ML3](#) [SG-210STF 37.4000ML3](#) [SG-210STF 24.0000ML3](#) [SG-210STF 48.0000ML3](#) [SG-210STF 16.6500ML3](#) [SG-210STF 25.0000MS3](#) [SG-210STF 66.6667ML3](#) [SG-210STF 52.0000ML3](#) [SG-210STF 9.0000ML3](#) [SG-210STF 40.0000ML3](#) [SG-210STF 14.31818ML3](#) [SG-210STF 3.1250ML3](#) [SG-210STF 29.4912ML3](#) [SG-210STF 7.1591ML3](#) [SG-210STF 11.2896ML3](#) [SG-210STF 26.0000MY3](#)

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А