

TCXO / VC-TCXO / TCXO-Standby
105 °C High temperature range



Product Number
TG1612SLN : X1G005721xxx16

TG1612SLN

- Output frequency : 13 MHz to 55.2 MHz
- Supply voltage : 1.8 V Typ./ 2.8 V Typ./ 3.0 V Typ./ 3.3 V Typ.
- Frequency / temperature characteristics : $\pm 0.5 \times 10^{-6}$ Max. (-40 °C to +85 °C) and $\pm 5.0 \times 10^{-6}$ Max. (+85 °C to +105 °C)
- External dimensions: 1.6 x 1.2 x 0.45 mm Max.
- Applications : Smart phone, LPWA module
Wireless communication devices
- Features : 105 °C High temp, Standby function (\overline{ST})



TG1612SLN
(1.6 x 1.2 x 0.45 mm)

Specifications (characteristics)

Item	Symbol	TCXO	VC-TCXO	TCXO-Standby	Conditions / Remarks
Output frequency range	f_o	13 MHz to 55.2 MHz			
		26 MHz			Standard frequency
Supply voltage	V_{CC}	1.8 V \pm 0.1 V / 2.8 V \pm 5 % / 3.0 V \pm 5 % / 3.3 V \pm 5 %			Supply voltage range : 1.7 V to 3.63 V
Storage temperature range	T_{stg}	-40 °C to +105 °C			Storage as single product.
Operating temperature range	T_{use}	G: -40 °C to +85 °C / H: -40 °C to +105 °C			
Frequency tolerance	f_{tol}	$\pm 2.0 \times 10^{-6}$ Max.			After 3times reflow, +25 °C
Frequency/temperature characteristics	f_o -Tc	C: $\pm 0.5 \times 10^{-6}$ Max. / -40 °C to +85 °C W: $\pm 0.5 \times 10^{-6}$ Max. / -40 °C to +85 °C and $\pm 5.0 \times 10^{-6}$ Max. / +85 °C to +105 °C (Option)			Standard stability version Customized product (Option)
Frequency/load coefficient	f_o -Load	$\pm 0.1 \times 10^{-6}$ Max.			10 k Ω // 10 pF \pm 10 %
Frequency/voltage coefficient	f_o - V_{CC}	$\pm 0.2 \times 10^{-6}$ Max.			$V_{CC} \pm 5 \%$
Frequency aging	f_{age}	$\pm 1.0 \times 10^{-6}$ Max.			+25 °C, First year, 13 MHz $\leq f_o \leq$ 20 MHz, 26 MHz $\leq f_o \leq$ 40 MHz
		$\pm 1.5 \times 10^{-6}$ Max.			+25 °C, First year, 20 MHz $< f_o <$ 26 MHz, 40 MHz $< f_o \leq$ 55.2 MHz
Current consumption	I_{CC}	1.5 mA Max. 1.7 mA Max. 2.0 mA Max. 2.5 mA Max.			13 MHz $< f_o \leq$ 26 MHz (-40 to +85 °C) 13 MHz $< f_o \leq$ 26 MHz (-40 to +105 °C) 26 MHz $< f_o \leq$ 38.4 MHz (-40 to +105 °C) 38.4 MHz $< f_o \leq$ 55.2 MHz (-40 to +105 °C)
Input resistance	Z_{in}	-	500 k Ω Min.	-	V_C - GND (DC)
Frequency control range	f_{cont}	-	$\pm 8.0 \times 10^{-6}$ to $\pm 15.0 \times 10^{-6}$	-	B: $V_C = 0.9 V \pm 0.6 V$ ($V_{CC} = 1.8 V$) or C: $V_C = 1.4 V \pm 1.0 V$ ($V_{CC} = 2.8 V$) or D: $V_C = 1.5 V \pm 1.0 V$ ($V_{CC} = 3.0 V$) or E: $V_C = 1.65 V \pm 1.0 V$ ($V_{CC} = 3.3 V$)
Frequency change polarity	f_{cp}	-	Positive polarity	-	
Stand-by current	I_{std}	-		3 μ A Max.	$\overline{ST} = GND$
Input voltage	V_{IH} V_{IL}	-		80 % V_{CC} Min. 20 % V_{CC} Max.	\overline{ST} terminal
Symmetry	SYM	45 % to 55 %			GND level (DC cut)
Output voltage	V_{pp}	0.8 V Min. / 1.5 V Max.			Peak to Peak
Start-up time	t_{str}	1.0 ms Max.			$t = 0$ at 90 % V_{CC}
Output load	Load_R Load_C	10 k Ω 10 pF			DC cut capacitor = 0.01 μ F

* Note : Please contact us for requirements not listed in this specification.

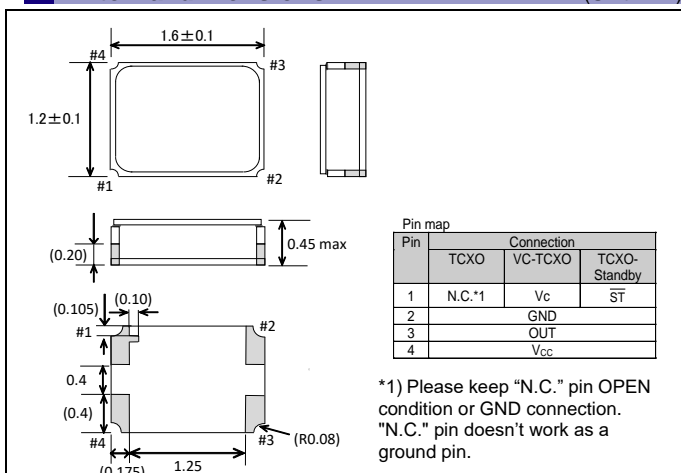
Product Name TG1612 SLN 26.000000MHz E W H S N M
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

④ Supply voltage [V_{CC}], ⑥ Vc function [Vc] (Symbol table)					
Voltage [V]	Suffix symbol: Voltage(Typ.) [V]				
④ V_{CC} :	E: 1.8	B: 2.8	A: 3.0	C: 3.3	
⑥ Vc:	N: Non	B: 0.9	C: 1.4	D: 1.5	E: 1.65

- ① Model ② Output (S: Clipped sine wave)
- ③ Frequency ④ Supply voltage (Refer to symbol table)
- ⑤ Frequency / temperature characteristics (C: $\pm 0.5 \times 10^{-6}$ Max., W: $\pm 0.5 \times 10^{-6}$ Max. and $\pm 5.0 \times 10^{-6}$ Max.)
- ⑥ Operating temperature (H: -40 °C to +105 °C, G: -40 °C to +85 °C) ⑦ ST function (N: Non, S: Standby)
- ⑧ Vc function (Refer to symbol table, N: Non for TCXO / TCXO-Standby) ⑨ Internal identification code ("M" is default)

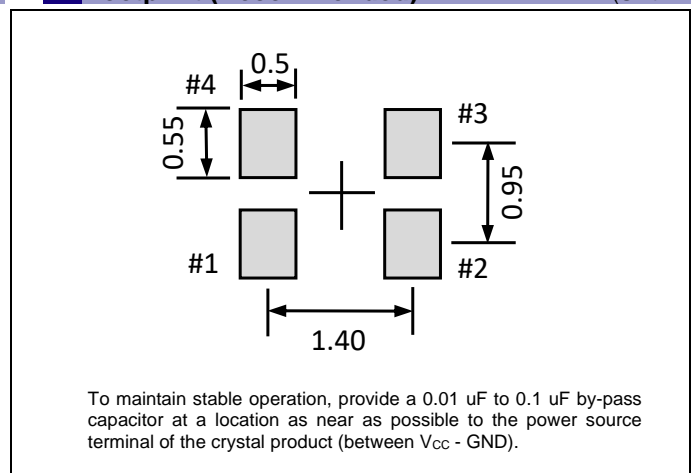
External dimensions

(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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