

TCXO / VC-TCXO / TCXO-Standby

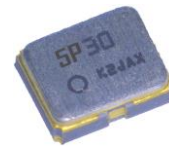
For Automotive

85 °C High temperature range



Product Number (Please contact us)
TG2016SLA : X1G005741xxxx16

TG2016SLA



TG2016SLA

(2.0 × 1.6 × 0.7 mm)

- Output frequency : 13 MHz to 55 MHz
- Supply voltage : 1.8 V Typ. / 3.3 V Typ.
- Frequency / temperature characteristics : $\pm 0.5 \times 10^{-6}$ Max. (-40 °C to +85 °C)
- External dimensions: 2.0 × 1.6 × 0.7 mm Max.
- Applications : GNSS for Automotive, V2X (TCU, DSRC)*
- Features : Low noise, Stand-by function (\overline{ST})
- AEC-Q100 compliant

* GNSS: Global Navigation Satellite System V2X: Vehicle to Everything TCU: Telematics control unit DSRC: Dedicated Short Range Communication

Specifications (characteristics)

Item	Symbol	TCXO	VC-TCXO	TCXO-Standby	Conditions / Remarks
Output frequency range	f_o	13 MHz to 55 MHz			Standard frequency
		26 MHz, 48 MHz, 49.58 MHz			
Supply voltage	V_{CC}	1.8 V \pm 0.1 V / 3.3 V \pm 5 %			Supply voltage range: 1.7 V to 3.63 V
Storage temperature range	T_{stg}	-55 °C to +125 °C			Storage as single product.
Operating temperature range	T_{use}	G: -40 °C to +85 °C			Standard
Frequency tolerance	f_{tol}	$\pm 2.0 \times 10^{-6}$ Max.			After 3 times reflow, +25 °C
Frequency/temperature characteristics	f_o -Tc	C: $\pm 0.5 \times 10^{-6}$ Max.			Standard stability version
Frequency/load coefficient	f_o -Load	$\pm 0.2 \times 10^{-6}$ 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 MHz
Current consumption	I_{CC}	2.0 mA Max. 2.5 mA Max.			13 MHz $\leq f_o \leq$ 40 MHz 40 MHz $< f_o \leq$ 55 MHz
Input resistance	Z_{in}	-	500 k Ω Min.	-	V_C - GND (DC)
Frequency control range	f_{cont}	-	$\pm 5.0 \times 10^{-6}$ Min.	-	B: $V_C = 0.9 \text{ V} \pm 0.6 \text{ V}$ ($V_{CC} = 1.8 \text{ V}$) or E: $V_C = 1.65 \text{ V} \pm 1.0 \text{ V}$ ($V_{CC} = 3.3 \text{ V}$)
Frequency change polarity	f_{cp}	-	Positive polarity	-	
Stand-by current	I_{std}	-	-	10 μ A Max.	$\overline{ST} = \text{GND}$
Input voltage	V_{IH}	-	-	80 % V_{CC} Min.	\overline{ST} terminal
	V_{IL}	-	-	20 % V_{CC} Max.	
Symmetry	SYM	40 % to 60 %			GND level (DC cut)
Output voltage	V_{pp}	0.8 V Min.			Peak to Peak
Start-up time	t_{str}	2.0 ms Max.			$t = 0$ at 90 % V_{CC}
Output load	Load_R	10 k Ω			DC cut capacitor = 0.01 μ F
	Load_C	10 pF			
G-sensitivity	G_s	$1.5 \times 10^{-9} / G$ Max.			30 Hz to 3 kHz, sinewave, 3axes

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

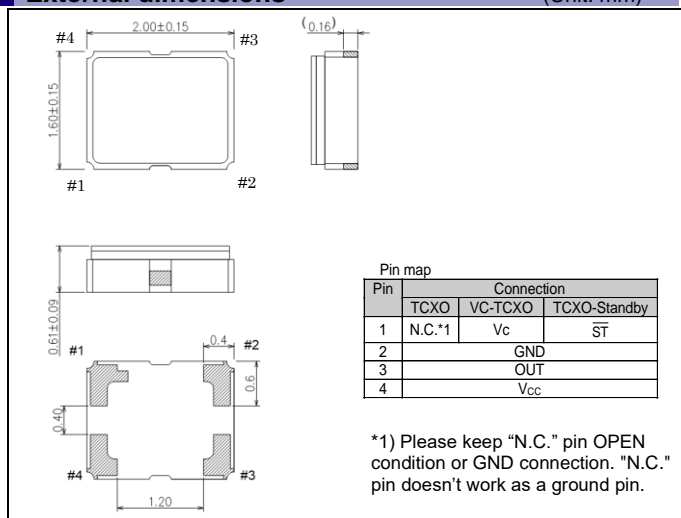
Product Name TG2016 SLA 26.000000MHz E C G N N M
 (Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- 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.)
- ⑥ Operating temperature (G: -40 °C to +85 °C) ⑦ ST function (N: Non, S: Standby)
- ⑧ Vc function (Refer to symbol table) ⑨ Internal identification code

④ Supply voltage [V_{CC}] ⑧ Vc function [Vc] (Symbol table)			
Voltage [V]	TCXO	VC-TCXO	
④ V_{CC} (Typ.)	E: 1.8 C: 3.3	E: 1.8	C: 3.3
⑧ Vc (Typ.)	N: Non	B: 0.9	E: 1.65

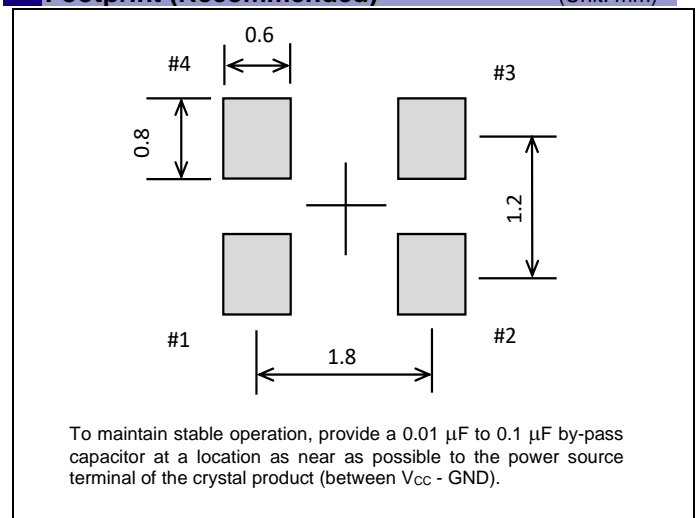
External dimensions

(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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IATF 16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

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	► 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.
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