

# TCXO/VC-TCXO ULTRA HIGH STABILITY

## TG-5500CA / TG-5501CA

- Frequency range : 10 MHz to 50 MHz
- Supply voltage : 3.3 V Typ. / 5.0V Typ.
- Frequency / temperature characteristics :  $\pm 0.28 \times 10^{-6}$  Max. (for Stratum3)
- Frequency aging :  $\pm 3.0 \times 10^{-6}$  Max./20years (for Stratum3)
- External dimensions: 7.0 × 5.0 × 1.5 mm (10 pads or 4pads)
- Applications : Network synchronization, Stratum3, SyncE, IEEE1588, Microwave BTS
- Features : Ultra high stability



Product Number (Please contact us)  
TG-5500CA :X1G003561xxxxxx  
TG-5501CA :X1G003901xxxxxx



TG-5500CA  
(10 pads)



TG-5501CA  
(4 pads)

Actual size

TG-5500CA



TG-5501CA



### Specifications (characteristics)

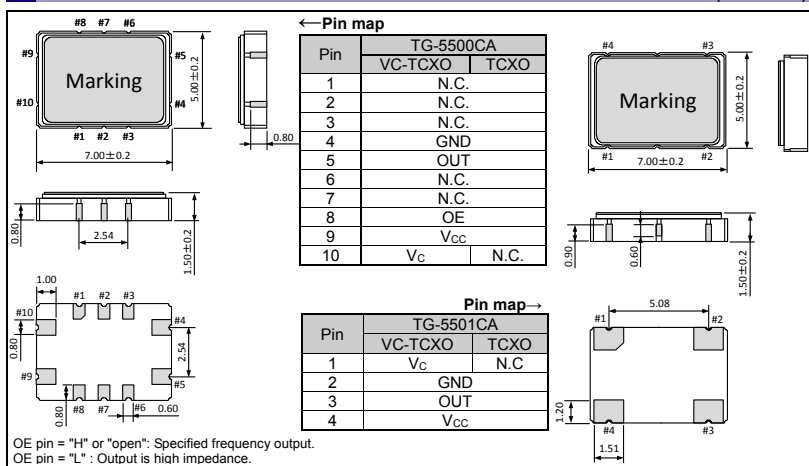
Item	Symbol	CMOS		Clipped sine wave		Conditions / Remarks
		VC-TCXO	TCXO	VC-TCXO	TCXO	
Output frequency range	f <sub>o</sub>	10 MHz to 50 MHz 10, 12.8, 15.36, 16.384, 19.44, 20, 24, 24.576, 25, 26, 27, 30.72, 40, 49.152, 50 MHz				Standard frequency
Supply voltage	V <sub>CC</sub>	3.3 V± 5%, 5.0 V± 5% (Supply voltage range :2.7 V to 5.5 V)				
Storage temperature	T <sub>stg</sub>	-40 °C to +90 °C				Storage as single product.
Operating temperature	T <sub>use</sub>	-40 °C to +85 °C				
a) Frequency tolerance	f <sub>tol</sub>	±1.0 ×10 <sup>-6</sup> Max.				After reflow, +25 °C
b) Frequency/temperature characteristics	f <sub>o</sub> -T <sub>c</sub>	±0.28 × 10 <sup>-6</sup> Max.(12.8 MHz≤f <sub>o</sub> ≤50 MHz)				-40 °C to +85 °C
		±0.25 × 10 <sup>-6</sup> Max.(12.8 MHz≤f <sub>o</sub> ≤50 MHz): Option				
		±1.0 × 10 <sup>-6</sup> Max.(10 MHz≤f <sub>o</sub> <12.8 MHz)				
c) Frequency/load coefficient	f <sub>o</sub> -Load	±0.1 × 10 <sup>-6</sup> Max.				Load ±10 %
d) Frequency/voltage coefficient	f <sub>o</sub> -V <sub>CC</sub>	±0.1 ×10 <sup>-6</sup> Max.				V <sub>CC</sub> ±5%
e) Frequency aging	f <sub>age</sub>	±0.5 ×10 <sup>-6</sup> Max.				+25 °C , First year
		±3.0 ×10 <sup>-6</sup> Max. (for Stratum3)				+25 °C , 20 years
Holdover stability (Constant temperature)	-	±0.01 × 10 <sup>-6</sup> Max.( +25 °C , 24 hours)				After 10 days of continuous operation.
		±0.04 × 10 <sup>-6</sup> Max.( +25 °C , 24 hours)				After 48 hours of continuous operation.
Wander generation (MTIE, TDEV)	-	—				Compliant with GR-1244CORE , ITU-T G.8262
Free-run accuracy	-	±4.6 × 10 <sup>-6</sup> Max. (12.8 MHz≤f <sub>o</sub> ≤50 MHz)				This includes Item a),b),c),d)and e)
Current consumption	I <sub>CC</sub>	5.0 mA Max. / 6.0 mA Max.		5.0 mA Max.		10 MHz≤f <sub>o</sub> ≤26 MHz (3.3V / 5.0V)
		6.0 mA Max. / 8.0 mA Max.				26 MHz<f <sub>o</sub> ≤40 MHz (3.3V / 5.0V)
		8.0 mA Max. / 10.0 mA Max.				40 MHz<f <sub>o</sub> ≤50 MHz (3.3V / 5.0V)
Input resistance	R <sub>in</sub>	100 kΩ Min.	—	100 kΩ Min.	—	V <sub>C</sub> - GND (DC)
Frequency control range	f <sub>cont</sub>	±5.0 × 10 <sup>-6</sup> to ±12.0 ×10 <sup>-6</sup>	—	±5.0 × 10 <sup>-6</sup> to ±12.0 ×10 <sup>-6</sup>	—	V <sub>C</sub> =1.65 V ± 1.65 V at V <sub>CC</sub> =3.3V V <sub>C</sub> =2.5 V ± 2.0 V at V <sub>CC</sub> =5.0V
Frequency change polarity	—	Positive polarity	—	Positive polarity	—	
Symmetry	SYM	45 % to 55 %		—		GND level (DC cut)
Output voltage	V <sub>OH</sub>	90 % V <sub>CC</sub> Min.		—		
	V <sub>OL</sub>	10 % V <sub>CC</sub> Max.		—		
Output level	V <sub>PP</sub>	—		0.8 V Min.		Peak to Peak
Rise time / Fall time	tr/tf	8.0 ns Max.		—		10% V <sub>CC</sub> to 90 % V <sub>CC</sub> level,Load:15 pF
Start-up time	t <sub>str</sub>	2.0 sec. Max.				T=0 at 90% V <sub>CC</sub>
Output load condition	Load	15 pF		10 kΩ//10 pF		
Input voltage	V <sub>IH</sub>	70% V <sub>CC</sub> Min.				OE terminal(Enable voltage)
	V <sub>IL</sub>	30% V <sub>CC</sub> Max.				OE terminal(Disable voltage)

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

Product Name (Standard form) TG-5500 CA 30.720000MHz \*\*\*  
① Model ② Package type ③ Frequency ④ Spec segment (Please contact us)

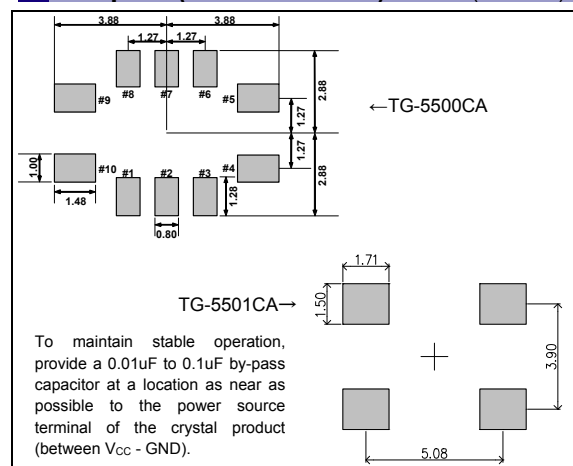
### External dimensions

(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 ).

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