

TCXO  
For Automotive



Product Number  
TG-3541CEA XA : X1B000361A00100  
TG-3541CEA XB : X1B000361A00200

# TG-3541CEA

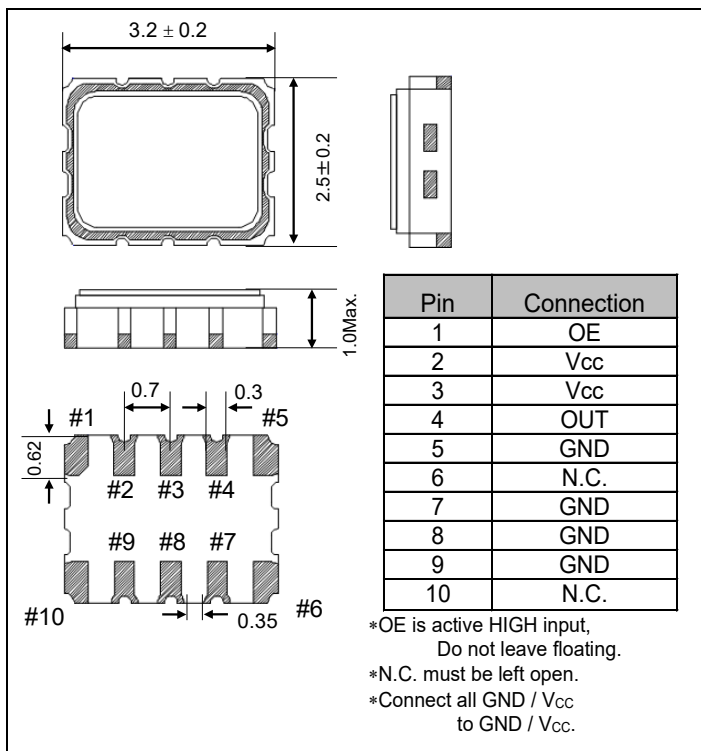


- Output frequency : 32.768 kHz
- Built-in 32.768 kHz-DTCXO
- Supply voltage : 1.5 V to 5.5 V
- Frequency / Temperature Characteristics
  - XA  $\pm 1.9 \times 10^{-6}$  (0 °C to +50 °C)
  - $\pm 3.4 \times 10^{-6}$  (-40 °C to +85 °C)
  - $\pm 8.0 \times 10^{-6}$  (+85 °C to +105 °C)
  - XB  $\pm 3.8 \times 10^{-6}$  (0 °C to +50 °C)
  - $\pm 5.0 \times 10^{-6}$  (-40 °C to +85 °C)
  - $\pm 8.0 \times 10^{-6}$  (+85 °C to +105 °C)
- AEC-Q100 compliant

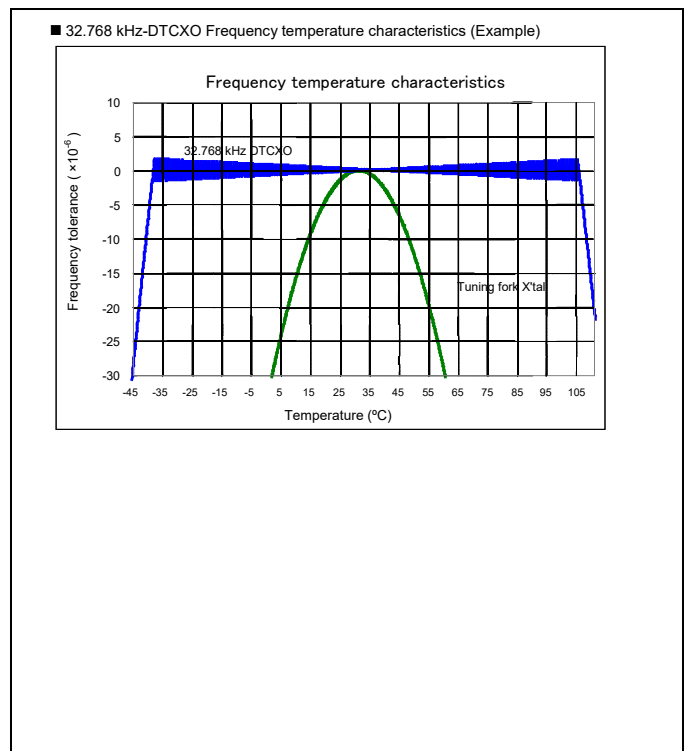
## Specifications (characteristics)

Item	Symbol	Specifications	Conditions	
Output frequency range	fo	32.768 kHz		
Supply voltage	V <sub>CC</sub>	1.5 V to 5.5 V		
Storage temperature range	T <sub>stg</sub>	-55 °C to +125 °C		
Operating temperature range	T <sub>use</sub>	-40 °C to +105 °C		
Frequency / Temperature Characteristics	fo_Tc	XA	$\pm 1.9 \times 10^{-6}$	Ta = 0 °C ~ +50 °C
			$\pm 3.4 \times 10^{-6}$	Ta = -40 °C ~ +85 °C
			$\pm 8.0 \times 10^{-6}$	Ta = +85 °C ~ +105 °C
		XB	$\pm 3.8 \times 10^{-6}$	Ta = 0 °C ~ +50 °C
			$\pm 5.0 \times 10^{-6}$	Ta = -40 °C ~ +85 °C
			$\pm 8.0 \times 10^{-6}$	Ta = +85 °C ~ +105 °C
Current consumption	I <sub>CC</sub>	1.0 $\mu$ A Typ./3.0 $\mu$ A Max.	No load condition, V <sub>CC</sub> = 3.0 V	
Disable current	I <sub>dis</sub>	1.5 $\mu$ A Max.	OE=GND, V <sub>CC</sub> = 3.0 V	
Symmetry	SYM	40 % to 60 %	50 % V <sub>CC</sub> level	
Output voltage	V <sub>OH</sub>	80 % V <sub>CC</sub> Min.	IOH=-0.5 mA, V <sub>CC</sub> =3.0 V	
	V <sub>OL</sub>	20% V <sub>CC</sub> Max.	IOL=0.5 mA, V <sub>CC</sub> =3.0 V	
Output load condition(CMOS)	L <sub>CMOS</sub>	30 pF Max.		
Start-up time	t <sub>str</sub>	1 s Max.	Ta= +25 °C , V <sub>CC</sub> =1.5 V to 5.5 V	
Frequency aging	f <sub>aging</sub>	$\pm 3 \times 10^{-6}$	Ta= +25 °C, V <sub>CC</sub> =3.0 V, first year	

## External dimensions (Unit:mm)



## Frequency temperature characteristics



## 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 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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