

TCXO / VC-TCXO  
ULTRA HIGH STABILITY



Product Number  
TG5032CAN :X1G004431xxxxxx  
TG5032SAN :X1G004441xxxxxx

TG5032CAN  
TG5032SAN



- Frequency range : 10 MHz to 50 MHz
- Supply voltage : 3.3 V Typ. / 5.0V Typ.
- Frequency / temperature characteristics :  $\pm 0.1 \times 10^{-6}$  Max. \*1
- Frequency aging :  $\pm 0.02 \times 10^{-6}$  Max./24 hours \*2
- External dimensions: 5.0 × 3.2 × 1.45 mm (10 pads)
- Applications : FemtoCell, Small Cells
- Features : Ultra high stability

Specifications (characteristics)

Item	Symbol	TG5032CAN (CMOS output)		TG5032SAN(Clipped sine wave)		Conditions / Remarks
		VC-TCXO	TCXO	VC-TCXO	TCXO	
Output frequency range	f <sub>o</sub>	10 MHz to 50 MHz 19.2, 26, 30.72, 40 MHz				Standard frequency
Supply voltage	V <sub>CC</sub>	C: 3.3 V ±5%, H: 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>	A: 0 °C to +70 °C				Standard temp. range
Frequency tolerance	f <sub>tol</sub>	±2.0 × 10 <sup>-6</sup> Max.				After reflow, +25 °C
Frequency/temperature Characteristics *1	f <sub>o</sub> -Tc	A: ±0.1 × 10 <sup>-6</sup> Max. H: ±0.25 × 10 <sup>-6</sup> Max.				A: 0 to +70 °C (standard spec.) G: -40 to +85 °C (Option spec.)
Frequency/load coefficient	f <sub>o</sub> -Load	±0.1 × 10 <sup>-6</sup> Max. (10 MHz ≤ f <sub>o</sub> ≤ 40 MHz) ±0.2 × 10 <sup>-6</sup> Max. (40 MHz < f <sub>o</sub> ≤ 50 MHz)				Load ±10 %
Frequency/voltage coefficient	f <sub>o</sub> -V <sub>CC</sub>	±0.1 × 10 <sup>-6</sup> Max. (10 MHz ≤ f <sub>o</sub> ≤ 40 MHz) ±0.2 × 10 <sup>-6</sup> Max. (40 MHz < f <sub>o</sub> ≤ 50 MHz)				V <sub>CC</sub> ±5%
Frequency aging *2	f <sub>age</sub>	±0.02 × 10 <sup>-6</sup> Max. ±1.0 × 10 <sup>-6</sup> Max.				+25 °C, 24h +25 °C, First year
Current consumption	I <sub>CC</sub>	5.0 mA Max. / 6.0 mA Max. 6.0 mA Max. / 8.0 mA Max. 8.0 mA Max. / 10.0 mA Max.		5.0 mA Max.		10 MHz ≤ f <sub>o</sub> ≤ 26 MHz (3.3V / 5.0V) 26 MHz < f <sub>o</sub> ≤ 40 MHz (3.3V / 5.0V) 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 × 10 <sup>-6</sup> to ±10 × 10 <sup>-6</sup>	—	±5 × 10 <sup>-6</sup> to ±10 × 10 <sup>-6</sup>	—	J,D : V <sub>C</sub> =1.5 V ± 1.0 V at V <sub>CC</sub> =3.3 V K,E : V <sub>C</sub> =1.65 V ± 1.0 V at V <sub>CC</sub> =3.3 V L,H : V <sub>C</sub> =2.5 V ± 2.0 V at V <sub>CC</sub> =5.0 V
Frequency change polarity	—	Positive polarity	—	Positive polarity	—	
Symmetry	SYM	45 % to 55 %		—		GND level (DC cut)
Output voltage	V <sub>OH</sub> V <sub>OL</sub>	90 % V <sub>CC</sub> Min. 10 % V <sub>CC</sub> Max.		—		
Output level	V <sub>PP</sub>	—		0.8 V Min.		Peak to Peak
Rise time / Fall time	t <sub>r</sub> /t <sub>f</sub>	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.(Filter: Standard) / 5.0 ms Max.(Non-Filter: Option)				T=0 at 90% V <sub>CC</sub>
Output load condition	Load	15 pF		10 kΩ/10 pF		

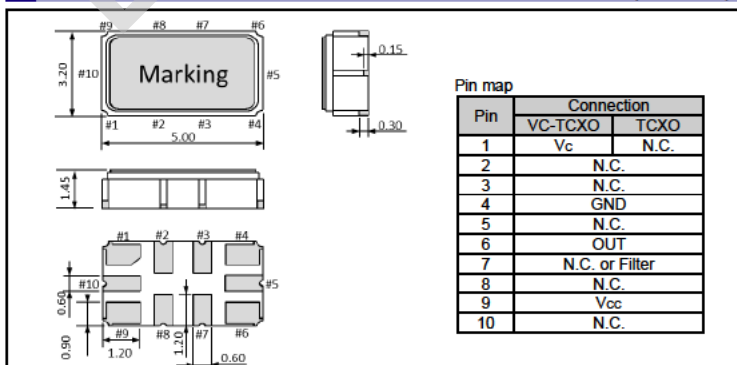
\* Note : Please contact us for requirements not listed in this specification. \*1 Based on frequency at (f<sub>max</sub>+f<sub>min</sub>)/2. \*2 After 48 hours operating

Product Name TG5032 CAN 19.200000MHz C A A N D A  
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

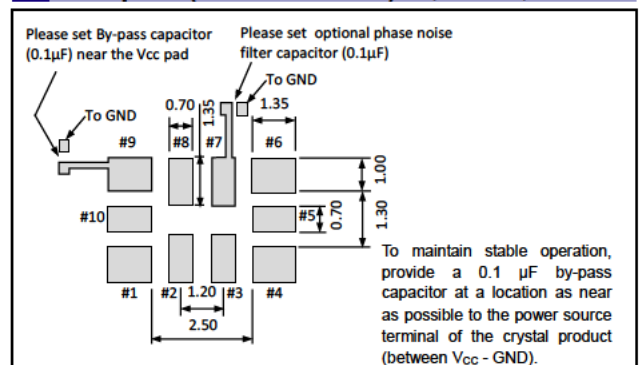
V <sub>C</sub> [V]	Non	1.5	1.65	2.5	Any
Filter ON	G	J	K	L	F
Non Filter	N	D	E	H	A

- ① Model ② Output (C: CMOS, S: Clipped sine wave)
- ③ Frequency ④ Supply voltage (C: 3.3 V Typ.)
- ⑤ Frequency / temperature characteristics (A: ±0.1 × 10<sup>-6</sup> Max.) ⑥ Operating temperature (A: 0 °C to +70 °C)
- ⑦ OE function (N: Non) ⑧ V<sub>C</sub> function(Refer to symbol table) ⑨ Internal identification code ("A" 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.

## 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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