

TCXO / VC-TCXO  
HIGH STABILITY



Product Number  
TG5032CGN : X1G005231xxxxxx  
TG5032SGN : X1G005241xxxxxx

TG5032CGN / TG5032SGN

- Frequency range : 10 MHz to 40 MHz
- Supply voltage : 3.3 V Typ.
- Frequency / temperature characteristics :  $\pm 0.1 \times 10^{-6}$  Max. (-40 °C to +85 °C)
- Frequency aging :  $\pm 3.0 \times 10^{-6}$  Max. / 20 years
- External dimensions : 5.0 x 3.2 x 1.45 mm (10 pins)
- Applications : Small Cells, Stratum3, SyncE, IEEE1588
- Features : High stability, Wide temperature range



TG5032CGN (CMOS)



TG5032SGN (Clipped Sine)

Specifications (characteristics)

Item	Symbol	TG5032CGN (CMOS)		TG5032SGN(Clipped sine wave)		Conditions / Remarks
		TCXO	VC-TCXO	TCXO	VC-TCXO	
Output frequency range	f <sub>o</sub>	10 MHz to 40 MHz				Standard frequency
Supply voltage	V <sub>CC</sub>	C: 3.3 V ± 5 % (Supply voltage range: 2.375 V to 3.63 V)				
Storage temperature	T <sub>stg</sub>	-40 °C to +90 °C				Storage as single product
Operating temperature	T <sub>use</sub>	G: -40 °C to +85 °C				
a) Frequency tolerance	f <sub>tol</sub>	$\pm 1.0 \times 10^{-6}$ Max.				After reflow, +25 °C
b) Frequency/temperature Characteristics	f <sub>o</sub> -Tc	A: $\pm 0.1 \times 10^{-6}$ Max. / -40 °C to +85 °C H: $\pm 0.25 \times 10^{-6}$ Max. / -40 °C to +85 °C B: $\pm 0.28 \times 10^{-6}$ Max. / -40 °C to +85 °C				Reference to (f <sub>max</sub> + f <sub>min</sub> ) / 2
c) Frequency/load coefficient	f <sub>o</sub> -Load	$\pm 0.1 \times 10^{-6}$ Max.				Load ± 10 %
d) Frequency/voltage coefficient	f <sub>o</sub> -V <sub>CC</sub>	$\pm 0.1 \times 10^{-6}$ Max.				V <sub>CC</sub> ± 5 %
e) Frequency aging	f <sub>age</sub>	$\pm 3.0 \times 10^{-6}$ Max.				+25 °C, First year +25 °C, 20 years
Holdover stability (Constant temperature)	-	$\pm 0.01 \times 10^{-6}$ Max. (+25 °C, 24 hours)				After 10 days of continuous operation.
Wander generation (MTIE, TDEV)	-	$\pm 0.04 \times 10^{-6}$ Max. (+25 °C, 24 hours)				After 48 hours of continuous operation.
Free-run accuracy	-	$\pm 4.6 \times 10^{-6}$ Max.				Compliant with GR-1244CORE, ITU-T G.8262 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 26 MHz < f <sub>o</sub> ≤ 40 MHz
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>	-	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	-	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	D, J: V <sub>c</sub> = 1.5 V ± 1.0 V at V <sub>CC</sub> = 3.3 V E, K: V <sub>c</sub> = 1.65 V ± 1.0 V at V <sub>CC</sub> = 3.3 V
Frequency change polarity	-	-	Positive polarity	-	Positive polarity	
Symmetry	SYM	45 % to 55 %		-		50 % V <sub>CC</sub> level, L_CMOS ≤ 15 pF
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	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>	5.0 ms Max. (Non-Filter: Standard) / 2.0 sec. Max. (Filter: Option)				t = 0 at 90 % V <sub>CC</sub>
Output load condition	Load	15 pF		10 kΩ // 10 pF		
Input voltage	V <sub>IH</sub> V <sub>IL</sub>	70 % V <sub>CC</sub> Min. 30 % V <sub>CC</sub> Max.				OE terminal (Enable voltage) OE terminal (Disable voltage)

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

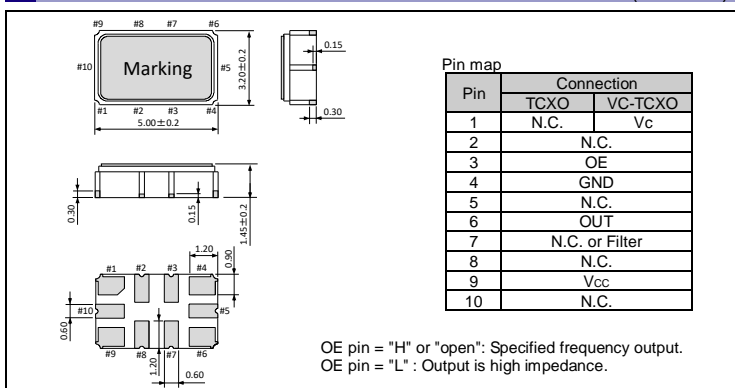
Product Name TG5032 C GN 30.720000MHz C A G H D A  
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- 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:  $\pm 0.1 \times 10^{-6}$  Max., H:  $\pm 0.25 \times 10^{-6}$  Max., B:  $\pm 0.28 \times 10^{-6}$  Max.)
- ⑥ Operating temperature (G: -40 °C to +85 °C) ⑦ OE function (H: Active High)
- ⑧ V<sub>c</sub> function (Refer to symbol table) ⑨ Internal identification code ("A" is default)

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

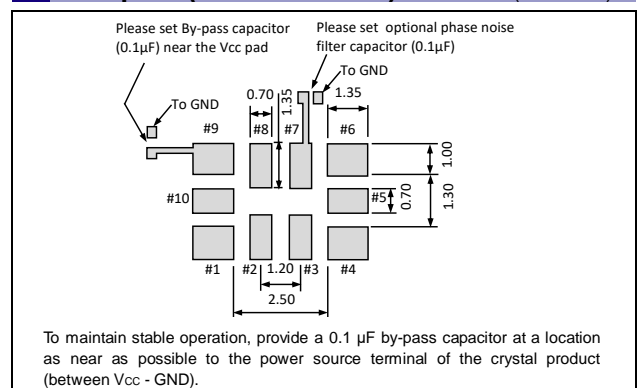
External dimensions

(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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