

TCXO / VC-TCXO
ULTRA HIGH STABILITY



Product Number
TG5032CBN : X1G004571xxxxxx
TG5032SBN : X1G004581xxxxxx

TG5032CBN
TG5032SBN

- Frequency range : 10 MHz to 50 MHz
- Supply voltage : 3.3 V Typ. / 5.0 V 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 : 5.0 x 3.2 x 1.45 mm (10 pins)
- Applications : Network synchronization, Stratum3, SyncE, IEEE1588, Microwave, BTS
- Features : Ultra high stability



Specifications (characteristics)

Item	Symbol	TG5032CBN (CMOS)		TG5032SBN (Clipped sine wave)		Conditions / Remarks
		VC-TCXO	TCXO	VC-TCXO	TCXO	
Output frequency range	f _o	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 _{cc}	C: 3.3 V $\pm 5\%$, H: 5.0 V $\pm 5\%$ (Supply voltage range : 2.7 V to 5.5 V)				
Storage temperature	T _{stg}	-40 °C to +90 °C				Storage as single product
Operating temperature	T _{use}	G: -40 °C to +85 °C				
a) Frequency tolerance	f _{tol}	$\pm 1.0 \times 10^{-6}$ Max. (10 MHz \leq f _o \leq 40 MHz) $\pm 0.9 \times 10^{-6}$ Max. (40 MHz $<$ f _o \leq 50 MHz)				After reflow, +25 °C
b) Frequency/temperature characteristics	f _o -Tc	B: $\pm 0.28 \times 10^{-6}$ Max. (for Stratum3) H: $\pm 0.25 \times 10^{-6}$ Max. (for Stratum3) : Option				-40 °C to +85 °C
c) Frequency/load coefficient	f _o -Load	$\pm 0.1 \times 10^{-6}$ Max. (10 MHz \leq f _o \leq 40 MHz) $\pm 0.2 \times 10^{-6}$ Max. (40 MHz $<$ f _o \leq 50 MHz)				Load $\pm 10\%$
d) Frequency/voltage coefficient	f _o -Vcc	$\pm 0.1 \times 10^{-6}$ Max. (10 MHz \leq f _o \leq 40 MHz) $\pm 0.2 \times 10^{-6}$ Max. (40 MHz $<$ f _o \leq 50 MHz)				V _{cc} $\pm 5\%$
e) Frequency aging	f _{age}	$\pm 0.5 \times 10^{-6}$ Max. $\pm 3.0 \times 10^{-6}$ Max. (for Stratum3)				+25 °C, First year +25 °C, 20 years
Holdover stability (Constant temperature)	-	$\pm 0.01 \times 10^{-6}$ Max. (+25 °C, 24 hours) $\pm 0.04 \times 10^{-6}$ Max. (+25 °C, 24 hours)				After 10 days of continuous operation. After 48 hours of continuous operation.
Wander generation (MTIE, TDEV)	-	-				Compliant with GR-1244CORE, ITU-T G.8262
Free-run accuracy	-	$\pm 4.6 \times 10^{-6}$ Max.				This includes Item a), b), c), d) and e)
Current consumption	I _{cc}	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 \leq f _o \leq 26 MHz (3.3V / 5.0V) 26 MHz $<$ f _o \leq 40 MHz (3.3V / 5.0V) 40 MHz $<$ f _o \leq 50 MHz (3.3V / 5.0V)
Input resistance	R _{in}	100 k Ω Min.	-	100 k Ω Min.	-	V _c - GND (DC)
Frequency control range	f _{cont}	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	-	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	-	J, D: V _c = 1.5 V \pm 1.0 V at V _{cc} = 3.3 V K, E: V _c = 1.65 V \pm 1.0 V at V _{cc} = 3.3 V L, H: V _c = 2.5 V \pm 2.0 V at V _{cc} = 5.0 V
Frequency change polarity	-	Positive polarity	-	Positive polarity	-	
Symmetry	SYM	45 % to 55 %		-		GND level (DC cut)
Output voltage	V _{OH}	90 % V _{cc} Min.		-		
	V _{OL}	10 % V _{cc} Max.		-		
Output level	V _{PP}	-		0.8 V Min.		Peak to Peak
Rise time / Fall time	t _r /t _f	8.0 ns Max.		-		
Start-up time	t _{str}	2.0 sec. Max. (Filter: Standard) / 5.0 ms Max. (Non-Filter: Option)		-		10% V _{cc} to 90 % V _{cc} level, Load: 15 pF T=0 at 90% V _{cc}
Output load condition	Load	15 pF		10 k Ω /10 pF		
Input voltage	V _{IH}	-		70% V _{cc} Min.		OE terminal(Enable voltage)
	V _{IL}	-		30% V _{cc} Max.		OE terminal(Disable voltage)

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

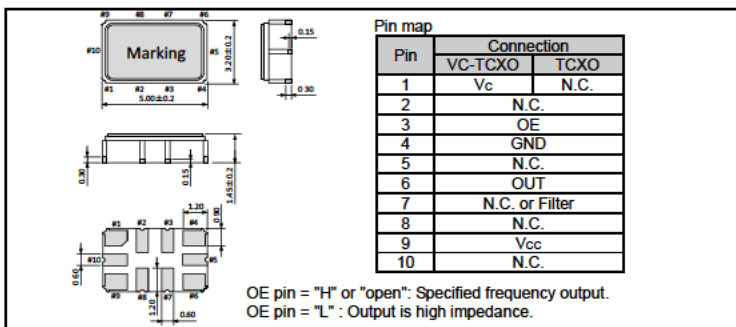
Product Name TG5032 C BN 30.720000MHz C B G H N A
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Model ② Output (C: CMOS, S: Clipped sine wave)
- ③ Frequency ④ Supply voltage (C: 3.3 V Typ.)
- ⑤ Frequency/temperature characteristics (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_c function (Refer to symbol table) ⑨ Internal identification code ("A" is default)

⑧V _c function (symbol table)					
V _c [V]	Non	1.5	1.65	2.5	Any
Filter ON	G	J	K	L	F
Non Filter	N	D	E	H	A

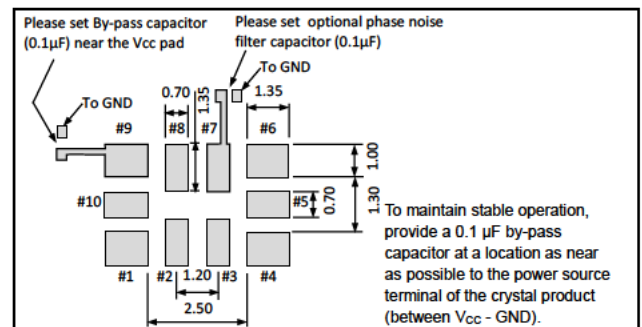
External dimensions

(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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