TCXO / VC-TCXO
HIGH STABILITY

Pb Free RoHS Compliant

Product Number
TG5032CFN :X1G005391xxxxxx
TG5032SFN :X1G005401xxxxxx

TG5032CFN / TG5032SFN

- Frequency range : 10 MHz to 40 MHz
- Supply voltage : 3.3 V Typ.
- Frequency / temperature characteristics : ±0.1 × 10^{-6} Max. (-40 ºC to +85 ºC)
- Frequency aging : ±3.0 × 10^{-6} Max. / 20years
- External dimensions: 5.0 × 3.2 × 1.45 mm (4 pins)
- Applications : Small Cells, Stratum3, SyncE, IEEE1588
- Features : High stability, Wide temperature range

TG5032CFN
(CMOS)

TG5032SFN
(Clipped Sine)

Specifications (characteristics)

Item	Symbol	TG5032CFN (CMOS output)		TG5032SFN(Clipped sine wave)		Conditions / Remarks
		TCXO	VC-TCXO	TCXO	VC-TCXO	
Output frequency range	fo	10 MHz to 40 MHz				
		10, 12.8, 19.2, 20, 24.576, 25, 25.6, 26, 30.72, 38.4, 38.88, 40 MHz				Standard frequency
Supply voltage	V_{CC}	C: 3.3 V ± 5 % (Supply voltage range: 2.375 V to 3.63 V)				
Storage temperature	T_stg	-40 ºC to +90 ºC				Storage as single product
Operating temperature	T_use	G: -40 ºC to +85 ºC				Standard temp. range
a) Frequency tolerance	f_tol	±1.0 × 10^{-6} Max.				After reflow, +25 ºC
b) Frequency/temperature Characteristics	fo-Tc	A: ±0.1 × 10^{-6} Max. / -40 ºC to +85 ºC H: ±0.25 × 10^{-6} Max. / -40 ºC to +85 ºC B: ±0.28 × 10^{-6} Max. / -40 ºC to +85 ºC				Reference to (fmax + fmin) / 2
c) Frequency/load coefficient	fo-Load	±0.1 × 10^{-6} Max.				Load ± 10 %
d) Frequency/voltage coefficient	fo-V_{CC}	±0.1 × 10^{-6} Max.				V_{CC} ± 5%
e) Frequency aging	f_age	±0.5 × 10^{-6} Max.				+25 °C, First year
		±3.0 × 10^{-6} Max.				+25 °C, 20 years
Holdover stability (Constant temperature)	-	±0.01 × 10^{-6} Max. (+25 °C , 24 hours)				After 10 days of continuous operation.
		±0.04 × 10^{-6} 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^{-6} Max.				This includes Item a), b), c), d) and e)
Current consumption	I_{CC}	5.0 mA Max.		5.0 mA Max.		10 MHz ≤ fo ≤ 26 MHz
		6.0 mA Max.				26 MHz < fo ≤ 40 MHz
Input resistance	Rin	-	100 kΩ Min.	-	100 kΩ Min.	Vc- GND (DC)
Frequency control range	f_cont	-	±5 ×10^{-6} to ±10 ×10^{-6}	-	±5 ×10^{-6} to ±10 ×10^{-6}	D :Vc = 1.5 V ± 1.0 V at V_{CC} = 3.3 V E :Vc = 1.65 V ± 1.0 V at V_{CC} = 3.3 V
Frequency change polarity	-	-	Positive polarity	-	Positive polarity	
Symmetry	SYM	45 % to 55 %		-		50 % V_{CC} level, L_CMOS ≤ 15 pF
Output voltage	V_{OH}	90 % V_{CC} Min.		-		
	V_{OL}	10 % V_{CC} Max.		-		
Output level	Vpp	-		0.8 V Min.		Peak to Peak
Rise time / Fall time	tr/tf	8.0 ns Max.		-		10 % V_{CC} to 90 % V_{CC} level, Load: 15 pF
Start-up time	t_str	5.0 ms Max.				t = 0 at 90% V_{CC}
Output load condition	Load	15 pF		10 kΩ // 10 pF		

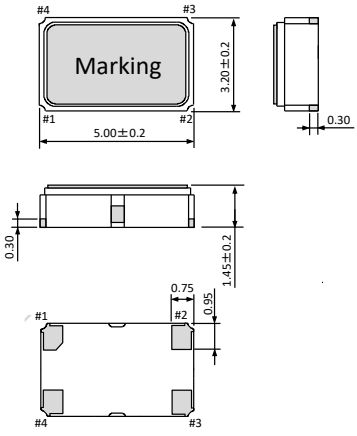
* Note : Please contact us for requirements not listed in this specification.

Product Name (Standard form)

TG5032 C FN 30.720000MHz C A G N D A
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①Model ②Output (C: CMOS, S: Clipped sine wave) ③Frequency ④Supply voltage (C: 3.3 V Typ.)
⑤Frequency / temperature characteristics (A: ±0.1 × 10^{-6} Max., H: ±0.25 × 10^{-6} Max., B: ±0.28 × 10^{-6} Max.)
⑥Operating temperature (G: -40 °C to +85 °C) ⑦OE function (N: Non)
⑧Vc function (A: Vc =any, D: Vc =1.5 V, E: Vc =1.65 V, N: Non) ⑨Internal identification code (“A” is default)

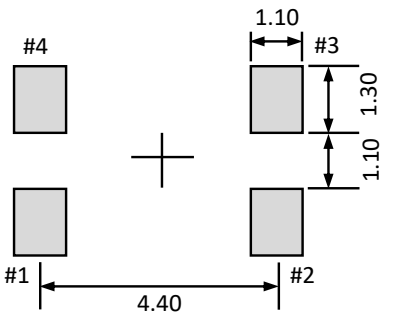
External dimensions (Unit : mm)



Pin map

Pin	Connection	
	TCXO	VC-TCXO
1	N.C	Vc
2	GND	
3	OUT	
4	V_{CC}	

Footprint (Recommended) (Unit: mm)



To maintain stable operation, provide a 0.1 µF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between V_{CC} - GND).

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).