



VC-TCXO / TCXO

ULTRA HIGH STABILITY



Product Number
 TG5032CFN : X1G005391xxxxxx
 TG5032SFN : X1G005401xxxxxx

TG5032CFN

TG5032SFN



- 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./20years
- External dimensions: 5.0 × 3.2 × 1.45 mm (4 pins)
- Applications : Small Cells, Stratum3, SyncE, IEEE1588
- Features : Ultra high stability, Wide temperature range

Specifications (characteristics)

Item	Symbol	TG5032CFN (CMOS output)		TG5032SFN(Clipped sine wave)		Conditions / Remarks
		VC-TCXO	TCXO	VC-TCXO	TCXO	
Output frequency range	f_0	10 MHz to 40 MHz				Standard frequency
		10, 12.8, 19.2, 20, 24.576, 25, 25.6, 26, 30.72, 38.4, 38.88, 40 MHz				
Supply voltage	V_{CC}	C: 3.3 V $\pm 5\%$ (Supply voltage range :2.375 V to 3.63 V)				
Storage temperature	T_{stg}	-40 °C to +90 °C				Storage as single product
Operating temperature	T_{use}	G: -40 °C to +85 °C				Standard temp. range
a) Frequency tolerance	f_{tol}	$\pm 1.0 \times 10^{-6}$ Max.				After reflow, +25 °C
b) Frequency/temperature Characteristics	f_0 -Tc	A: $\pm 0.1 \times 10^{-6}$ Max. / G: -40 °C to +85 °C H: $\pm 0.25 \times 10^{-6}$ Max. / G: -40 °C to +85 °C B: $\pm 0.28 \times 10^{-6}$ Max. / G: -40 °C to +85 °C				Reference to (fmax+fmin)/2
c) Frequency/load coefficient	f_0 -Load	$\pm 0.1 \times 10^{-6}$ Max.				Load $\pm 10\%$
d) Frequency/voltage coefficient	f_0 -Vcc	$\pm 0.1 \times 10^{-6}$ Max.				Vcc $\pm 5\%$
e) Frequency aging	f_{age}	$\pm 0.5 \times 10^{-6}$ Max.				+25 °C, First year
		$\pm 3.0 \times 10^{-6}$ Max.				+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
Current consumption	I_{CC}	5.0 mA Max. 6.0 mA Max.		5.0 mA Max.		This includes Item a), b), c), d) and e) 10 MHz $\leq f_0 \leq 26$ MHz 26 MHz $< f_0 \leq 40$ MHz
Input resistance	R_{in}	100 k Ω Min.	—	100 k Ω Min.	—	Vc- GND (DC)
Frequency control range	f_{cont}	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	—	$\pm 5 \times 10^{-6}$ to $\pm 10 \times 10^{-6}$	—	D: Vc=1.5 V ± 1.0 V at Vcc=3.3 V E: Vc=1.65 V ± 1.0 V at Vcc=3.3 V
Frequency change polarity	—	Positive polarity	—	Positive polarity	—	
Symmetry	SYM	45 % to 55 %		—		50 % Vcc level, L_CMOS ≤ 15 pF
Output voltage	V_{OH}	90 % Vcc Min.		—		
	V_{OL}	10 % Vcc Max.		—		
Output level	V_{PP}	—		0.8 V Min.		Peak to Peak
Rise time / Fall time	t_r / t_f	8.0 ns Max.		—		10 % Vcc to 90 % Vcc level, Load: 15 pF
Start-up time	t_{str}	5.0 ms Max.				T=0 at 90% Vcc
Output load condition	Load	15 pF		10 k Ω /10 pF		

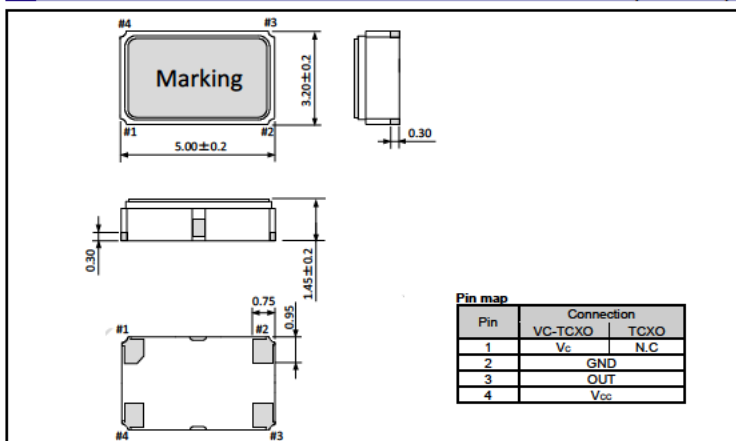
* Note : Please contact us for requirements not listed in this specification.

Product Name TG5032CFN30.720000MHZ C A G N 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 (N: Non)
 ⑧ Vc function (A: Vc =any, D: Vc =1.5 V, E: Vc =1.65 V, N: Non) ⑨ Internal identification code ("A" is default)

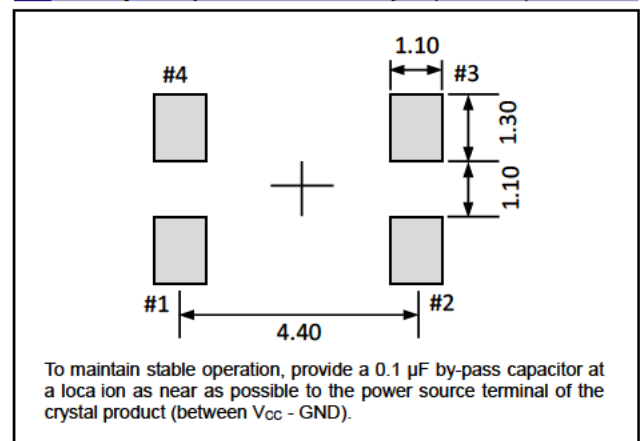
External dimensions

(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.

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IATF 16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

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	► 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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