



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 _o | 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 _o -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 _o -Load | $\pm 0.1 \times 10^{-6}$ Max. | | | | Load $\pm 10\%$ |
| d) Frequency/voltage coefficient | f _o -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 _o \leq 26 MHz 26 MHz < f _o \leq 40 MHz |
| Input resistance | R _{in} | 100 kΩ Min. | — | 100 kΩ 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 \pm 1.0 V at V _{cc} = 3.3 V E : Vc = 1.65 V \pm 1.0 V at V _{cc} = 3.3 V |
| Frequency change polarity | — | Positive polarity | — | Positive polarity | — | |
| Symmetry | SYM | 45 % to 55 % | | — | | 50 % Vcc level, L_CMOS \leq 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 kΩ/10 pF | | |

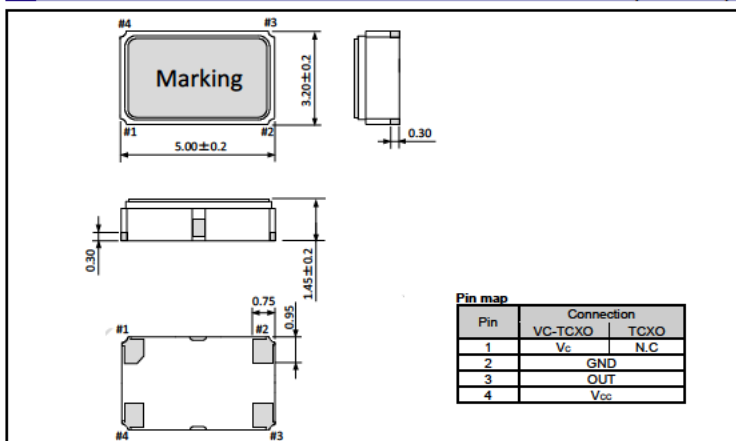
* Note : Please contact us for requirements not listed in this specification.

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)

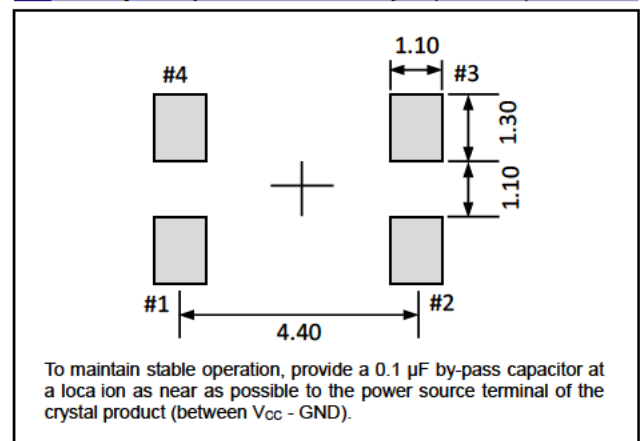
External dimensions

(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.

► 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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