**TCXO / VC-TCXO**
**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 : ±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)

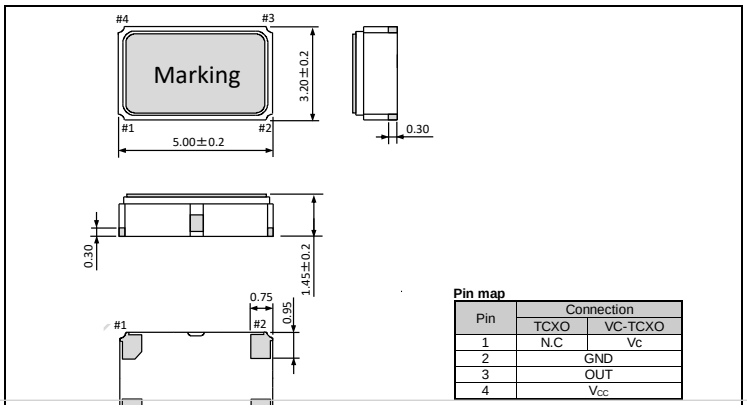
| Item | Symbol | TG5032CFN (CMOS output) | | TG5032SFN(Clipped sine wave) | | Conditions / Remarks |
|---|---|---|---|---|---|---|
| | | TCXO | VC-TCXO | TCXO | VC-TCXO | |
| Output frequency range | fo | 10 MHz to 40 MHz | | | | |
| | | 10, 12.8, 19.2, 20, 24.576, 25, 25.6, 26, 30.72, 38.4, 38.88, 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<br>H: ±0.25 × $10^{-6}$ Max. / -40 ºC to +85 ºC<br>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<br>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)

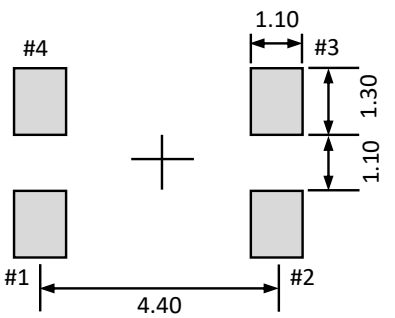
## External dimensions (Unit : mm)




**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

## 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 | ►Pb free. |
| RoHS Compliant | ►Complies with EU RoHS directive.<br>*About the products without the Pb-free mark.<br>Contains Pb in products exempted by EU RoHS directive.<br>(Contains Pb in sealing glass, high melting temperature type solder or other.) |
| For Automotive | ►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc. |
| Automotive Safety | ►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc ). |

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