

TCXO / VC-TCXO  
ULTRA HIGH STABILITY



Product Number  
TG5032CAN :X1G004431xxxxxx  
TG5032SAN :X1G004441xxxxxx

TG5032CAN  
TG5032SAN



- Frequency range : 10 MHz to 50 MHz
- Supply voltage : 3.3 V Typ. / 5.0V Typ.
- Frequency / temperature characteristics :  $\pm 0.1 \times 10^{-6}$  Max. \*1
- Frequency aging :  $\pm 0.02 \times 10^{-6}$  Max./24 hours \*2
- External dimensions: 5.0 × 3.2 × 1.45 mm (10 pads)
- Applications : FemtoCell, Small Cells
- Features : Ultra high stability

Specifications (characteristics)

| Item                                     | Symbol      | TG5032CAN (CMOS output)   |      | TG5032SAN(Clipped sine wave)                      |      | Conditions / Remarks  |
|--|-------------|---|------|---|------|---|
|  |             | VC-TCXO   | TCXO | VC-TCXO   | TCXO |   |
| Output frequency range                   | $f_o$       | 10 MHz to 50 MHz<br>19.2, 26, 30.72, 40 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                    | $T_{use}$   | A: 0 °C to +70 °C   |      |   |      | Standard temp. range  |
| Frequency tolerance                      | $f_{tol}$   | $\pm 2.0 \times 10^{-6}$ Max.   |      |   |      | After reflow, +25 °C  |
| Frequency/temperature Characteristics *1 | $f_o$ -Tc   | A: $\pm 0.1 \times 10^{-6}$ Max.<br>H: $\pm 0.25 \times 10^{-6}$ Max.   |      |   |      | A: 0 to +70 °C (standard spec.)<br>G: -40 to +85 °C (Option spec.)  |
| Frequency/load coefficient               | $f_o$ -Load | $\pm 0.1 \times 10^{-6}$ Max. (10 MHz $\leq f_o \leq 40$ MHz)<br>$\pm 0.2 \times 10^{-6}$ Max. (40 MHz $< f_o \leq 50$ MHz) |      |   |      | Load $\pm 10$ %   |
| Frequency/voltage coefficient            | $f_o$ -Vcc  | $\pm 0.1 \times 10^{-6}$ Max. (10 MHz $\leq f_o \leq 40$ MHz)<br>$\pm 0.2 \times 10^{-6}$ Max. (40 MHz $< f_o \leq 50$ MHz) |      |   |      | Vcc $\pm 5\%$   |
| Frequency aging *2                       | $f_{age}$   | $\pm 0.02 \times 10^{-6}$ Max.<br>$\pm 1.0 \times 10^{-6}$ Max.   |      |   |      | +25 °C, 24h<br>+25 °C, First year   |
| Current consumption                      | $I_{CC}$    | 5.0 mA Max. / 6.0 mA Max.<br>6.0 mA Max. / 8.0 mA Max.<br>8.0 mA Max. / 10.0 mA Max.  |      | 5.0 mA Max.                                       |      | 10 MHz $\leq f_o \leq 26$ MHz (3.3V / 5.0V)<br>26 MHz $< f_o \leq 40$ MHz (3.3V / 5.0V)<br>40 MHz $< f_o \leq 50$ MHz (3.3V / 5.0V) |
| Input resistance                         | $R_{in}$    | 100 k $\Omega$ Min.   | —    | 100 k $\Omega$ 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 $\pm 10 \times 10^{-6}$ | —    | J,D :Vc=1.5 V $\pm 1.0$ V at Vcc=3.3 V<br>K,E : Vc=1.65 V $\pm 1.0$ V at Vcc=3.3 V<br>L,H : Vc=2.5 V $\pm 2.0$ V at Vcc=5.0 V       |
| Frequency change polarity                | —           | Positive polarity   | —    | Positive polarity                                 | —    |   |
| Symmetry                                 | SYM         | 45 % to 55 %  |      | —   |      | GND level (DC cut)  |
| 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                            | $t_{str}$   | 2.0 sec. Max.(Filter: Standard) / 5.0 ms Max.(Non-Filter: Option)   |      |   |      | T=0 at 90% Vcc  |
| Output load condition                    | Load        | 15 pF   |      | 10 k $\Omega$ /10 pF                              |      |   |

\* Note : Please contact us for requirements not listed in this specification. \*1 Based on frequency at (fmax+fmin)/2. \*2 After 48 hours operating

Product Name TG5032 CAN 19.200000MHz C A A N D A  
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

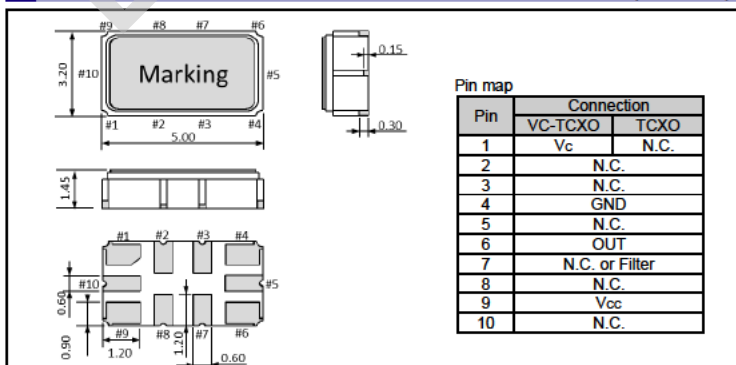
⑧Vc function (symbol table)

| Vc [V]     | Non | 1.5 | 1.65 | 2.5 | Any |
|------------|-----|-----|------|-----|-----|
| Filter ON  | G   | J   | K    | L   | F   |
| Non Filter | N   | D   | E    | H   | A   |

- 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.) ⑥ Operating temperature (A: 0 °C to +70 °C)
- ⑦ OE function (N: Non) ⑧ Vc function(Refer to symbol table) ⑨ Internal identification code ("A" is default)

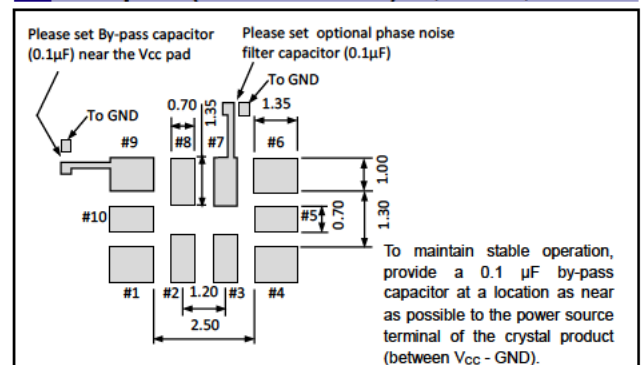
External dimensions

(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.

## 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.<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.) |
|  | ► 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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