TCXO/VC-TCXO
ULTRA HIGH STABILITY

TG-5500CA / TG-5501CA

- Frequency range: 10 MHz to 50 MHz
- Supply voltage: 3.3 V Typ. / 5.0V Typ.
- Frequency / temperature characteristics:
  -±0.28×10⁻⁶ Max. (for Stratum3)
  -±3.0×10⁻⁶ Max. (for Stratum3)
- Frequency aging:
  -±3.0×10⁻⁶ Max./20 years (for Stratum3)
- Applications:
  -Network synchronization, Stratum3
  -SyncE, IEEE1588, Microwave BTS
- Features:
  -Ultra high stability

### Specifications (characteristics)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>CMOS</th>
<th>VC-TCXO</th>
<th>TCXO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output frequency range</td>
<td>fo</td>
<td>10 MHz to 50 MHz</td>
<td>10, 12.8, 15.36, 16.384, 19.44, 20, 24, 24.576, 25, 26, 30.72, 40, 49.152, 50 MHz</td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td>Vcc</td>
<td>3.3 V±5%</td>
<td>5.0 V±5%</td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>T_st</td>
<td>-40 °C to +90 °C</td>
<td>Storage as single product.</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>T_use</td>
<td>-40 °C to +85 °C</td>
<td>After reflow, +25 °C</td>
<td></td>
</tr>
<tr>
<td>Frequency tolerance</td>
<td>T_tol</td>
<td>±1.0×10⁻⁶ Max.</td>
<td>±0.28×10⁻⁶ Max. (12.8 MHz)</td>
<td></td>
</tr>
<tr>
<td>Frequency/temperature</td>
<td>f0-Tc</td>
<td>±0.28×10⁻⁶ Max. (12.8 MHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td></td>
<td></td>
<td>±25 × 10⁻⁶ Max. (12.8 MHz)</td>
<td></td>
</tr>
<tr>
<td>Holdover stability</td>
<td></td>
<td></td>
<td>±0.01×10⁻⁶ Max. (+25 °C , 24 hours)</td>
<td></td>
</tr>
<tr>
<td>(Constant temperature)</td>
<td></td>
<td></td>
<td>After 10 days of continuous operation.</td>
<td></td>
</tr>
<tr>
<td>Wanner generation</td>
<td></td>
<td></td>
<td>Compliant with GR-1244CORE , ITU-T G.8262</td>
<td></td>
</tr>
<tr>
<td>Free-run accuracy</td>
<td></td>
<td></td>
<td>±4.8×10⁻⁶ Max. (12.8 MHz)</td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>Icc</td>
<td>5.0 mA Max. / 0.0 mA Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.0 mA Max. / 1.0 mA Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0 mA Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 MHz&lt; f0&lt;50 MHz (3.3V / 5.0V)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input resistance</td>
<td>Rin</td>
<td>100 kΩ Min.</td>
<td>100 kΩ Min.</td>
<td></td>
</tr>
<tr>
<td>Frequency control range</td>
<td>f_cont</td>
<td>±5.0 × 10⁻⁶ to ±12.0 × 10⁻⁶</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency change polarity</td>
<td></td>
<td>Positive polarity</td>
<td>Positive polarity</td>
<td></td>
</tr>
<tr>
<td>Symmetry</td>
<td>SYM</td>
<td>45 % to 55 %</td>
<td>GND level (DC cut)</td>
<td></td>
</tr>
<tr>
<td>Output voltage</td>
<td>VOH</td>
<td>90 % Vcc Min.</td>
<td>Vcc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vcc</td>
<td>0 % Vcc Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output level</td>
<td>Vpp</td>
<td>0.8 V Min.</td>
<td>Peak to Peak</td>
<td></td>
</tr>
<tr>
<td>Rise time / Fall time</td>
<td>t_r/t_f</td>
<td>8.0 ns Max.</td>
<td>2.0 sec. Max.</td>
<td></td>
</tr>
<tr>
<td>Start-up time</td>
<td>t_start</td>
<td>10 % Vcc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output load condition</td>
<td>Load</td>
<td>15 pF</td>
<td>10 kΩ/10 pF</td>
<td></td>
</tr>
<tr>
<td>Input voltage</td>
<td>VIN</td>
<td>70 % Vcc Min.</td>
<td>OE terminal(Enable voltage)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VIL</td>
<td>30 % Vcc Max.</td>
<td>OE terminal(Disable voltage)</td>
<td></td>
</tr>
</tbody>
</table>

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

Product Name
(TG-5500CA / TG-5501CA)

- (Standard form)
  - TG-5500CA: X1G003561xxxxxx
  - TG-5501CA: X1G003901xxxxxx

### External dimensions

(Unit:mm)

#### Pin map

- TG-5500CA
  - 1: NC
  - 2: NC
  - 3: NC
  - 4: GND
  - 5: GND
  - 6: NC
  - 7: NC
  - 8: NC
  - 9: Vcc
  - 10: GND

- TG-5501CA
  - 1: NC
  - 2: NC
  - 3: NC
  - 4: GND

### Footprint (Recommended)

(Unit:mm)

- TG-5500CA
  - 10 pads

- TG-5501CA
  - 4 pads

To maintain stable operation, provide a 0.01μF to 0.1μF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - 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 ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 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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