### Crystal oscillator

#### SEIKO EPSON CORPORATION

тсхо/ус-тс	хо		Pb	RoHS	TG-5031	CJ : X1Ġ0	ease contact us) 03891xxxx00
TG - 5031CJ/			Free	Compliant			03581xxxx00 03821xxxx00
TG - 50	2	1CG/CE	and and	TAIL		6	C9 53 10
<ul> <li>Frequency range</li> </ul>	:	13 MHz to 52 MHz (TG-5031CJ/TG-5021CG) 10 MHz to 40MHz (TG-5021CE)		V			
<ul> <li>Supply voltage</li> </ul>		1.8 V Typ. (TG-5031CJ) 2.8 V Typ. (TG-5021CG/CE)	TG-5031CJ (2.0 × 1.6 × 0.7		021CG 2.0 × 0.8 i		5021CE × 2.5 × 0.9 mm)
•Frequency / temperature characteristics			Actual size				
<ul> <li>Applications</li> </ul>	:	±2.0x 10 <sup>-6</sup> Max. Wireless communication devices (CDMA, WCDMA, LTE, WiMAX, other)	TG-5031CJ	TG-5021CG	TG-5	5021CE	
•Features	:	Low phase noise					

#### Specifications (characteristics)

Item	Symbol	VC-TCXO	ТСХО	Conditions / Remarks		
		13 MHz, 19.2 MHz, 26 MHz and 38.4 MHz		Standard frequency		
Output frequency range	fo	13.000 MHz to 52.000 MHz		TG-5031CJ/TG5021CG		
		10.000 MHz to 40.000 MHz		TG-5021CE		
Current currente e e	Vcc	1.8 V ±0.1 V (Range :1.7 V to 3.3 V)		TG-5031CJ		
Supply voltage	VCC	2.8 V ±0.14 V (Range :2.3 V to 3.6 V)		TG-5021CG/TG5021CE		
Storage temperature	T_stg	-40 °C to +85 °C		Storage as single product.		
Operating temperature	T_use	-30 °C to +85 °C				
Frequency tolerance	f_tol	±2.0 ×10 <sup>-6</sup> Max.		After reflow, +25 °C		
Frequency/temperature	fo-Tc	±2.0 × 10 <sup>-6</sup> Max. / -30 °C to +85 °C				
characteristics	10-1C					
Frequency/load coefficient	fo-Load	±0.2 × 10 <sup>-6</sup> Max.		10 kΩ // 10 pF ±10 %		
Frequency/voltage coefficient	fo-Vcc	±0.2 ×10 <sup>-6</sup> Max.		Vcc =1.8 V ±0.1 V (TG-5031CJ) Vcc =2.8 V ±0.14 V (TG-5021CG/CE)		
		±1.0 ×10 <sup>-6</sup> Max.		+25 °C , First year,10 MHz≦fo≦40 MHz		
Frequency aging	f_age	±1.5 ×10 <sup>-6</sup> Max.		+25 °C , First year, 10 MHz $\leq$ 10 $\leq$ 40 MHz +25 °C , First year, 40 MHz $<$ fo $\leq$ 52 MHz		
Current consumption	Icc	2.0 mA Max.				
Input resistance	Rin	500 kΩ Min. —		Vc- GND (DC)		
-		$\pm 5.0 \times 10^{\text{-6}}$ to $\pm 12.0 \times 10^{\text{-6}}$		Vc=0.9 V ±0.6 V (Vcc =1.8 V)		
Frequency control range	f_cont			Vc=1.4 V ±1.0 V (Vcc =2.8 V)		
Frequency change polarity		Positive polarity				
Symmetry	SYM	40 % to 60 %		GND level (DC cut)		
Output voltage	Vpp	0.8 V Min.		Peak to Peak		
	Load_R			DC cut capacitor = 0.01 µF		
Output load condition	Load_C					

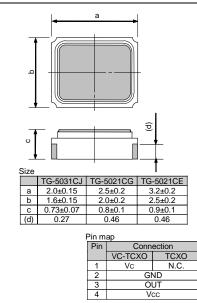
\* Note : Please contact us for requirements not listed in this specification.

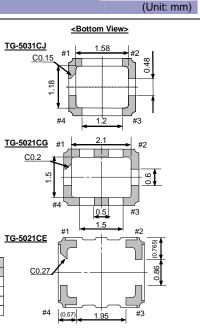
Product Name (Standard form) TG-5031 CJ-\*\*\* 26.00000MHz

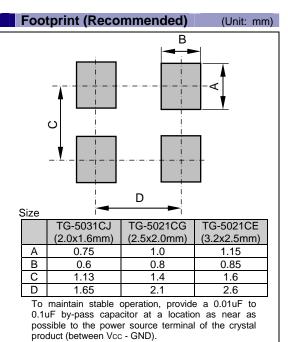
23 1 4

 Model ②Package type ③Spec segment (Please contact us) ④Frequency

#### **External dimensions**







# 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.

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.

Explanation of the mark that are using it for the catalog

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.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

Pb Free	► Pb free.
RoHS	<ul> <li>Complies with EU RoHS directive.</li> <li>*About the products without the Pb-free mark.</li> <li>Contains Pb in products exempted by EU RoHS directive.</li> <li>(Contains Pb in sealing glass, high melting temperature type solder or other.)</li> </ul>
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 ).

### Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
   The information about applied circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of
  weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to
  any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.
  - / Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.

## **Mouser Electronics**

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Epson: TG-5021CE-38N 39.0000M3