

TCXO / VC-TCXO HIGH STABILITY, CMOS OUTPUT



Product Number

TG3225CEN: X1G005101xxxxxx TG2520CEN: X1G005161xxxxxx

TG3225CEN / TG2520CEN

Output frequency : 12 MHz to 52 MHz

2.8 V Typ. / 3.0 V Typ. / 3.3 V Typ. Supply voltage

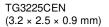
•Frequency / temperature characteristics : $\pm 2.0 \times 10^{-6}$ Max.

•External dimensions: $3.2 \times 2.5 \times 0.9 \text{ mm} / 2.5 \times 2.0 \times 0.8 \text{ mm}$ Reference clock for measurement machine Applications

Wireless communication devices (Smart meter, Telemeter, other)

High stability, CMOS output Features







TG2520CEN $(2.5 \times 2.0 \times 0.8 \text{ mm})$

Specifications (characteristics)

Item	Symbol	TCXO	VC-TCXO	Conditions / Remarks
		12 MHz to 52 MHz		
Output frequency range	fo	12 MHz, 20 MHz, 24 MHz, 25 MHz, 26 MHz, 27 MHz, 32 MHz, 36 MHz, 38.4 MHz, 39 MHz and 40 MHz		Standard frequency
Supply voltage	Vcc	2.8 V \pm 5 % / 3.0 V \pm 5 % / 3.3 V \pm 5 %		Supply voltage range: 2.375 V to 3.63 V
Storage temperature range	T_stg	-40 °C to +90 °C		Storage as single product.
Operating temperature range	T_use	G: -40 °C to +85 °C		
Frequency tolerance	f_tol	$\pm 2.0 \times 10^{-6} \text{Max}.$		After reflow, +25 °C
Frequency/temperature characteristics	fo-Tc	F: ±2.0 × 10 ⁻⁶ Max. / -40 °C to +85 °C		Standard stability version
Frequency/load coefficient	fo-Load	$\pm 0.2 \times 10^{-6}$ Max.		15 pF ± 10 %
Frequency/voltage coefficient	fo-Vcc	$\pm 0.3 \times 10^{-6}$ Max.		V _{CC} ± 5 %
Frequency aging	f_age	±1.0 × 10 ⁶ Max.		+25 °C, First year, 12 MHz \leq fo \leq 20 MHz, 24 MHz \leq fo \leq 40 MHz
		±1.5 × 10 ⁻⁶ Max.		+25 °C ,First year, 20 MHz < fo < 24 MHz, 40 MHz < fo ≤ 52 MHz
Current consumption	lcc	4.0 mA Max.		12 MHz ≤ fo ≤ 26 MHz
		6.0 mA Max.		26 MHz < fo≤ 39 MHz
		6.5 mA Max.		39 MHz < fo≤ 52 MHz
Input impedance	Zin	-	500 kΩ Min.	Vc - GND (DC)
Frequency control range	f_cont	-	±5.0 × 10 ⁻⁶ Min.	C: $Vc = 1.4 V \pm 1.0 V (V_{CC} = 2.8 V)$ or D: $Vc = 1.5 V \pm 1.0 V (V_{CC} = 3.0 V)$ or
				E: $Vc = 1.65 V \pm 1.0 V (V_{CC} = 3.3 V)$
Frequency change polarity	f_cp	-	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.		
Start-up time	t_str	2.0 ms Max.		t = 0 at 90 % V _{CC}
Rise time / Fall time	tr/tf	8.0 ns Max.		10 % Vcc to 90 % Vcc level, Load: 15 pF
CMOS load condition	L_CMOS	15 pF		15 pF ± 10 %

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

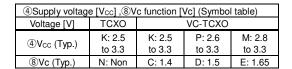
TG3225 CEN 39.000000MHz K F G N N M **Product Name** (Standard form) 1

①Model ②Output (C: CMOS)

③Frequency ④Supply voltage (Refer to symbol table)

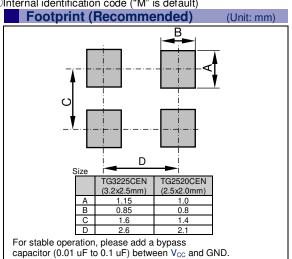
6 Operating temperature (G: -40 °C to +85 °C)

External dimensions	(Unit: mm)
TG3225CEN	TG2520CEN
32±0.2 #3 70 04 77 78 79 70 70 70 70 70 70 70 70 70 70 70 70 70	84 70 H 20 81 81 80 80 80 80 80 80 80 80 80
0 t 0 t 0 t 0 t 0 t 0 t 0 t 0 t 0 t 0 t	0.5±0.1
CO 27	map Connection TCXO VC-TCXO 1 N.C.*1 Vc 2 GND 3 OUT 4 Vcc *1) Please keep "N.C." pin OPEN condition or GND connection. "N.C." pin doesn't work as a ground pin.



⑦OE function (N: Non) ⑧Vc function (Refer to symbol table, A: Vc = any) ⑨Internal identification code ("M" is default)

Please place it as close to TCXO as possible.



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 related to driving safety (Engine Control Unit, Air Bag, ESC etc.).

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