VC-TCXO / TCXO
ULTRA HIGH STABILITY

TG5032CAN
TG5032SAN

- Frequency range : 10 MHz to 50 MHz
- Supply voltage : 3.3 V Typ. / 5.0V Typ.
- Frequency / temperature characteristics : ±0.1× 10^{-6} Max. *1
- Frequency aging : ±0.02× 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

Pb Free RoHS Compliant

Product Number (please contact us)
TG5032CAN :X1G004431xxxxxx
TG5032SAN :X1G004441xxxxxx

Actual size

Specifications (characteristics)

Item	Symbol	TG5032CAN (CMOS output)		TG5032SAN(Clipped sine wave)		Conditions / Remarks
		VC-TCXO	TCXO	VC-TCXO	TCXO	
Output frequency range	f0	10 MHz to 50 MHz				
		19.2, 26, 30.72, 40 MHz				Standard frequency
Supply voltage	V_{CC}	C: 3.3 V ±5%, H: 5.0 V ±5% (Supply voltage range :2.7 V to 5.5 V)				
Storage temperature	T_stg	-40 ºC to +90 ºC				Storage as single product
Operating temperature	T_use	A: 0 ºC to +70 ºC				Standard temp. range
Frequency tolerance	f_tol	±2.0 × 10^{-6} Max.				After reflow, +25 ºC
Frequency/temperature Characteristics *1	f0-Tc	A: ±0.1 ×10^{-6} Max.				A: 0 to +70 ºC (Standard spec.)
		H: ±0.25 ×10^{-6} Max.				G: -40 to +85 ºC (Option spec.)
Frequency/load coefficient	f0-Load	±0.1 ×10^{-6} Max. (10 MHz≦f0≦40 MHz)				Load ±10 %
		±0.2 ×10^{-6} Max. (40 MHz＜f0≦50 MHz)				
Frequency/voltage coefficient	f0-Vcc	±0.1 ×10^{-6} Max. (10 MHz≦f0≦40 MHz)				Vcc ±5%
		±0.2 ×10^{-6} Max. (40 MHz＜f0≦50 MHz)				
Frequency aging *2	f_age	±0.02 ×10^{-6} Max.				+25 °C, 24h
		±1.0 ×10^{-6} Max.				+25 °C, First year
Current consumption	Icc	5.0 mA Max. / 6.0 mA Max.		5.0 mA Max.		10 MHz≦f0≦26 MHz (3.3V / 5.0V)
		6.0 mA Max. / 8.0 mA Max.				26 MHz＜f0≦40 MHz (3.3V / 5.0V)
		8.0 mA Max. / 10.0 mA Max.				40 MHz＜f0≦50 MHz (3.3V / 5.0V)
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}	—	J,D :Vc=1.5 V ± 1.0 V at V_{CC}=3.3 V K,E: Vc=1.65 V ± 1.0 V at V_{CC}=3.3 V L,H: Vc=2.5 V ± 2.0 V at V_{CC}=5.0 V
Frequency change polarity	—	Positive polarity	—	Positive polarity	—	
Symmetry	SYM	45 % to 55 %		—		50 % Vcc level, L_CMOS ≤ 15 pF
Output voltage	VOH	90 % Vcc Min.		—		
	VOL	10 % Vcc Max.		—		
Output level	VPP	—		0.8 V Min.		Peak to Peak
Rise time / Fall time	tr/ tf	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 kΩ//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 (Standard form)

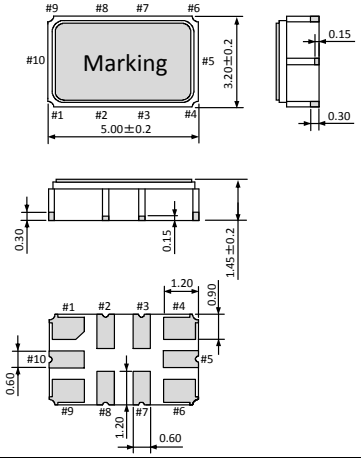
TG5032	C	AN	19.200000MHz	C	A	A	N	D	A
①	②		③	④	⑤	⑥	⑦	⑧	⑨

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

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

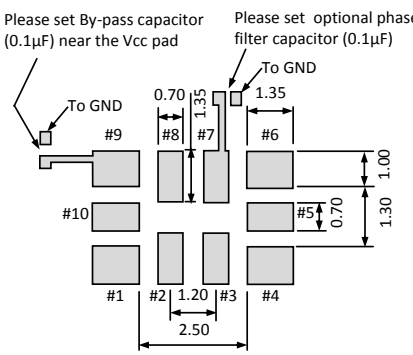
External dimensions (Unit :mm)



Pin map

Pin	Connection	
	VC-TCXO	TCXO
1	Vc	N.C.
2	N.C.	
3	N.C.	
4	GND	
5	N.C.	
6	OUT	
7	N.C. or Filter	
8	N.C.	
9	Vcc	
10	N.C.	

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 crystal product (between V_{CC} - 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	►Pb free.
RoHS Compliant	►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.)
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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