TCXO/VC-TCXO
HIGH STABILITY

NEW

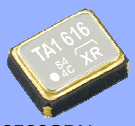
TG2016SBN / TG2520SBN

- Output frequency : 13 MHz to 52MHz
- Supply voltage : 1.8 V Typ./ 2.8 V Typ./ 3.0 V Typ./ 3.3 V Typ.
- Frequency / temperature characteristics : $\pm0.5 \times 10^{-6}$ Max. or $\pm2.0 \times 10^{-6}$ Max.
- External dimensions: 2.0 × 1.6 × 0.73 mm / 2.5 × 2.0 × 0.8 mm
- Applications : GPS, RF
  Wireless communication devices
  (CDMA, WCDMA, LTE, WiMAX, other)
- Features : High stability, Low noise

Pb Free RoHS Compliant

Product Number (Please contact us)
TG2016SBN : X1G004691xxxx00
TG2520SBN : X1G005151xxxx00

TG2016SBN
(2.0 × 1.6 × 0.73 mm)



TG2520SBN
(2.5 × 2.0 × 0.8 mm)

Actual size

TG2016SBN	TG2520SBN

Specifications (characteristics)

Item	Symbol	VC-TCXO	TCXO	Conditions / Remarks
Output frequency range	f_0	13 MHz to 52MHz		
		13 MHz, 16.367667 MHz, 16.368 MHz, 16.369 MHz, 16.8 MHz, 19.2 MHz, 26 MHz, 27MHz, 30 MHz, 32 MHz, 33.6MHz, 38.4 MHz, 40 MHz and 52 MHz		Standard frequency
Supply voltage	V_{CC}	1.8 V ±0.1 V / 2.8 V ±5 % / 3.0 V ±5 % / 3.3 V ±5 %		Supply voltage range :1.7 V to 3.63 V
Storage temperature	T_stg	-40 ℃ to +90 ℃		Storage as single product.
Operating temperature	T_use	G: -40 °C to +85 °C / N: -30 °C to +85 °C		
Frequency tolerance	f_tol	$\pm2.0 \times 10^{-6}$ Max.		After reflow, +25 °C
Frequency/temperature characteristics	f_0-Tc	C: $\pm0.5 \times 10^{-6}$ Max. / N: -30 °C to +85 °C		High stability version (for GPS)
		F: $\pm2.0 \times 10^{-6}$ Max. / N: -30 °C to +85 °C		Standard stability version (for RF)
		C: $\pm0.5 \times 10^{-6}$ Max. / G: -40 °C to +85 °C		Customized product(Option)
Frequency/load coefficient	f_0-Load	$\pm0.2 \times 10^{-6}$ Max.		10 kΩ // 10 pF ±10 %
Frequency/voltage coefficient	f_0-V_{CC}	$\pm0.2 \times 10^{-6}$ Max.		V_{CC} ± 5 %
Frequency aging	f_age	$\pm1.0 \times 10^{-6}$ Max.		+25 °C, First year, 13 MHz≤ f_0 ≤40 MHz
		$\pm1.5 \times 10^{-6}$ Max.		+25 °C ,First year, 40 MHz< f_0 ≤52 MHz
Current consumption	I_{CC}	1.5 mA Max.		13 MHz≤ f_0 ≤26 MHz
		2.0 mA Max		26MHz<f_0
Input resistance	Rin	500 kΩ Min.	-	V_C - GND (DC)
Frequency control range	f_cont	$\pm8.0 \times 10^{-6}$ to $\pm15.0 \times 10^{-6}$	-	V_C =0.9 V ±0.6 V (V_{CC} =1.8 V) or V_C =1.4 V ±1.0 V (V_{CC} =2.8 V) or V_C =1.5 V ±1.0 V (V_{CC} =3.0 V) or V_C =1.65 V ±1.0 V (V_{CC} =3.3 V)
Frequency change polarity	-	Positive polarity	-	
Symmetry	SYM	40 % to 60 %		GND level (DC cut)
Output voltage	V_{PP}	0.8 V Min.		Peak to Peak
Start-up time	t_str	2.0 ms Max.		T=0 at 90% Vcc
Output load condition	Load_R	10 kΩ		DC cut capacitor = 0.01 µF
	Load_C	10 pF		

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

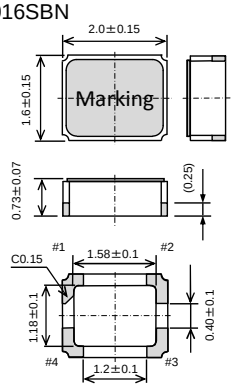
Product Name (Standard form)

TG2016 SBN 26.000000MHz T C N N N A
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①Model(TG2016, TG2520) ②Output (S: Clipped sine wave) ③Frequency ④Supply voltage (T: 1.8 to 3.3 V)
⑤Frequency / temperature characteristics (C: $\pm0.5 \times 10^{-6}$ Max.) ⑥Operating temperature (N: -30 °C to +85 °C)
⑦OE function (N: Non) ⑧Vc function(A: VC-TCXO, N: Non) ⑨Internal identification code ("A" is default)

External dimensions (Unit:mm)

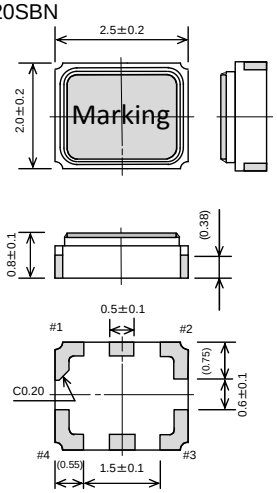
TG2016SBN



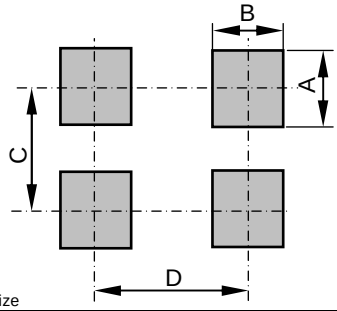
Pin map

Pin	Connection	
	VC-TCXO	TCXO
1	Vc	N.C.
2	GND	
3	OUT	
4	Vcc	

TG2520SBN



Footprint (Recommended) (Unit:mm)



Size

	TG2016SBN (2.0x1.6mm)	TG2520SBN (2.5x2.0mm)
A	0.75	1.0
B	0.6	0.8
C	1.13	1.4
D	1.65	2.1

To maintain stable operation, provide a 0.01uF to 0.1uF 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	►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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