TCXO / VC-TCXO
HIGH STABILITY / Low noise

Product Number
TG2016SMN : X1G005441xxxx25
TG2520SMN : X1G005421xxxx27

TG2016SMN / TG2520SMN

- •Output frequency : 10 MHz to 55 MHz
- •Supply voltage : 1.8 V Typ./ 2.8 V Typ./ 3.0 V Typ./ 3.3 V Typ.
- •Frequency / temperature characteristics
  : ±0.5 × 10^{-6} Max. (-40 °C to +85 °C)
  ±2.0 × 10^{-6} Max. (-40 °C to +85 °C)
- •External dimensions: 2.0 × 1.6 × 0.73 mm / 2.5 × 2.0 × 0.8 mm
- •Applications : GPS, RF
  Wireless communication devices
  (LTE, WiMAX, Wi-Fi, W-LAN, IoT other)
- •Features : Low noise



TG2016SMN
(2.0 × 1.6 × 0.73 mm)



TG2520SMN
(2.5 × 2.0 × 0.8 mm)

Specifications (characteristics)

Item	Symbol	TCXO	VC-TCXO	Conditions / Remarks
Output frequency range	fo	10 MHz to 55MHz		
		16, 16.368, 16.369, 19.2, 20, 24, 25, 26, 27, 27.6, 30, 32, 38.4, 40, 48, 50, 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 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	±1.5 × 10^{-6} Max.		After reflow, +25 °C
Frequency/temperature characteristics	fo-Tc	C: ±0.5 × 10^{-6} Max. / -40 °C to +85 °C F: ±2.0 × 10^{-6} Max. / -40 °C to +85 °C		Standard stability version
Frequency/load coefficient	fo-Load	±0.1 × 10^{-6} Max.		10 kΩ // 10 pF ± 10 %
Frequency/voltage coefficient	fo-V_{CC}	±0.1 × 10^{-6} Max.		V_{CC} ± 5 %
Frequency aging	f_age	±0.5 × 10^{-6} Max.		+25 °C, First year, fo = 10MHz, 12 MHz ≤ fo ≤ 20 MHz, 24 MHz ≤ fo ≤ 40 MHz
		±1.5 × 10^{-6} Max.		+25 °C ,First year, 10 MHz < fo < 12 MHz, 20 MHz < fo < 24 MHz, 40 MHz < fo ≤ 55 MHz
Current consumption	I_{CC}	1.5 mA Max.		10 MHz ≤ fo ≤ 26 MHz
		1.8 mA Max.		26 MHz < fo ≤ 40 MHz
		2.0 mA Max.		40 MHz < fo ≤ 50 MHz
		2.1 mA Max.		50 MHz < fo ≤ 55 MHz
Input impedance	Zin	500 kΩ Min.	-	Vc - GND (DC)
Frequency control range	f_cont	-	±5.0 × 10^{-6} Min.	B: Vc = 0.9 V ± 0.6 V (V_{CC} = 1.8 V) or C: Vc = 1.4 V ± 1.0 V (V_{CC} = 2.8 V) or D: Vc = 1.5 V ± 1.0 V (V_{CC} = 3.0 V) or E: Vc = 1.65 V ± 1.0 V (V_{CC} = 3.3 V)
Frequency change polarity	f_cp	-	Positive polarity	
Symmetry	SYM	40 % to 60 %		GND level (DC cut)
Output voltage	Vpp	0.8 V Min.		Peak to Peak
Start-up time	t_str	1.0 ms Max.		t = 0 at 90% V_{CC}
Output load	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.

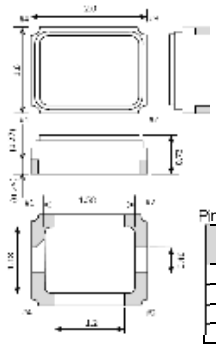
④Supply voltage[V_{CC}] ,⑧Vc function[Vc] (Symbol table)					
Voltage [V]	TCXO	VC-TCXO			
④V_{CC} (Typ.)	E:1.8 M:2.8 to 3.3	E:1.8	B:2.8	A:3.0	C:3.3
⑧Vc (Typ.)	N: Non	B 0.9	C:1.4	D 1.5	E 1.65

Product Name (Standard form)
TG2016 SMN 26.000000MHz E C G N N M
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①Model (TG2016, TG2520)
②Output (S: Clipped sine wave) ③Frequency
④Supply voltage (Refer to symbol table) ⑤Frequency / temperature characteristics (C: ±0.5 × 10^{-6} Max., F: ±2.0 × 10^{-6} Max.)
⑥Operating temperature (G: -40 °C to +85 °C) ⑦ST function (N: Non)
⑧Vc function (Refer to symbol table , A: Vc =any) ⑨Internal identification code (“M” is default)

External dimensions (Unit: mm)

TG2016SMN

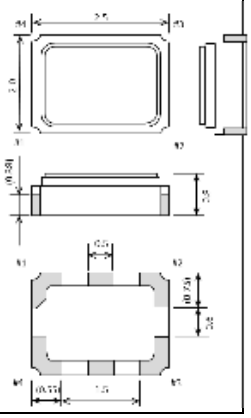


Pin map

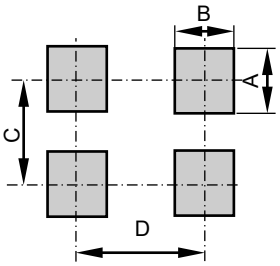
Pin	Connection	
	TCXO	VC-TCXO
1	N.C.*1	Vc
2	GND	
3	OUT	
4	V_{CC}	

*1) Please keep “N.C.” pin OPEN condition or GND connection. "N.C." pin doesn’t work as a ground pin.

TG2520SMN



Footprint (Recommended) (Unit: mm)



Size

	TG2016SMN (2.0x1.6mm)	TG2520SMN (2.5x2.0mm)
A	0.75	1.0
B	0.6	0.8
C	1.13	1.4
D	1.65	2.1

For stable operation, please add a bypass Capacitor (0.01 uF to 0.1uF) between V_{CC} and GND. Please place it as close to TCXO as possible.

►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 general equipment.
	►Designed for automotive applications related to driving and safety.

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