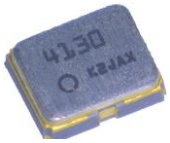
VC-TCXO / TCXO / TCXO-Standby For Automotive 105 ºC High temperature range

Product Number (Please contact us)
TG2016SKA : X1G005371xxxx16

TG2016SKA

- Output frequency : 13 MHz to 55 MHz
- Supply voltage : 1.8 V Typ. / 3.3 V Typ.
- Frequency / temperature characteristics : ±0.5 × 10^{-6} Max. (-40 °C to +105 °C)
- External dimensions: 2.0 × 1.6 × 0.7 mm Max.
- Applications : GNSS for Automotive, V2X (TCU, DSRC)*
- Features : Low noise, 105 ºC High temp, Stand-by function ($\overline{ST}$)
- Conforms to AEC-Q100

* GNSS: Global Navigation Satellite System V2X: Vehicle to Everything TCU: Telematics control unit DSRC: Dedicated Short Range Communication



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(2.0 × 1.6 × 0.7 mm)

Specifications (characteristics)

Item	Symbol	VC-TCXO	TCXO	TCXO-Standby	Conditions / Remarks
Output frequency range	fo	13 MHz to 55 MHz			
		26 MHz, 49.58 MHz			Standard frequency
Supply voltage	V_{CC}	1.8 V ±0.1 V / 3.3 V ±5 %			Supply voltage range :1.7 V to 3.63 V
Storage temperature range	T_stg	-55 °C to +125 °C			Storage as single product.
Operating temperature range	T_use	H: -40 °C to +105 °C			Standard
Frequency tolerance	f_tol	±2.0 × 10^{-6} Max.			After 3 times reflow, +25 °C
Frequency/temperature Characteristics	fo-T_C	C: ±0.5 × 10^{-6} Max.			Standard stability version
Frequency/load coefficient	fo-Load	±0.2 × 10^{-6} Max.			10 kΩ // 10 pF ±10 %
Frequency/voltage coefficient	fo-V_{CC}	±0.2 × 10^{-6} Max.			V_{CC} ± 5 %
Frequency aging	f_age	±1.0 × 10^{-6} Max.			+25 °C, First year, 13 MHz ≤ fo ≤ 20 MHz, 26 MHz ≤ fo ≤ 40 MHz
		±1.5 × 10^{-6} Max.			+25 °C, First year, 20 MHz < fo < 26 MHz 40 MHz < fo ≤ 55 MHz
Current consumption	I_{CC}	2.0 mA Max.			13 MHz ≤ fo ≤ 40 MHz
		2.5 mA Max.			40 MHz < fo ≤ 55 MHz
Input resistance	Zin	500 kΩ Min.	-		V_C - GND (DC)
Frequency control range	f_cont	±8.0 × 10^{-6} to ±15.0 × 10^{-6}	-		B: V_C = 0.9 V ±0.6 V (V_{CC} = 1.8 V) or E: V_C = 1.65 V ±1.0 V (V_{CC} = 3.3 V)
Frequency change polarity	f_cp	Positive polarity	-		
Stand-by current	I_std	-		10 µA Max.	$\overline{ST}$ = GND
Input voltage	V_{IH}	-		80 % Vcc Min.	$\overline{ST}$ terminal
	V_{IL}	-		20 % Vcc Max.	
Symmetry	SYM	40 % to 60 %			GND level (DC cut)
Output voltage	Vpp	0.8 V Min.			Peak to Peak
Start-up time	t_str	2.0 ms Max.			T = 0 at 90 % V_{CC}
Output load	Load_R	10 kΩ			DC cut capacitor = 0.01 µF
	Load_C	10 pF			
G-sensitivity	Gs	1.5 × 10^{-9} /G Max.			30 Hz to 3 kHz, sinewave, 3axes

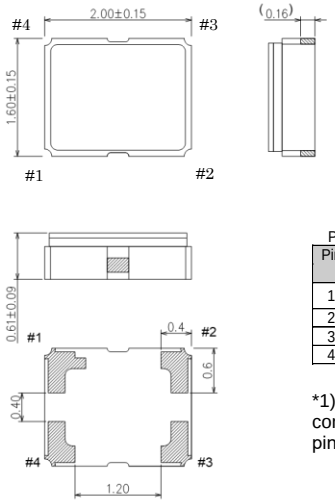
* Note : Please contact us for requirements not listed in this specification.

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

①Model(TG2016) ②Output (S: Clipped sine wave)
③Frequency ④Supply voltage (Refer to symbol table)
⑤Frequency / temperature characteristics (C: ±0.5 × 10^{-6} Max.)
⑥Operating temperature (H: -40 °C to +105 °C) ⑦ST function (N: Non, S: Standby)
⑧Vc function(Refer to symbol table) ⑨Internal identification code

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

External dimensions (Unit: mm)

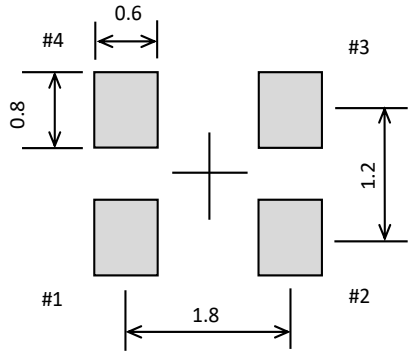


Pin map

Pin	Connection		
	VC-TCXO	TCXO	TCXO-Standby
1	Vc	N.C.*1	$\overline{ST}$
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.

Footprint (Recommended) (Unit: mm)



To maintain stable operation, provide a 0.01 µF to 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).