

# TV Type Voltage Controlled Temperature Compensated Crystal Oscillator

## FEATURE

1. Typical 5.0 x 3.2 x 1.15mm SMD.
2. VC-TCXO for personal cellular phone.
3. For automatic assembly.
4. Compactness and light weight.
5. Low power consumption.
6. VCTCXO available.
7. Packing: Tape & Reel, 1000/2000/3000/5000 pcs per Reel, 1~99 pcs per Bulk/Tape.

**RoHS Compliant Standard**



Actual Size

## ORDERING INFORMATION

T	V	E	C	D	D	S	-	N	F	-	?		
TCXO	Package (mm)	Supply Voltage(V)	Pulling Range (ppm)		Freq. Stability (ppm)		Temp. Range (°C)	Output Logic and Symmetry	Dash	Appearance	Lead Free	Dash	Freq.(MHz)
	5x3.2	C: 5 E: 2.8~3.3	A:±5 E:±15 B:±8 F:±20 C:±10 G:±25 D:±12 T:TCXO Vcon Range: 0.5V to 2.5V		A: ±0.5 D: ±2.5 B: ±1.0 E: ±3.0 P: ±1.5 F: ±4.0 C: ±2.0 G: ±5.0	B: 0~+55 I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85		S: Clipped Sine Wave @10KΩ/10pF		N: Normal	F: RoHS Compliant		xx.xxxxxx

### Ordering Example: TVECDDDS-NF-13.000000 MHz

VCTCXO V-TYPE; V<sub>DD</sub>:3.3V; Pulling Range: ±10ppm; Freq. Stability: ±2.5ppm; Temp. Range: -30°C to +85°C; Clipped Sine Wave; Nomal Appearance; Lead Free; Freq. 13.000000MHz.

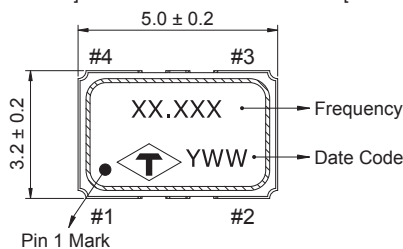
## FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm	A: ±0.5	B: ±1.0	P: ±1.5	C: ±2.0	D: ±2.5
B	0~ +55	○	○	○	○	○
I	-10~ +60	△	○	○	○	○
C	-20~ +70	△"	○	○	○	○
L	-40~ +85	△"	○	○	○	○

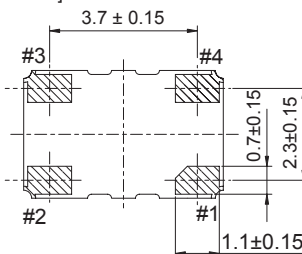
○:Standard    △:Available (case by case)    ×:Not available  
" 10 ~26 MHz available.

## OUTLINE DRAWING

[ TOP VIEW ]

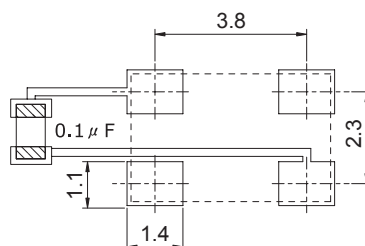
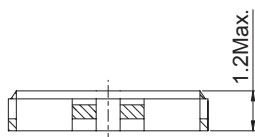


[ BOTTOM VIEW ]



Pin	Function
#1	VCON:VC-TCXO
	GND:TCXO
#2	GND
#3	OUTPUT
#4	V <sub>DD</sub>

[ SIDE VIEW ]



UNIT : mm

Recommended soldering pattern

VCTCXO / TCXO

## ELECTRICAL SPECIFICATION

Parameter	Min.		Max.		Unit
	5.0	2.8	5.0	2.8	V
Supply Voltage Variation(V <sub>DD</sub> ) 5%	4.75	2.66	5.25	2.94	V
Frequency Range	10		40		MHz
Standard Frequency	13.0、14.4、16.3676、16.8、19.2、19.68、20.0、26.0				
Operating Temp. Range	Refer to Ordering Information				°C
Frequency Stability	Refer to Ordering Information				ppm
Frequency Stability					
Vs Supply Voltage(±5%) change	—		±0.2		ppm
Vs Load(±10%) change	—		±0.2		
Vs Aging	—		±1.0		ppm/year
Supply Current					
10.000MHz ≤ F <sub>o</sub> < 15.000MHz	—		1.5		mA
15.000MHz ≤ F <sub>o</sub> < 26.000MHz	—		2.0		
26.000MHz ≤ F <sub>o</sub> < 40.000MHz	—		2.5		
Output Level (Clipped Sine Wave)	0.8		—		V <sub>p-p</sub>
Load	10KΩ//10pF				
Vc Input Impedance	1.0		—		MΩ
Phase Noise @13.0MHz					
100Hz			-115		dbc/Hz
1KHz			-135		
10KHz			-148		
Start Time	—		2		mSec
Storage Temp. Range	-55		125		°C

\*36.000 ~ 40.000 MHz only for VDD = 2.8 ~ 3.3V.