

## TS/TC Type

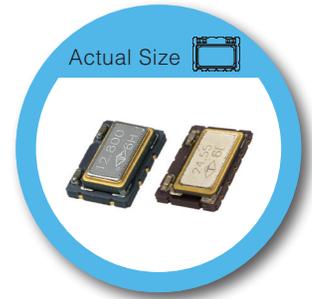
### 7.0 x 5.0 mm SMD High Precision Voltage Controlled Temperature Compensated Crystal Oscillator

#### FEATURE

- Typical 7.0 x 5.0 x 1.85 mm ceramic SMD package.
- High Precision for -40°C ~ +85°C, ±0.28ppm.
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional.

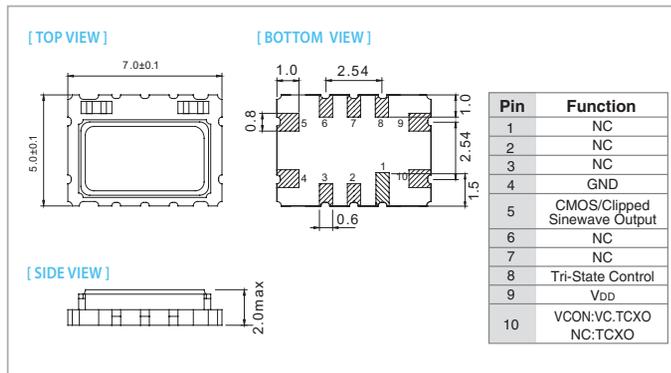
#### TYPICAL APPLICATION

- Femtocell , Base Stations
- WLAN/WiMax/WIFI, Wireless Communications
- Mobile Phone

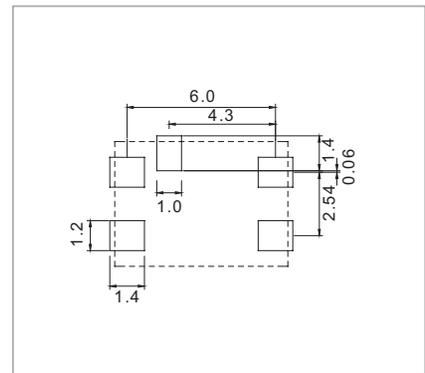


RoHS Compliant Standard

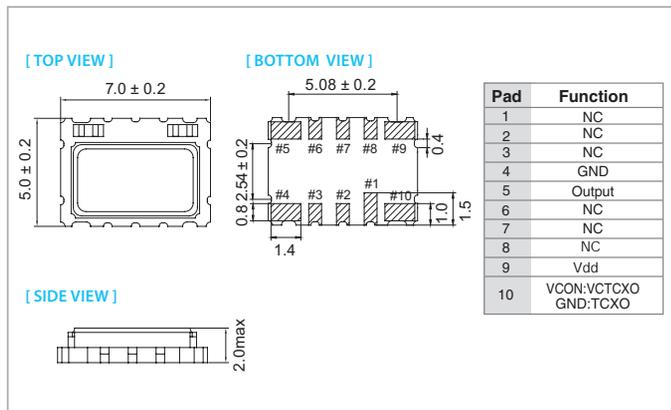
#### DIMENSION (mm) - TS



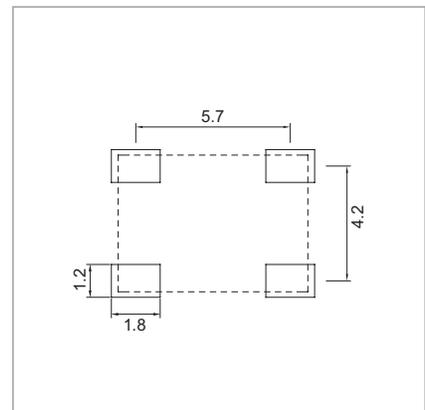
#### SOLDER PAD LAYOUT (mm)



#### DIMENSION (mm) - TC



#### SOLDER PAD LAYOUT (mm)



#### FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm						
	±0.05	±0.1	±0.14	±0.2	±0.28	±0.37	±0.5
0 ~ +55	○	○	○	○	○	○	○
-10 ~ +60	○	○	○	○	○	○	○
-20 ~ +70	△	○	○	○	○	○	○
-40 ~ +85	×	×	×	△	○	○	○

\* ○: Available △:Conditional X: Not available

## TS/TC Type

### 7.0 x 5.0 mm SMD High Precision Voltage Controlled Temperature Compensated Crystal Oscillator

#### ELECTRICAL SPECIFICATION

Parameter	5.0 V		3.3 V		Unit
	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) 5%	4.75	5.25	3.135	3.465	V
Frequency Range	5	40	5	40	MHz
Standard Frequency (for CMOS)	5, 6.4, 8, 8.192, 10, 12.5, 12.8, 16, 16.384, 19.44, 25				
Standard Frequency (for Clipped Sine)	8.192, 10, 12.5, 12.8, 16, 16.384, 19.44, 25				
Frequency Tolerance*	-	±2.0	-	±2.0	ppm
Frequency Stability					
Vs Supply Voltage (±5%) change (for CMOS)	-	±0.3	-	±0.3	ppm
Vs Load (±10%) change	-	±0.2	-	±0.2	
Vs Aging (@ 1st year)	-	±1.0	-	±1.0	
Supply Current (CMOS output)	-	6	-	6	mA
Supply Current (Clipped Sine Wave)	-	3.5	-	3.5	
Output Level (CMOS)					
Output High (Logic "1")	90%VDD	-	90%VDD	-	V
Output Low (Logic "0")	-	10%VDD	-	10%VDD	
Duty	45	55	45	55	%
Output Level (Clipped Sine Wave)	0.8	-	0.8	-	Vp-p
Load (CMOS)	15pF		15pF		
Load (Clipped Sine Wave)	10 KΩ // 10pF		10 KΩ // 10pF		
Control Voltage Range (VCTCXO)	0.5	2.5	0.5	2.5	V
Pulling Range (VCTCXO)	±5.0	-	±5.0	-	ppm
Vc Input Impedance (VCTCXO)	100	-	100	-	KΩ
Phase Noise @ 12.8 MHz					
100 Hz	-120		-120		dBc/Hz
1 KHz	-140		-140		
10 KHz	-148		-148		
Start time	-	2	-	2	mSec
Tri-State (option)					
Disable	-	0.3VDD	-	0.3VDD	V
Enable	0.7VDD	-	0.7VDD	-	
Storage Temp. Range	-55	125	-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

\*Frequency at 25°C, 1 hour after reflow.

Packing: Tape & Reel 1000/3000pcs per Reel.