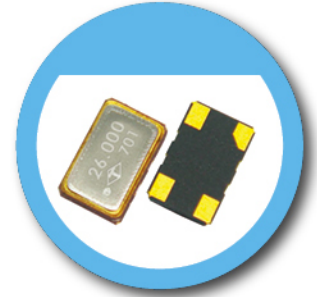


TW Type

5.0 x 3.2 mm SMD High Precision Voltage Controlled Temperature Compensated Crystal Oscillator



FEATURE

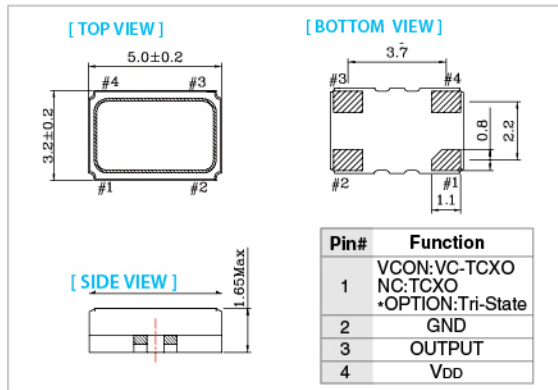
- Typical 5.0 x 3.2 x 1.55 mm ceramic SMD package.
- ± 0.28 ppm, $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$; ± 0.1 ppm, $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional.

TYPICAL APPLICATION

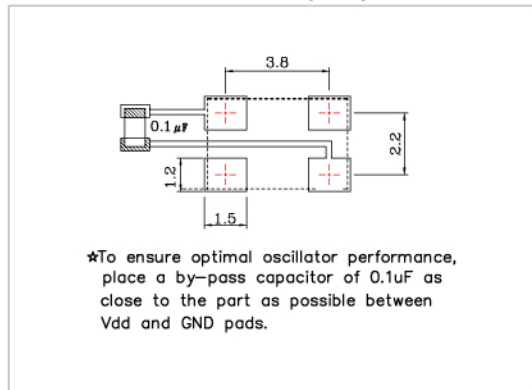
- Base Stations, Stratum 3
- Femtocell

RoHS Compliant Standard

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



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	10	40	10	40	MHz
Standard Frequency (for CMOS)	10, 12.8, 19.2, 20, 26, 30.72				
Standard Frequency (for Clipped Sine)	10, 12.8, 19.2, 20, 26, 30.72				ppm
Frequency Tolerance*	-	± 2.0	-	± 2.0	
Frequency Stability					ppm
Vs Supply Voltage ($\pm 5\%$) change (for CMOS)	-	± 0.2	-	± 0.2	
Vs Load ($\pm 10\%$) 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	
	Duty	45	55	45	%
Output Level (Clipped Sine Wave)		0.8	-	0.8	Vp-p
Lead (CMOS)	15pF		15pF		
Lead (Clipped Sine Wave)	10 K Ω // 10pF		10 K Ω // 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	-	K Ω
Phase Noise @ 12.8 MHz	100 Hz	125	125	125	dBc/Hz
	1 KHz	145	145	145	
	10 KHz	150	150	150	
Start time	-	2	-	2	mSec
Tri-State (option)	Disable	-	-	0.3VDD	V
	Enable	0.7VDD	-	0.7VDD	
Storage Temp. Range	-55	125	-55	125	$^{\circ}\text{C}$

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, 1000/3000 pcs per Reel.

FREQ. STABILITY vs. TEMP. RANGE

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

* ○: Available △: Conditional X: Not available