

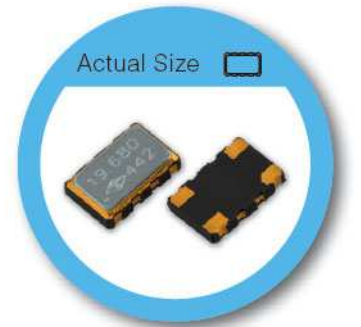
# 5.0 x 3.2 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator – TV Type

## FEATURE

- Typical 5.0 x 3.2 x 1.15 mm ceramic SMD package
- For automatic assembly
- Compactness and light weight
- Low power consumption
- CMOS and Clipped Sine Wave (Without DC-CUT capacitor) output optional.

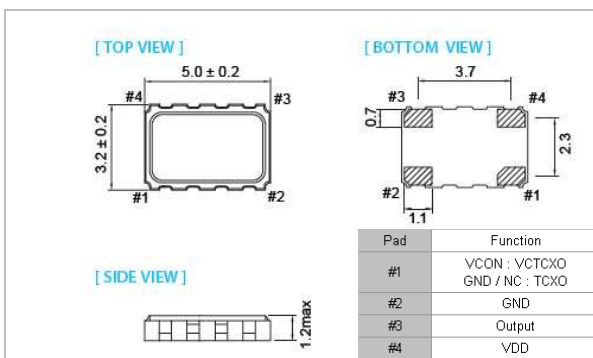
## TYPICAL APPLICATION

- WLAN / WiMAX
- Telecommunication
- Mobile Phone

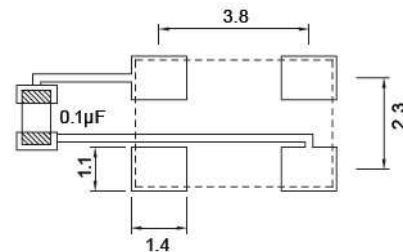


RoHS Compliant Standard

## DIMENSION (mm)



## SOLDER PAD LAYOUT (mm)



## ELECTRICAL SPECIFICATION

Parameter	5.0V		3.3V		Unit
	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) 5%	4.75	5.25	2.97	3.63	V
Frequency Range	10	26	10	40	MHz
Standard Frequency	13, 14.4, 16.368, 16.369, 16.8, 19.2, 19.68, 20, 24.5535, 26				
Frequency Tolerance*	-	±2.0	-	±2.0	ppm
Frequency Stability					
Vs Supply Voltage (±5%) change (Clipped Sine Wave)	-	±0.2	-	±0.2	ppm
Vs Supply Voltage (±5%) change (CMOS)	-	-	-	±0.4	
Vs Load (±10%) change	-	±0.2	-	±0.2	
Vs Aging	-	±1.0	-	±1.0	ppm/year
Supply Current					mA
10 MHz ≤ F0 < 15 MHz (Clipped Sine Wave)	-	1.5	-	1.5	
15 MHz ≤ F0 < 26 MHz (Clipped Sine Wave)	-	2.0	-	2.0	
26 MHz ≤ F0 ≤ 40 MHz (Clipped Sine Wave)	-	-	-	2.5	
10 MHz ≤ F0 ≤ 40 MHz (CMOS)	-	-	-	6.0	
Output Level (Clipped Sine Wave)	0.8	-	0.8	-	Vp-p
Output Level (CMOS)					V
Output High (Logic "1")	-	-	90% VDD	-	
Output Low (Logic "0")	-	-	-	10% VDD	
Duty	-	-	45	55	%
Load (Clipped Sine Wave)	10KΩ//10pF		10KΩ//10pF		
Load (CMOS)	-		15pF		
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 @ 13.0 MHz					dBc/Hz
100 Hz	-	-115	-	-115	
1 KHz	-	-135	-	-135	
10 KHz	-	-148	-	-148	
Start Time	-	2	-	2	mSec
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 pcs per Reel

## FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm	ppm	
		±0.5	±1.0
0~+55	O"	O	O
-10~+60	O"	O	O
-20~+70	O"	O	O
-30~+85	Δ"	Δ	O
-40~+85	X	X	Δ

\* O: Available Δ: Conditional X: Not available

" Pulling Range < 10 ppm available