

# TV Type

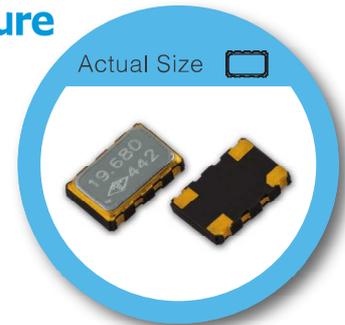
## 5.0 x 3.2 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator

### FEATURE

- Typical 5.0 x 3.2 x 1.1 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.

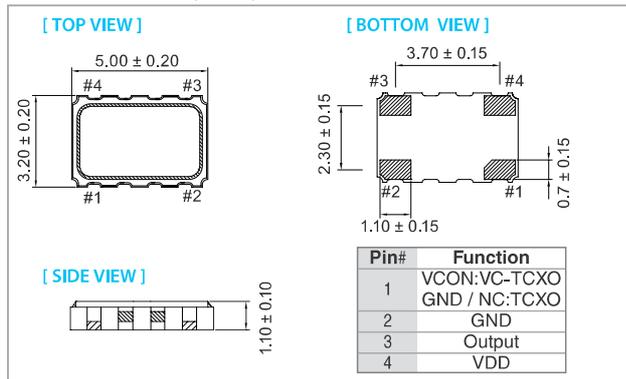
### TYPICAL APPLICATION

- WLAN/WiMAX
- Telecommunication
- Mobile Phone

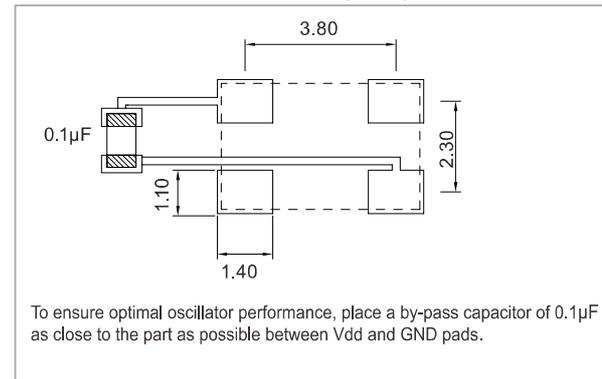


RoHS Compliant

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	5.0 V		3.3 V		Unit
	Min.	Max.	Min.	Max.	
Supply Voltage Variation (V <sub>DD</sub> ) ±5%	4.75	5.25	2.97	3.63	V
Frequency Range	10	26	10	52	MHz
Standard Frequency	13.0, 14.4, 16.368, 16.369, 16.8, 19.2, 19.68, 20.0, 26.0				MHz
Frequency Tolerance*	-	±2.0	-	±2.0	ppm
Frequency Stability					
V <sub>s</sub> Supply Voltage (±5%) change (Clipped Sine Wave)	-	±0.2	-	±0.2	ppm
V <sub>s</sub> Supply Voltage (±5%) change (CMOS)	-	-	-	±0.4	
V <sub>s</sub> Load (±10%) change	-	±0.2	-	±0.2	
V <sub>s</sub> Aging (@1st year)	-	±1.0	-	±1.0	ppm
Supply Current 10 MHz ≤ F <sub>o</sub> < 15 MHz (Clipped Sine Wave)	-	1.5	-	1.5	mA
15 MHz ≤ F <sub>o</sub> < 26 MHz (Clipped Sine Wave)	-	2.0	-	2.0	
26 MHz ≤ F <sub>o</sub> ≤ 52 MHz (Clipped Sine Wave)	-	-	-	2.5	
10 MHz ≤ F <sub>o</sub> ≤ 52 MHz (CMOS)	-	-	-	6.0	
Output Level (Clipped Sine Wave)	0.8	-	0.8	-	V <sub>p-p</sub>
Output Level (CMOS) Output High (Logic "1")	-	-	2.97	-	V
Output Low (Logic "0")	-	-	-	0.33	
Duty	-	-	45	55	
Load (Clipped Sine Wave)	10 KΩ // 10pF		10 KΩ // 10pF		
Load (CMOS)	-				
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	100 Hz	-	-	-115	dBc/Hz
1k Hz	-	-115	-	-135	
10k Hz	-	-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.

### FREQ. STABILITY vs. TEMP. RANGE

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

\* ○: Available △: Conditional X: Not available  
 " Pulling Range < 10 ppm available

Note: not all combination of options are available. Other specifications may be available upon request.

Rev(16)04/2015

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