

TS Type

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

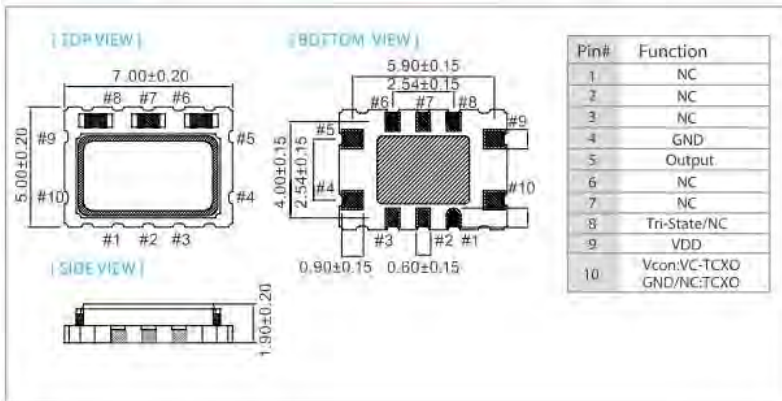
FEATURE

- Typical 7.0 x 5.0 x 1.9 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

DIMENSION (mm)

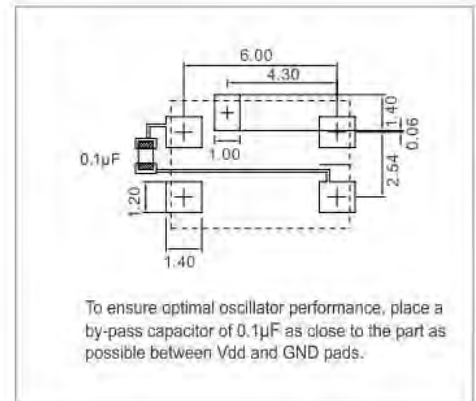


Actual Size 



RoHS Compliant

SOLDER PAD LAYOT (mm)



ELECTRICAL SPECIFICATION

Parameter	5.0V		3.3V		Unit
	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD)	VDD-5%	VDD+5%	VDD-5%	VDD+5%	V
Frequency Range	5	52	5	52	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 Wave)	8.192, 10, 12.5, 12.8, 16, 16.384, 19.44, 25				ppm
Frequency Tolerance*	±2.0		±2.0		
Frequency Stability	-		-		ppm
Vs Supply Voltage (±5%) change	-	±0.5	-	±0.5	
Vs Load (±10%) change	-	±0.2	-	±0.2	
Vs Aging	-	±1.0	-	±1.0	ppm
Supply Current (CMOS output)	-	6.0	-	6.0	mA
Supply Current (Clipped Sine Wave)	-	3.5	-	3.5	
Output Level (CMOS)	90%VDD		90%VDD		V
Output Low (Logic"1")	-	10%VDD	-	10%VDD	
Output Low (Logic"0")	45	55	45	55	%
Duty	0.8	-	0.8	-	Vp-p
Output Level (Clipped Sine Wave)	15pF		15pF		V
Load (CMOS)	10 KΩ // 10pF		10 KΩ // 10pF		
Load (Clipped Sine Wave)	0.5	2.5	0.5	2.5	ppm
Control Voltage Range (VCTCXO)	±5.0	±12.0	±5.0	±12.0	
Pulling Range (VCTCXO)	100	-	100	-	KΩ
Vc Input Impedance (VCTCXO)	-		-		dBc / Hz
Phase Noise @ 19.2MHz	-		-		
100 Hz	-120		-120		
1 KHz	-140		-140		
10 KHz	-148		-148		
Start Time	-	2	-	2	mSec
Tri-State	-		-		V
Disable	3.5	1.5	2.31	0.99	
Enable	-	-	-	-	°C
Storage Temp. Range	-55	125	-55	125	

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					
	±0.05	±0.1	±0.14	±0.28	±0.37	±0.5
-10 ~ +60	○	○	○	○	○	○
-20 ~ +70	△	○	○	○	○	○
-40 ~ +85	x	x	x	○	○	○