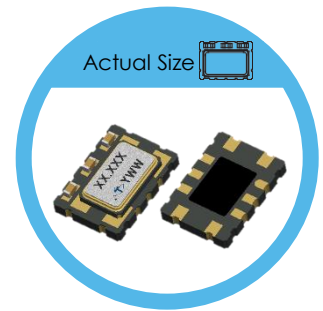


TS-F Type Ultra Wide Temperature 7.0 x 5.0 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator



RoHS Compliant

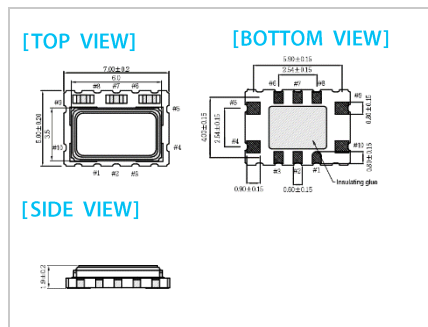
FEATURES

- Typical 7.0 x 5.0 x 1.9 mm ceramic SMD package.
- Ultra wide temp. range: -55°C to +125°C with ± 0.2 to 0.5 ppm stability
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional.

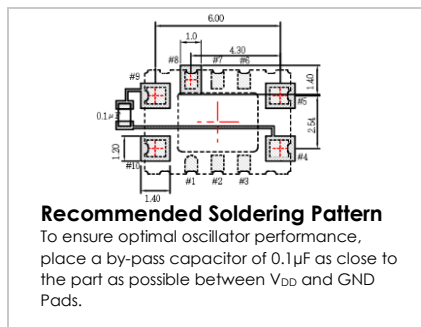
TYPICAL APPLICATION

- Femtocell , Base Stations
- WLAN/WiMAX/WIFI, Wireless Communications

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



PIN FUNCTION (mm)

PIN#	FUNCTION
1	Do not Connect
2	NC
3	NC
4	GND
5	Output
6	NC
7	NC
8	Do not Connect
9	V _{DD}
10	V _{con} :VC-TCXO Floating:TCXO

ELECTRICAL SPECIFICATION

Parameter	3.3V			Unit	Test Condition
	Min.	Typ.	Max.		
Supply Voltage Variation (V _{DD})	V _{DD} - 5%	V _{DD}	V _{DD} + 5%	V	
Frequency Range	10	-	52	MHz	
Standard Frequency	10, 14.4, 20, 28.8, 38.88			MHz	Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.
Frequency Tolerance	-	-	± 1.5	ppm	Frequency at 25°C, 1 hour after reflow.
Frequency Stability	vs Supply Voltage ($\pm 5\%$) Change	-	± 0.1	ppm	
	vs Load ($\pm 10\%$) Change	-	± 0.1	ppm	
	vs Aging (@1 st Year)	-	-	± 1.0	ppm/year
Supply Current	CMOS	-	8.0	mA	
	Clipped Sine Wave	-	5.0	mA	
Output Level	CMOS	Output High (Logic "1")	90%V _{DD}	-	V
		Output Low (Logic "0")	-	10%V _{DD}	V
	Duty	45	-	55	%
	Clipped Sine Wave	1.2	-	-	V _{p-p}
Load	CMOS	-	15pF	-	
	Clipped Sine Wave	-	10 K Ω // 10pF	-	
Control Voltage Range (V _{CTCXO})	0.3	-	3.0	V	
Pulling Range (V _{CTCXO})	-13	-	+6.5	ppm	
Pulling Linearity	-	-	12	%	
V _c Input Impedance (V _{CTCXO})	100	-	-	K Ω	
Phase Noise @ 20MHz	100 Hz	-	-122	-	dBc/Hz
	1K Hz	-	-139	-	dBc/Hz
	10K Hz	-	-146	-	dBc/Hz
Start Time	-	-	10	mSec	
Storage Temp. Range	-55	-	+125	°C	

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm		
	± 0.2	± 0.28	± 0.5
-55 ~ +95	△	○	○
-55 ~ +105	△	○	○
-55 ~ +125	X	X	○

○: Available △:Conditional X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.
 Specifications subject to change without notice.