

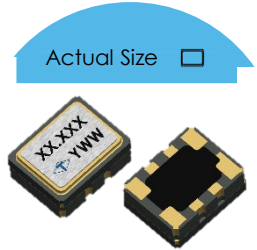
# TP Type High Precision and Low G-Sensitivity 3.2 x 2.5 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator

## FEATURES

- Typical 3.2 x 2.5 x 1.48 mm ceramic SMD package.
- Stratum 3 (Overall  $\pm 4.6$ ppm including 20 years aging.)
- Low G Sensitivity: < 0.5ppb/g
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional.

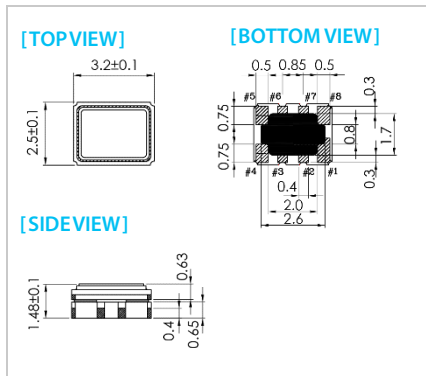
## TYPICAL APPLICATION

- Stratum 3
- Femtocell, Base Stations

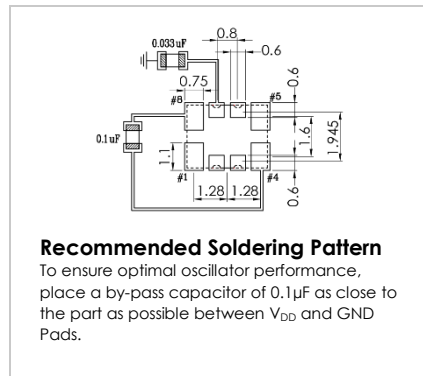


**RoHS Compliant**

## DIMENSION (mm)



## SOLDER PAD LAYOUT (mm)



## PIN FUNCTION (mm)

PIN#	FUNCTION
1	$V_{CON}$ : VC-TCXO NC: TCXO
2	Do not Connect
3	Do not Connect
4	GND
5	Output
6	Tri-State
7	Filter
8	$V_{DD}$

## ELECTRICAL SPECIFICATION

Parameter		2.5V / 3.3V				Test Condition
		Min.	Typ.	Max.	Unit	
Supply Voltage Variation ( $V_{DD}$ )		$V_{DD} - 5\%$		$V_{DD} + 5\%$	V	
Frequency Range		5		52	MHz	
Standard Frequency		20, 25, 40				Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.
Operating Temp. Range		$-20 \sim +70$ , $-40 \sim +85$				$^{\circ}$ C
Frequency Stability (Overall, 20 Years)				$\pm 4.6$	ppm	Including calibration @ $25^{\circ}$ C, supply voltage $V_{DD} \pm 5\%$ , load $\pm 10\%$ , reflow soldering, 20 years aging and frequency stability over temperature.
Frequency Stability Vs Temp. Range				$\pm 0.1$ ( $-20 \sim +70^{\circ}$ C) $\pm 0.2$ ( $-40 \sim +85^{\circ}$ C)	ppm	Ref. to (FMAX+Fmin)/2
Holdover Stability				0.37	ppm	Including 24hours aging, supply voltage $V_{DD} \pm 5\%$ and frequency stability over temperature.
Supply Current	CMOS			7.5	mA	
	Clipped Sine Wave			5	mA	
Output Level	CMOS	Output High (Logic "1")	$90\%V_{DD}$		V	
		Output Low (Logic "0")		$10\%V_{DD}$	V	
	Clipped Sine Wave	Duty	45	55	%	
			0.8		Vp-p	
Load	CMOS		15pF			
	Clipped Sine Wave		10 K $\Omega$ // 10pF			
Phase Noise @ 10MHz	@ 100Hz			-130	dBc/Hz	Please add filter capacitor as suggested, and 33nF at pin7
	@ 1kHz			-145	dBc/Hz	
	@ 10kHz			-154	dBc/Hz	
G Sensitivity			0.3	0.5	ppb/G	$\Gamma$ , 20-2000Hz
Start Time				5	mSec	
Storage Temp. Range		-55		+125	$^{\circ}$ C	
VCTCXO	Control Voltage Range		0.5	2.5	V	
	Pulling Range		$\pm 5.0$		ppm	
	Vc Input Impedance		100		k $\Omega$	

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

Specifications subject to change without notice.