

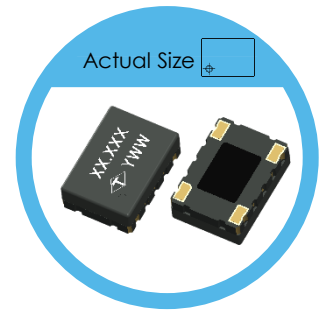
TT-L Type Ultra Low G Sensitivity 7.0 x 5.0 mm SMD Voltage Controlled Temperature Compensated Crystal Oscillator

FEATURES

- Frequency Stability: $\pm 0.5\text{ppm}$ at -40°C to 85°C
- Low G Sensitivity: 0.3ppb/g typ.
- RMS Jitter: $< 0.5\text{ps}$ (at 12kHz to 5MHz Frequency Offsets)

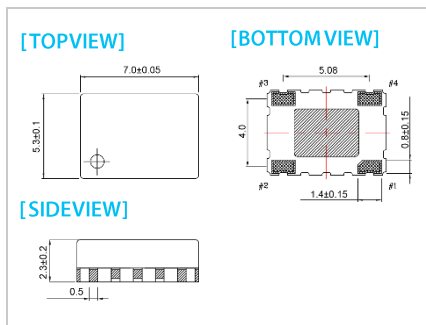
TYPICAL APPLICATION

- Guidance, Avionics
- Precision GNSS/Positioning
- Real Time Kinematic (RTK)

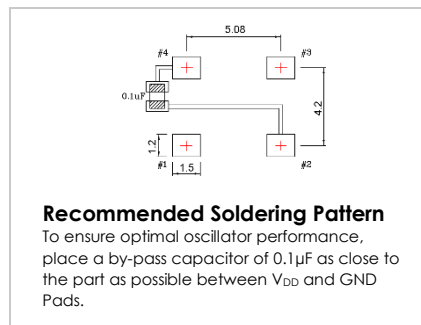


RoHS Compliant

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



PIN FUNCTION (mm)

PIN#	Name	Type	Function and Remarks
1	V _{CON}	Input	Voltage control
2	GND	Power-	GND pin
3	OUT	Output	Frequency output
4	V _{DD}	Power+	Power Supply, V _{DD} pin

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		10		52	MHz	
Standard Frequency		10, 20, 40, 50			MHz	Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.
Frequency Tolerance				± 2.0	ppm	Frequency at 25°C, 1 hour after reflow.
Frequency Stability	vs Supply Voltage ($\pm 10\%$) Change			± 0.1	ppm	
	vs Load ($\pm 10\%$) Change			± 0.1	ppm	
	vs Aging (@ 1 st Year)			± 1.0	ppm	
CMOS Output	Supply Current (I _{DD})			8	mA	
	Output Level	Output High (Logic "1")		90%V _{DD}	V	
		Output Low (Logic "0")		10%V _{DD}	V	
	Duty Cycle		45	55	%	
	Output Loading			15	pF	
Clipped Sine Wave	Supply Current (I _{DD})			5	mA	
	Output Level (V _{p-p})		0.8		V	
	Output Loading		10 K Ω // 10pF			
Phase Noise @ 10MHz	@ offset 10 Hz		-107		dBc/Hz	
	@ offset 100 Hz		-135		dBc/Hz	
	@ offset 1K Hz		-149		dBc/Hz	
	@ offset 10K Hz		-154		dBc/Hz	
RMS Jitter(at 12kHz to 5MHz Frequency Offsets)				0.5	ps	
G Sensitivity (Each Axes)			0.3	0.5	ppb/g	
Start Time				10	mSec	
Control Voltage Range (VCTCXO)		0.5		2.5	V	
Pulling Range (VCTCXO)		± 5.0			ppm	
Vc Input Impedance (VCTCXO)		100			k Ω	
Storage Temp. Range		-55		+125	°C	

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm	± 0.2	± 0.28	± 0.5
-20 ~ +70		△	△	○
-40 ~ +85		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.