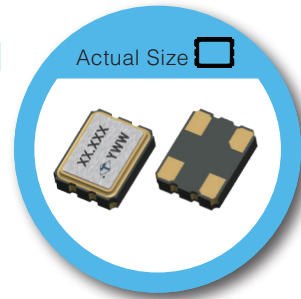


# OX Type Ultra Low Power 3.2 x 2.5mm SMD CMOS Output Crystal Oscillator

## FEATURE

- Ultra Low Power Supply Voltage: 0.9V, 1.2V, 1.5V Supply Options
- Singled-end Output: CMOS
- Frequency Support from 1MHz to 50MHz
- Low Noise Typical: 0.3ps at 12kHz to 20MHz Frequency Offsets
- Temperature Range: -40 to 85°C Operation
- Pb-free/RoHS Compliant

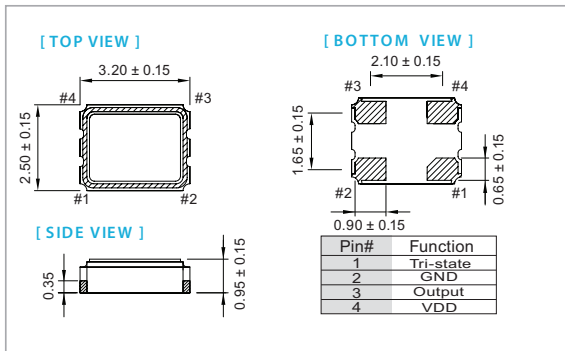


RoHS Compliant

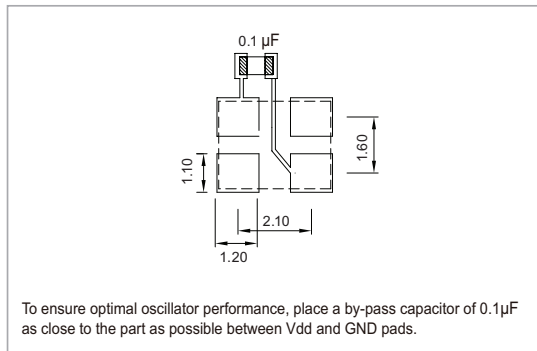
## TYPICAL APPLICATION

- IoT
- Game Console
- Smartphone
- Wearable Device
- Digital Camera
- Digital Consumer Electronics

## DIMENSION (mm)



## SOLDER PAD LAYOUT (mm)



## ELECTRICAL SPECIFICATION

Parameter	0.9V		1.2V		1.5V		Unit	
	Min.	Max.	Min.	Max.	Min.	Max.		
Supply Voltage Variation (V <sub>DD</sub> )	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V <sub>DD</sub> -5%	V <sub>DD</sub> +5%	V	
Frequency Range	1	50	1	50	1	50	MHz	
Supply Current	At 15pF Load	-	1.5	-	2	-	3	mA
	No Load Condition, 1MHz ≤ F <sub>o</sub> < 10MHz	-	0.9	-	1	-	1.2	mA
	No Load Condition, 10MHz ≤ F <sub>o</sub> < 20MHz	-	1	-	1.2	-	1.2	mA
	No Load Condition, 20MHz ≤ F <sub>o</sub> < 50MHz	-	1.2	-	1.5	-	1.5	mA
Duty Cycle	45	55	45	55	45	55	%	
Output Level	Output High	2.97	-	2.25	-	1.62	-	V
	Output Low	-	0.33	-	0.25	-	0.18	V
Transition Time: Rise / Fall Time*	1MHz ≤ F <sub>o</sub> < 10MHz	-	4	-	3	-	3	nSec
	10MHz ≤ F <sub>o</sub> < 20MHz	-	3	-	3	-	3	nSec
	20MHz ≤ F <sub>o</sub> < 50MHz	-	2	-	2	-	2	nSec
Startup Time	-	4	-	4	-	4	mSec	
Tri-State (Input to Pin 1)	Enable (High Voltage or Floating)	0.7xV <sub>DD</sub>	-	0.7xV <sub>DD</sub>	-	0.7xV <sub>DD</sub>	-	V
	Disable (Low Voltage or GND)	-	0.3xV <sub>DD</sub>	-	0.3xV <sub>DD</sub>	-	0.3xV <sub>DD</sub>	V
Output Loading	15		15		15		pF	
Stand by Current	-	100	-	100	-	100	µA	
Aging (@ 25°C, 1 <sup>st</sup> Year)	-	±3	-	±3	-	±3	ppm	
Storage Temp. Range	-55	+125	-55	+125	-55	+125	°C	
Phase Noise	Typ.	Max.	Typ.	Max.	Typ.	Max.	dBc/Hz	
								At V <sub>DD</sub> =1.2V, F <sub>out</sub> =24MHz
	1kHz offset	-130	-	-133	-	-135		-
	10kHz offset	-140	-	-143	-	-143		-
	100kHz offset	-148	-	-150	-	-150		-
1MHz offset	-152	-	-155	-	-155	-		
Period Jitter (Pk-Pk)	-	40	-	40	-	40	pSec	
RMS Phase Jitter (Integrated 12kHz to 20MHz)	-	1	-	1	-	1	pSec	

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position  
 \*Transition times are measured between 10% and 90% of V<sub>DD</sub> with output load of 15pF

## FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm	
	±25	±50
-10~+60	○	○
-20~+70	○	○
-40~+85	△	○

\* O: Available △: Conditional X: Not available

\*Inclusive of calibration @ 25°C, operating temperature range, input voltage variation, load variation, aging (1<sup>st</sup> year), shock, and vibration load variation

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

Specifications subject to change without notice.