

# OZ Type

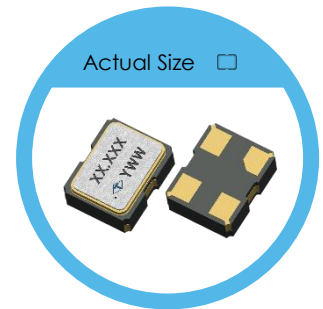
## 2.0 x 1.6 mm SMD Ultra Low Power SMD CMOS Output Crystal Oscillator

### FEATURES

- 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

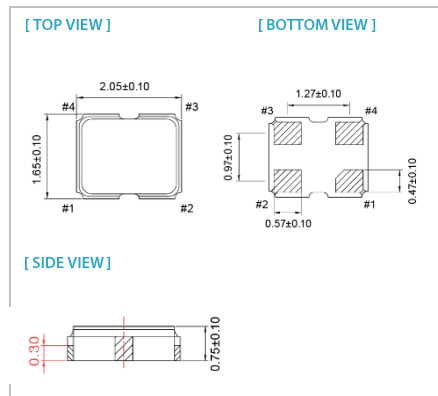
### TYPICAL APPLICATION

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

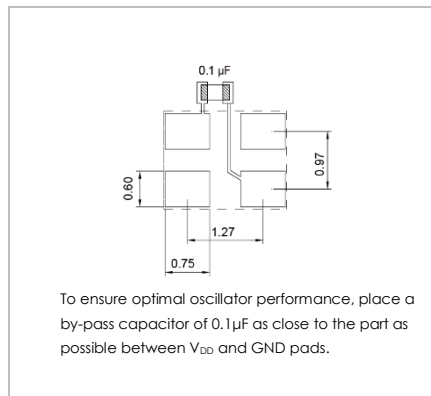


RoHS Compliant

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### PIN FUNCTION (mm)

PIN#	FUNCTION
1	Tri-State
2	GND
3	Output
4	V <sub>DD</sub>

### ELECTRICAL SPECIFICATION

Parameter	0.9V		1.2V		1.5V		Unit	Test Condition		
	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									
	No Load Condition									
	1 MHz ≤ F <sub>o</sub> < 10 MHz		1.5		2		3	mA		
	10 MHz ≤ F <sub>o</sub> < 20 MHz		0.9		1		1.2	mA		
20 MHz ≤ F <sub>o</sub> < 50 MHz		1		1.2		1.2	mA			
Duty Cycle		45		55		45	55	55	%	
Output Level	Output High		90% V <sub>DD</sub>		90% V <sub>DD</sub>		90% V <sub>DD</sub>		V	
	Output Low		10% V <sub>DD</sub>		10% V <sub>DD</sub>		10% V <sub>DD</sub>		V	
Transition Time: Rise/Fall Time	1 MHz ≤ F <sub>o</sub> < 50 MHz		6		6		6	nSec	Transition times are measured between 10% and 90% of V <sub>DD</sub> , with an output load of 15 pF.	
Startup Time			5		5		5	mSec		
Tri-State (Input to Pin 1)	Enable (High Voltage or Floating)		0.7 x V <sub>DD</sub>		0.7 x V <sub>DD</sub>		0.7 x V <sub>DD</sub>		V	
	Disable (Low Voltage or GND)		0.3 x V <sub>DD</sub>		0.3 x V <sub>DD</sub>		0.3 x V <sub>DD</sub>		V	
Output Loading	15		15		15			pF		
Standby Current	100		100		100			µA		
Aging (@25°C, 1 <sup>st</sup> year)	±3		±3		±3			ppm		
Storage Temp. Range	-55		+125		-55		+125		°C	
Phase Noise	At V <sub>DD</sub> =1.2V, F <sub>out</sub> =24MHz		1kHz offset		-130		-133		-135	dBc/Hz
	10kHz offset		-140		-143		-143		dBc/Hz	
	100kHz offset		-148		-150		-150		dBc/Hz	
	1MHz offset		-152		-155		-155		dBc/Hz	
Period Jitter (pk-pk)	-		40		-		40		pSec	
RMS Phase Jitter (Integrated 12 kHz-20 MHz)	-		1		-		1		pSec	

### FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C)	ppm	±25	±30	±50	±100
-20 ~ +70		○	○	○	○
-40 ~ +85		○	○	○	○
-40 ~ +105		x	△	○	○
-40 ~ +125		x	x	△	○

○: 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

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