

# TX-J Type

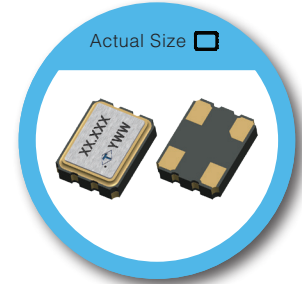
## 3.2 x 2.5 mm SMD CMOS Temperature Compensated Crystal Oscillator

### FEATURE

- Conforms to AEC-Q200
- Tolerance:  $\pm 2$  ppm accuracy @25°C,  $\pm 2.5$ ppm over -40°C to +85°C-
- LVCMOS Output Logic
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V.
- Tri-state enable/disable.
- Femto second phase jitter and -145dBc/Hz at 10kHz offset

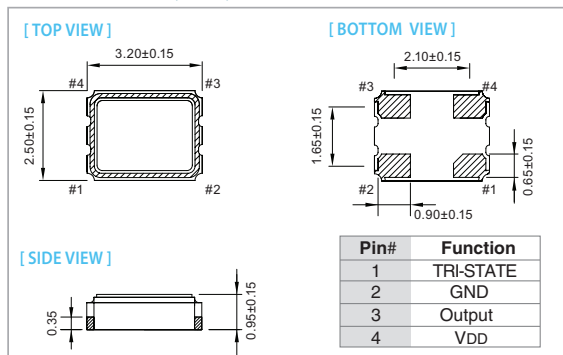
### TYPICAL APPLICATION

- Wireless Connectivity
- Smart grid

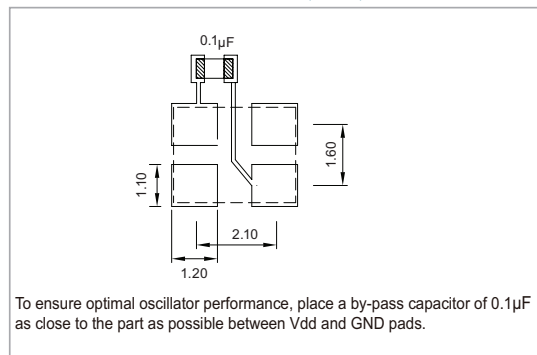


RoHS Compliant

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	3.3 V		2.5 V		1.8 V		Unit
	Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) $\pm 5\%$	3.135	3.465	2.375	2.625	1.71	1.89	V
Frequency Range	9.5	60	9.5	60	9.5	60	MHz
Supply Current $9.5 \leq F_o \leq 60$ MHz	—	10	—	7	—	5	mA
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS) Output Hight(Logic"1")	2.97	—	2.25	—	1.62	—	V
Output Low(Logic"0")	—	0.33	—	0.25	—	0.18	
Transition Time : Rise/Fall Time+	—	8	—	8	—	8	nSec
Start Time	—	5	—	5	—	5	mSec
Tri-State(Input to Pin 1) Enable(High voltage or VDD)	2.31	—	1.75	—	1.26	—	V
Disable(Low voltage or GND)	—	0.99	—	0.75	—	0.54	
RMS Phase Jitter (integrated 12kHz ~ 20MHz)	—	1	—	1	—	1	pSec
Phase Noise @ 26MHz	10Hz	—	-80	—	-80	—	dBc/Hz
	100Hz	—	-110	—	-110	—	
	1kHz	—	-130	—	-130	—	
	10kHz	—	-145	—	-145	—	
Aging (@25°C 1st year)	—	$\pm 1$	—	$\pm 1$	—	$\pm 1$	ppm
Storage Temp. Range	-55	125	-55	125	-55	125	°C

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 VDD, with an output load of 15pF

### FREQ.STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm	$\pm 2.5$	$\pm 5.0$	$\pm 10.0$
-40 ~ +85		○	○	○
-40 ~ +90		△	○	○
-40 ~ +105		×	△	○

\* ○ : 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.