

TY-J Type

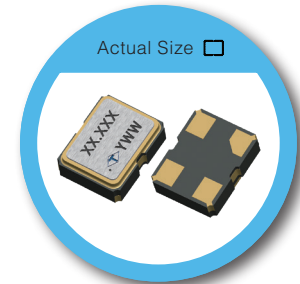
2.5 X 2.0 mm SMD CMOS Temperature Compensated Crystal Oscillator

FEATURE

- Conforms to AEC-Q200
- Tolerance: ± 2 ppm accuracy @25°C, ± 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

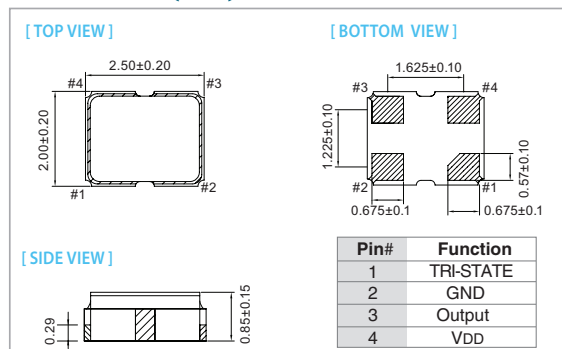
TYPICAL APPLICATION

- Wireless Connectivity
- Smart grid

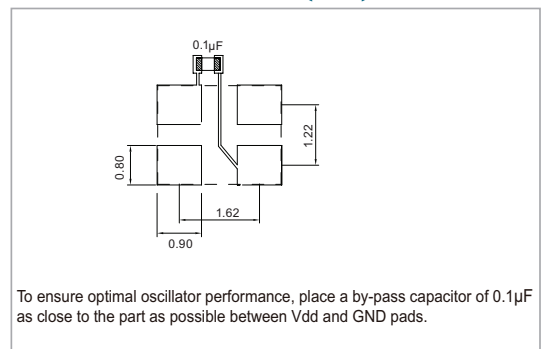


RoHS Compliant

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 Fo \leq 60 MHz		-	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)	-	± 1	-	± 1	-	± 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		
	± 2.5	± 5.0	± 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.