

# Enhanced Stability Crystal Oscillator

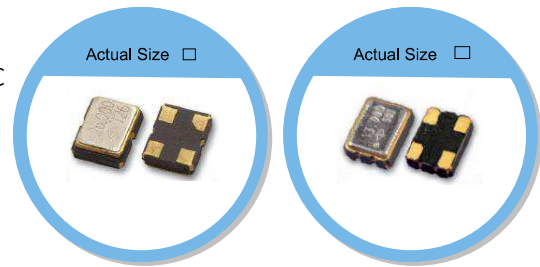
## OX-A/OY-A Series-3.2 X 2.5 / 2.5 X 2.0 mm SMD Crystal Oscillator

### FEATURE

- Tight Tolerance:  $\pm 4$  ppm accuracy @25°C,  $\pm 4$  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 -152dBc/Hz at 10kHz offset.

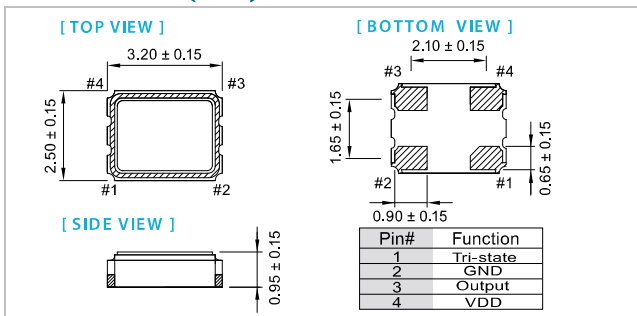
### TYPICAL APPLICATION

- Wireless Connectivity
- Video Distribution

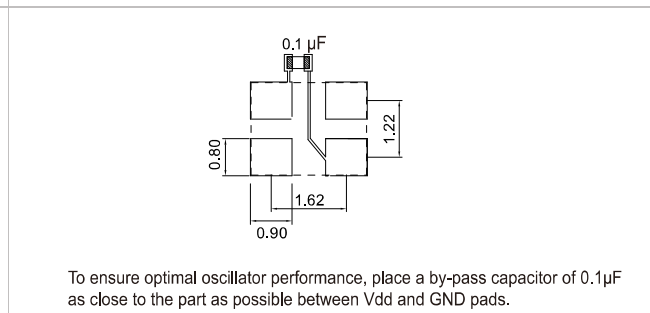
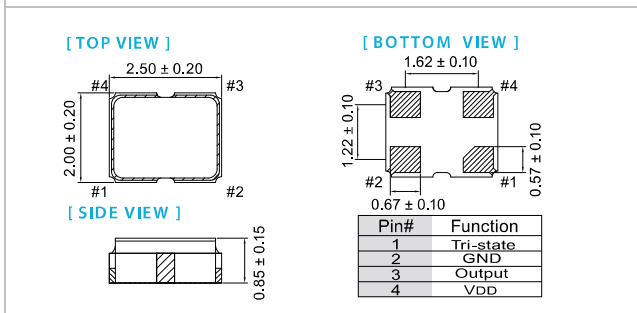
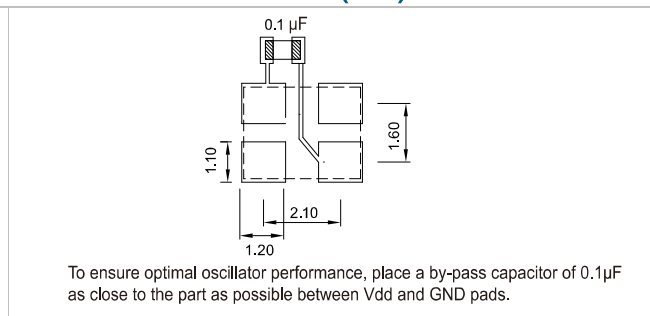


RoHS Compliant

### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	3.3V		2.5V		1.8V		Unit
	Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD)	VDD-10%	VDD+10%	VDD-10%	VDD+10%	VDD-10%	VDD+10%	V
Frequency Range	19	60	19	60	19	60	MHz
Supply Current	19 $\leq$ Fo $\leq$ 60 MHz		--	7	--	5	mA
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS)	Output High (Logic "1")		2.25		1.62		V
	Output Low (Logic "0")		0.33		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 floating)	2.31		1.75		1.26		V
	Disable (Low voltage or GND)		0.99		0.54		
RMS Phase Jitter (integrated 12 kHz ~ 20 MHz)	1		1		1		pSec
Phase Noise @ 26 MHz	10 Hz		-90		-90		dBc/Hz
	100 Hz		-115		-115		
	1 kHz		-136		-136		
	10 kHz		-152		-152		
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		
	$\pm 5$	$\pm 10$	$\pm 15$
-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 (1st year), shock, and vibration

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

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Specifications subject to change without notice.

# Model Numbering Guide – Crystal Oscillator

## Available options

Type	package (mm)	Supply Voltage(V)	Tri-State Function	Freq. Stability (ppm)	Temp. Range(°C)	Output Logic and Symmetry	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
O: Oscillator	Z:2.0 x 1.6 Y:2.5 x 2.0 X:3.2 x 2.5 V:5.0 x 3.2 C:7.0 x 5.0	E: 2.8/3.0/3.3 J: 2.5 K: 1.8 P: 1.5 L: 1.2 M: 0.9	T: Fixed-Freq with Tri-State M: Multiplier Freq with Tri-State(only for V/C package) U: Ultra Low Noise design	A: ±5 B: ±10 P: ±15 C: ±20 D: ±25 E: ±30 F: ±40 G: ±50 H: ±100	E: 0~+85 I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85 J: -40~+105 H: -40~+125 F: -55~+125	J: CMOS 15pF / 50±5% K: CMOS 15pF / 50±10%					
P: Programmable Oscillator	Y: 2.5 x 2.0 X: 3.2 x 2.5	E: 2.8/3.0/3.3 J: 2.5 K: 1.8	T: Fixed-Freq with Tri-State	C: ±20 D: ±25 G: ±50 H: ±100		J: CMOS 15pF / 50±5%	A: AT Fundamental T: AT 3rd Overtone	N :Normal	F: RoHS Compliant	-	XX.XXXXXX
O: Oscillator (Differential Output)	A:3.2x2.5 W:5.0x3.2 T:7.0x5.0	E: 3.3 J: 2.5	T: Input to pin 2 (std.) R: Input to pin 1 (case by case ) U: Ultra Low Jitter design (Only for T package)	D: ±25 G: ±50 H: ±100	I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85	L: LVPECL / 50±5% V: LVDS / 50±5% H: HCSL / 50±5%	Not Selectable by Customer				
O: Oscillator (Fast Delivery series)	W:5.0x3.2 T:7.0x5.0	E: 3.3 J: 2.5	M: Multiplier Freq with pin 2 Tri-State N: Multiplier Freq. with PIN 1 Tri-State	D: ±25 G: ±50 H: ±100		J: CMOS 15pF / 50±5% L: LVPECL / 50±5% V: LVDS / 50±5%					

**O Y E T C C J A N F - 13.000000**

\*Not all combinations of options are available.

### Example: OYETCCJANF-13.000000

Type	Oscillator
Package	2.5 x 2.0 mm
Supply Voltage(V)	3.3 V
Tri-State .	Fixed-Freq.
Freq. Stability	±20ppm
Temp Range	-20~+70 °C
Output	CMOS 15 pF / Symmetry 50±5%
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	13.000000 MHz