

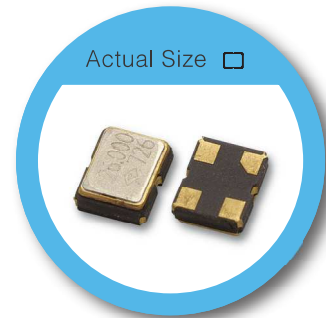
PY Type 2.5 x 2.0 mm SMD Crystal Oscillator

FEATURE

- Typical 2.5 x 2.0 x 0.85 mm ceramic SMD package.
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V
- Tri-state enable/disable

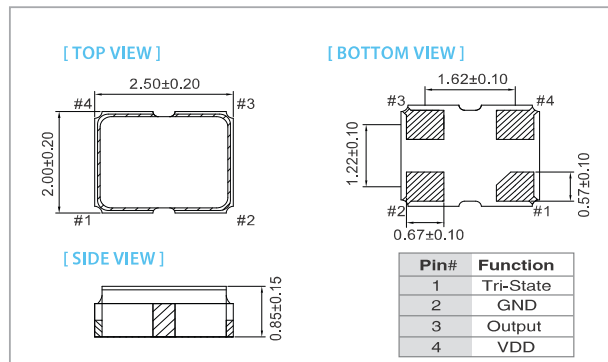
TYPICAL APPLICATION

- Computer Peripherals
- Set-top Box , HDTV
- DSC, PDA

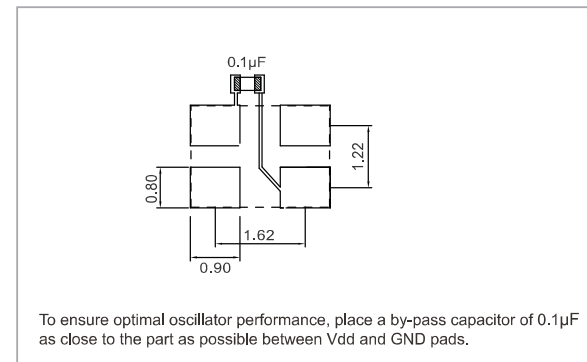


RoHS Compliant

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 (V_{DD})	V _{DD} -10%	V _{DD} +10%	V _{DD} -10%	V _{DD} +10%	V _{DD} -10%	V _{DD} +10%	V
Frequency Range	2.048	200	2.048	166	2.048	110	MHz
V_{DD} Sensitivity (±10 %)	-2	2	-2	2	-2	2	ppm
Supply Current							mA
2.048 MHz ≤ F _o < 30 MHz	-	10	-	8	-	6	
30 MHz ≤ F _o < 75 MHz	-	15	-	10	-	8	
75 MHz ≤ F _o < 133 MHz	-	20	-	15	-	12	
133 MHz ≤ F _o < 166 MHz 166 MHz ≤ F _o ≤ 200 MHz	-	22 25	-	15 -	-	- -	
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS) Output High (Logic "1")	2.97	-	2.25	-	1.62	-	V
Output Low (Logic "0")	-	0.33	-	0.25	-	0.18	
Transition Time: Rise/Fall Time⁺							nSec
2.048 MHz ≤ F _o < 10 MHz	-	3	-	4	-	5	
10 MHz ≤ F _o	-	2	-	3	-	4	
Start Time	-	2	-	2	-	2	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	-	0.75	-	0.54	
Period Jitter (Pk-Pk)							pSec
Specific Frequency ^{**}	-	40	-	40	-	40	
Others	-	200	-	200	-	200	
Standby Current	-	15	-	15	-	15	µA
Aging (@ 25°C 1st year)	-	±3	-	±3	-	±3	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 V_{DD}, with an output load of 15pF.

^{**} Specific frequency including 4.0, 13.0, 22.0, 26.0, and 40.0MHz

FREQ. STABILITY vs. TEMP. RANGE

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

* ○ : 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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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%	A: AT Fundamental T: AT 3rd Overtone Not Selectable by Customer	N :Normal	F: RoHS Compliant	-	XX.XXXXXX
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	I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85	J: CMOS 15pF / 50±5%					
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		L: LVPECL / 50±5% V: LVDS / 50±5% H: HCSL / 50±5%					
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