# SMD Crystal Oscillator

FCXO-06T

◆ **FEATURES**
- AT-cut crystal oscillator / frequency range 2 ~ 80 MHz.
- 2.0 × 1.6 × 0.8 mm Max. / 8.6 mg.
- Frequency tolerance ±2 ppm available.
- Operating temperature range -40 ~ +105°C available.
- CMOS level output.
- Ceramic with metal lid sealed by patented Electron-Beam-Soldering.
- Available in small lots.

◆ **APPLICATIONS**
- Mobile communication, wireless-modules.

RoHS Compliant   **Pb** Free

Actual size ■
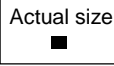
◆ **STANDARD SPECIFICATIONS / ORDERING INFORMATION**

Ordering Number (Sample): X6T — 49152 — 18 — U Q1 — H X ##
(1)　(2)　(3)　(4)(5)　(6)(7)(8)

(1) Type
X6T

(2) Nominal Frequency	
2.000 ~ 80.000 MHz	e.g. 49.152 MHz = 49152

(3) Supply Voltage	
1.8 ±0.18 V	18
2.5 ±0.25 V	25
3.3 ±0.33 V	33
Other: 1.60 ~ 3.63 V	NN

(4) Frequency Tolerance @ 25°C			
±2 ppm	M	±10 ppm	B
±5 ppm	U	Other	N

(5) Operating Temperature	Frequency Temperature Characteristics (with reference to 25°C)			
	±6 ppm	±8 ppm	±10 ppm	±15 ppm
-20 ~ +70°C	P8	P9	P1	P2
-30 ~ +85°C	-	Q9	Q1	Q2
-40 ~ +85°C	-	-	R1	R2
-40 ~ +105°C	-	-	S1	S2
Other	NN			

(6) Storage Temperature[*1]	
-40 ~ +85°C	G
-40 ~ +105°C	H
Other	N

[*1] Not applicable to packing materials

(7) Tape & Reel (φ180 mm)	
3000 pcs/reel	X
Other	N

(8) RIVER Use Only (As needed)

Common Parameter	Specification	Unit	Note
Operating Supply Current	3.0 Max.	mA	F = 40 MHz, V_{DD} = 3.0 V, No load
Stand-by Supply Current	10 Max.	μA	Stand-by = "L"
High-level Output Voltage	V_{DD}-0.4 Min.	V	I_{OH} = -4 mA
Low-level Output Voltage	0.4 Max.	V	I_{OL} = +4 mA
Output Load	15 Max.	pF	-
Output Level	CMOS	-	-
Duty Cycle	50 ±5	%	-
Rise / Fall Time	5.0 Max.	ns	10% V_{DD} to 90% V_{DD} level

Common Parameter		Specification	Unit	Note
Startup Time		2.0 Max.	ms	V_{DD} = 3.3 V
		5.0 Max.	ms	V_{DD} = 1.8 V
Random Jitter (RJ) [*2]		3.0 typ.	ps	V_{DD} = 3.3 V
Total Jitter (TJ) [*2]		40 typ.	ps	V_{DD} = 3.3 V, TJ = n*RJ (n≒14.1, BER = 10^{-12})
Phase Jitter		1.0 Max.	ps	Offset frequency: 12 kHz ~ 5 MHz, V_{DD} = 3.3 V
Stand-by (pin #1) Function	(High)	0.7V_{DD} Min.	V	Output (pin #3) enabled
	(Low)	0.3V_{DD} Max.	V	Output (pin #3) disabled: High-Z

[*2] Measured on "Wave Crest 3100C"

- The codes for the *Ordering Number* are indicated in blue, and the specifications are described in black.
- Not all combinations of options are available as standard.
- For specifications that include "*Overall Frequency-Tolerance*", please select "N" for the *(4) Frequency Tolerance* and let us know your specific requirements.
- For specifications other than those above, please contact our sales / website and let us know your specific requirements.
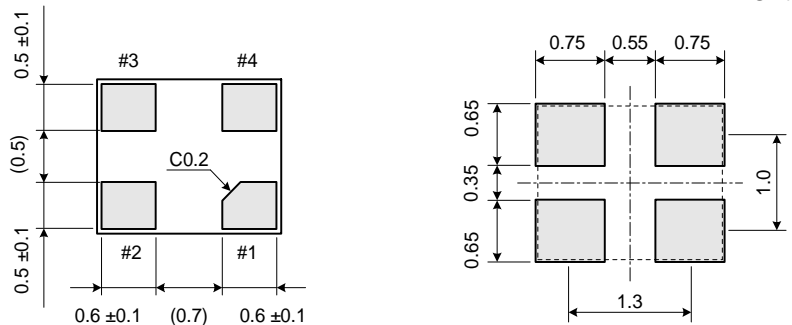

◆ **OUTLINE DEMENSIONS**

2.0 ±0.1   0.8 Max.
1.6 ±0.1
#4 #3 / #1 #2
*Metal Lid
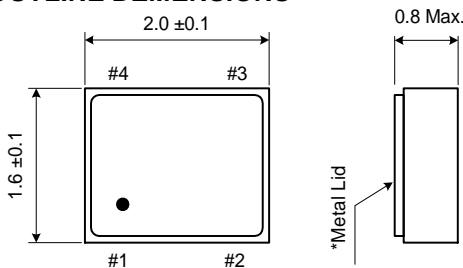
Pinout:
Pin #1. Stand-by (Marked with "●")
Pin #2. Ground & Metal Lid*
Pin #3. Output
Pin #4. V_{DD}

0.5 ±0.1   (0.5)   0.5 ±0.1
#3 #4 / #2 #1
C0.2
0.6 ±0.1   (0.7)   0.6 ±0.1

◆ **LAND PATTERN**

Unit: mm

0.75   0.55   0.75
0.65   0.35   0.65
1.0
1.3

- For operational stability, a 0.01 μF bypass capacitor should be placed between V_{DD} (Pin #4) and GND (Pin #2) as close as possible to the product.

RIVER