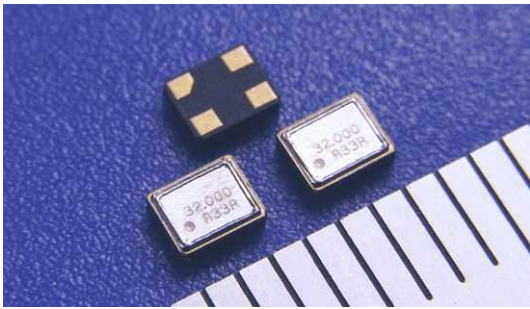


# SMD Crystal Oscillator

# FCXO-05/05W



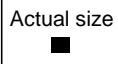
**FCXO-05: Standard type**  
**FCXO-05W: Operating temperature 105°C Type**

### ◆ FEATURES

- AT-cut crystal oscillator / frequency range 1 ~ 80 MHz.
- 2.5 × 2.0 × 0.9 mm Max. / 13 mg.
- Frequency tolerance ±7 ppm available.
- Ceramic with metal lid sealed by patented Electron-Beam-Soldering.

### ◆ APPLICATIONS

- Mobile communication, wireless-modules.



### ◆ STANDARD SPECIFICATIONS / ORDERING INFORMATION

Ordering Number (Sample): **X5A** — **49152** — **18** — **C Q3** — **H X ##**  
 (1) (2) (3) (4) (5) (6) (7) (8)

(1) Type	
FCXO-05	<b>X5A</b>
FCXO-05W	<b>X5W</b>

(2) Nominal Frequency	
1.000 ~ 80.000 MHz	e.g. 49.152 MHz = <b>49152</b>

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

(4) Frequency Tolerance @ 25°C			
±7 ppm	<b>A</b>	±20 ppm	<b>D</b>
±10 ppm	<b>B</b>	±30 ppm	<b>E</b>
±15 ppm	<b>C</b>	±50 ppm	<b>F</b>
Other		<b>N</b>	

(5) Operating Temperature	Frequency Temperature Characteristics (with reference to 25°C)				
	±10 ppm	±15 ppm	±20 ppm	±30 ppm	±50 ppm
-20 ~ +70°C	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>
-30 ~ +85°C	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5</b>
-40 ~ +85°C	-	<b>R2</b>	<b>R3</b>	<b>R4</b>	<b>R5</b>
-40 ~ +105°C *1	-	-	-	<b>S4</b>	<b>S5</b>
Other	<b>NN</b>				

\*1 Only applicable to FCXO-05W

(6) Storage Temperature*2	
-40 ~ +85°C	<b>G</b>
-40 ~ +105°C	<b>H</b>
-55 ~ +125°C *1	<b>J</b>
Other	<b>N</b>

\*2 Not applicable to packing materials

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

(8) RIVER Use Only (As needed)

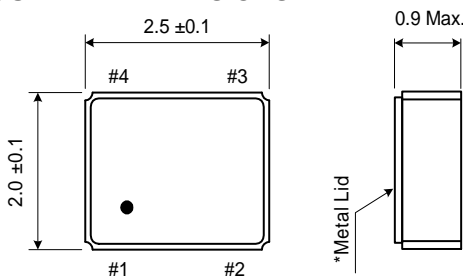
Common Parameter	Specification	Unit	Note
Operating Supply Current	3.0 Max.	mA	F = 40 MHz, V <sub>DD</sub> = 3.0 V, No load
Stand-by Supply Current	10 Max.	µA	Stand-by = "L"
High-level Output Voltage	V <sub>DD</sub> -0.4 Min.	V	I <sub>OH</sub> = -4 mA
Low-level Output Voltage	0.4 Max.	V	I <sub>OL</sub>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

Common Parameter	Specification	Unit	Note
Startup Time	2.0 Max.	ms	V <sub>DD</sub> = 3.3 V
	5.0 Max.	ms	V <sub>DD</sub> = 1.8 V
Random Jitter (RJ) *3	3.7 typ.	ps	TJ = n*RJ
Total Jitter (TJ) *3	51 typ.	ps	(n≅14.1, BER = 10 <sup>-12</sup> )
Phase Jitter	1.0 Max.	ps	Offset frequency: 12 kHz ~ 5 MHz
Phase Noise	-142 typ. -147 typ.	dBc /Hz	F=72MHz fo ±100 kHz fo ±1MHz
Stand-by (pin #1) Function	(High)	0.7V <sub>DD</sub> Min.	V Output (pin #3) enabled
	(Low)	0.3V <sub>DD</sub> Max.	V Output (pin #3) disabled: High-Z

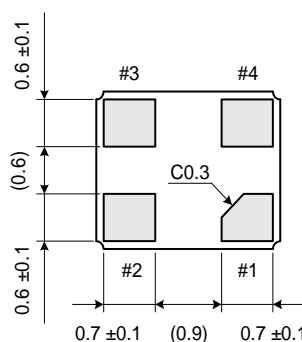
\*3 Measured on "Wave Crest 3100C"

- 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 DIMENSIONS

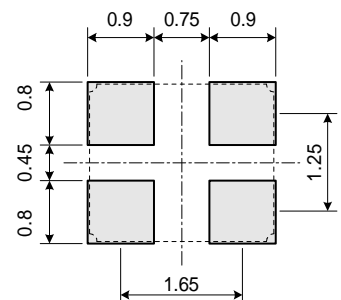


Pinout:  
 Pin #1. Stand-by (Marked with "●")  
 Pin #2. Ground & Metal Lid\*  
 Pin #3. Output  
 Pin #4. V<sub>DD</sub>



### ◆ LAND PATTERN

Unit: mm



• For operational stability, a 0.01 µF bypass capacitor should be placed between V<sub>DD</sub> (Pin #4) and GND (Pin #2) as close as possible to the product.

