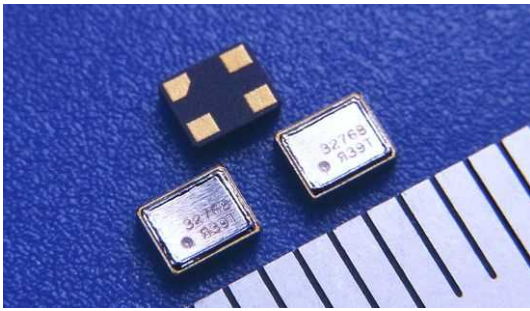


SMD Crystal Oscillator

FCXO-05C

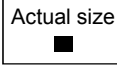


◆ FEATURES

- AT-cut, kHz crystal oscillator (22.000~ 87.000 kHz / 32.768 kHz Typ.)
- Compact package (2.5 × 2.0 × 0.9 mm Max. / 13 mg)
- Better freq.-vs.-temp. characteristics than tuning fork oscillators
- Wide operating temperature range (-40 ~ +105°C)
- Supports high supply voltage (up to 5.5 V)
- High-precision frequency (available from ±7ppm @25°C)
- High-reliable ceramic/metal package sealed with electron beam
- Specifications in conformity with AEC-Q200 available on request

◆ APPLICATIONS

- Smart-meters / wireless-modules



◆ STANDARD SPECIFICATIONS / ORDERING INFORMATION

Ordering Number (Sample): **X5C** — **32768** — **18** — **C Q3** — **H X ##**
 (1) (2) (3) (4) (5) (6) (7) (8)

(1) Type
X5C

(2) Nominal Frequency	
32.768 kHz Typ. / 22.000 ~ 87.000 kHz	e.g. 32.768 kHz = 32768

(3) Supply Voltage	
1.8 ±0.18 V	18
2.5 ±0.25 V	25
3.3 ±0.33 V	33
5.0 ±0.50 V	50
Other: 1.60 ~ 5.50 V	NN

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

1/10 tolerance compared to tuning fork crystal oscillators

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

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

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

(8) RIVER Use Only (As needed)

*1 Not applicable to packing materials

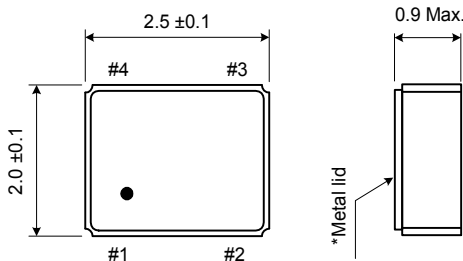
1/200 startup time compared to tuning fork crystal oscillators

Common Parameter	Specification	Unit	Note
Current Consumption	0.08 Max.	mA	F = 32.768 kHz, VDD = 3.0V, No load
Stand-by Current	10 Max.	µA	Stand-by = "L"
High-level Output Voltage	VDD-0.4 Min.	V	I _{OH} = -1mA (up to +85°C) I _{OH} = -0.8mA (up to +105°C)
Low-level Output Voltage	0.4 Max.	V	I _{OL} = +1 mA (up to +85°C) I _{OL} = +0.8 mA (up to +105°C)
Output Load	15 Max.	pF	-

Common Parameter	Specification	Unit	Note
Output Level	CMOS	-	-
Duty Cycle	50 ±5	%	-
Rise / Fall Time	200 Max.	ns	10%VDD to 90%VDD level
Startup Time	2.0 Max.	ms	VDD = 3.3 V
	5.0 Max.	ms	VDD = 1.8 V
Stand-by (pin #1) Function	(High)	0.7VDD Min.	V Output (pin #3) enabled
	(Low)	0.3VDD Max.	V Output (pin #3) disabled: High-Z

- "Ordering Number" codes are indicated in blue, and the corresponding specifications are described in black.
- Not all combinations of options are available as a standard specification.
- For "Overall Frequency-Tolerance" specifications, please select "N" for the "(4) Frequency Tolerance", and let our sales know your requirement.
- For specifications other than those above, please consult our sales or contact us via our website with your requirement.

◆ OUTLINE DIMENSIONS

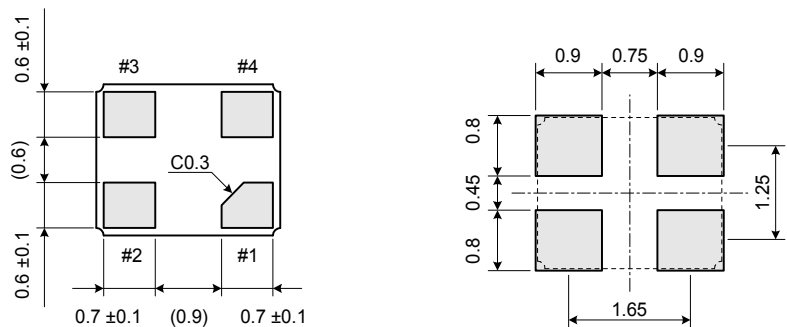


Pin	Function
#1	Stand-by
#2	Ground
#3	Output
#4	VDD

- "●" indicates Pin #1.
- Pin #2 is connected to the lid*.

◆ LAND PATTERN

Unit: mm



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

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