SMD Crystal Clock Oscillator (SPXO)

2.0 mm x 1.6 mm / 1 MHz to 100 MHz / CMOS / 1.8 V to 3.3 V

FCXO-06 / FCXO-06W

Standard type Operating temp.105 °C type

FEATURES

- 2016 size CMOS crystal clock oscillator (1 MHz to 100 MHz) with 2 types:
  - → FCXO-06 (Standard type)
  - → FCXO-06W (105 °C type): wide operating temperature range of -40 °C to +105 °C available
- Frequency tolerance of ±7 ppm (@25 °C) available
- Robust ceramic package with metal lid sealed by electron beam
- Specifications in conformity with AEC-Q200 available on request (for FCXO-06W)

(2.0 × 1.6 × 0.8 mm)

RoHS 2.0 Compliant 10 substances

Pb Free

APPLICATIONS

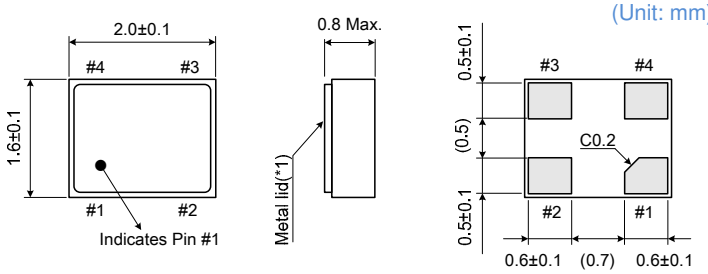
- Car audio systems / car GPS units / remote keyless entry / dash cameras
- Mobile communication / wireless modules

STANDARD SPECIFICATIONS

Item		Specifications	Unit	Conditions (Remarks)
Nominal frequency		1 to 100	MHz	-
Frequency tolerance		±7	ppm	@25 °C (See below for more options)
Storage temperature		-55 to +125	°C	-
Operating temperature	FCXO-06	-40 to +85	°C	(See below for more options)
	FCXO-06W	-40 to +105	°C	
Frequency / temperature characteristics		±15 (-40 °C to +85 °C)	ppm	Refer to 25 °C (See below for more options)
Supply voltage		1.8 , 3.3	V	(See below for more options)
Current consumption (Max.)		3.0	mA	F = 40 MHz, V_{DD} = 3.0 V, No load
Stand-by current (Max.)		10	µA	Stand-by = "L"
Output voltage	V_{OH} (Min.)	0.9V_{DD}	V	I_{OH} = -4 mA
	V_{OL} (Max.)	0.1V_{DD}	V	I_{OL} = +4 mA
Output load (Max.)		15	pF	-
Output level		CMOS	-	-
Symmetry (Duty Cycle)		50 ± 5	%	V_{TH} = 0.5V_{DD}
Rise time / Fall time (Max.)		5.0	ns	0.1V_{DD} to 0.9V_{DD}
Start-up time (Max.)		2.0	ms	V_{DD} = 3.3 V
		5.0	ms	V_{DD} = 1.8 V
Random Jitter (Typ.)		3.7	ps	V_{DD} = 3.3 V Measured on Wave Crest 3100C
Total Jitter (Typ.)		51	ps	V_{DD} = 3.3 V , TJ = n*RJ (n ≒ 14.1 , BER = 10-12) Measured on WaveCrest 3100C
Phase Noise (Max.)		1.0	ps	V_{DD} = 3.3 V Offset frequency = 12 kHz to 5 MHz
Stand-by function (Pin #1)	V_{IH} (Min.)	0.7V_{DD}	V	Output (Pin #3) enabled
	V_{IL} (Max.)	0.3V_{DD}	V	Output (Pin #3) disabled = High-Z
Tape and reel		3000	pcs/reel	Reel diameter : ø180 mm

OUTLINE DIMENSIONS

(Unit: mm)

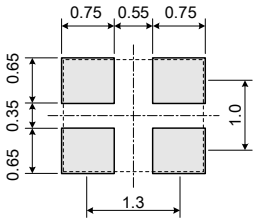


Pin	Function
#1	Stand-by
#2	Ground
#3	Output
#4	V_{DD}

- Pin #2 is connected to the metal lid (*1)

RECOMMENDED LAND PATTERN

(Unit: mm)



GENERAL NOTES

- Certain combinations of standard options may be classified as high-spec models.
- Please consult us for specifications that do not match the standard specifications.
- The information in this document is subject to change without notice.
- For operational stability, a 0.01 µF bypass capacitor should be placed between V_{DD} (Pin #4) and Ground (Pin #2) as close as possible to the product.

ORDERING NUMBER GUIDE

X6A | 49152 | 18 | C | Q3 | X | ##

Type

X6A	FCXO-06
X6W	FCXO-06W

Nominal Frequency

Please specify (within 1 to 100 MHz)
e.g. "**49152**" = 49.152 MHz

Supply Voltage

18	1.8 ± 0.18 V
25	2.5 ± 0.25 V
33	3.3 ± 0.33 V
NN	Other *2 (within 1.60 to 3.63 V)

Frequency Tolerance *1

A	±7 ppm
B	±10 ppm
C	±15 ppm
D	±20 ppm
E	±30 ppm
F	±50 ppm
G	Overall *1
N	Other *2

Frequency / Temperature Characteristics & Operating Temperature *1

Operating temperature	Frequency / temperature characteristics				
	±10 ppm	±15 ppm	±20 ppm	±30 ppm	±50 ppm
-20 to +70 °C	P1	P2**	P3**	P4**	P5**
-30 to +85 °C	Q1	Q2	Q3**	Q4**	Q5**
-40 to +85 °C	-	R2	R3**	R4**	R5**
-40 to +105 °C *3	-	-	-	S4**	S5**
Other *2	NN				

RIVER use only (as needed)

Tape and Reel

X	3000 pcs/reel
N	Other *2

*1. For overall frequency stability inclusive of stability at 25 °C and an operating temp. range, please select "**G** (Overall)" from the table "Frequency Tolerance" followed by a code that is with " ** " from the table "Freq./Temp. Characteristics & Operating Temp". (e.g. **GP2** = Overall ±15 ppm (-20 to +70 °C))
*2. Please consult us for your requirements.
*3. This option is only available for FCXO-06W.

RIVER Sales Contacts:

RIVER ELETEC CORPORATION
E-mail: river_sales@river-ele.co.jp
River Electronics (Singapore) Pte.Ltd. TEL: +65-6258-7874 FAX: +65-6258-7366
Taiwan River Co.,Ltd. TEL: +886-2-8988-2811 FAX: +886-2-2983-4785
Xi'an River Electronics Corporation (China) TEL: +86-755-86528590 FAX: +86-755-86528590

https://www.river-ele.co.jp
2-1-11 Fujimigaoka, Nirasaki, Yamanashi, 407-8502, Japan

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