

SMD Crystal Clock Oscillator (SPXO)

2.5 mm x 2.0 mm / 1 MHz to 80 MHz / CMOS / 1.8 V to 3.3 V

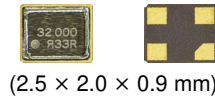
FCXO-05 / FCXO-05W

Standard type

Operating temp.105°C type

FEATURES

- 2520 size CMOS crystal clock oscillator (1 MHz to 80 MHz) with 2 types:
 - FCXO-05 (Standard type)
 - FCXO-05W (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-05W)



(2.5 × 2.0 × 0.9 mm)



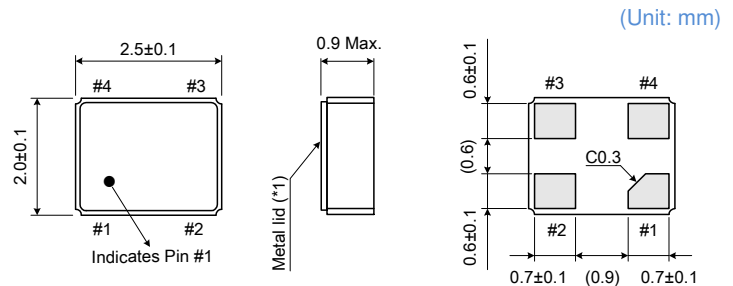
APPLICATIONS

- 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 80	MHz	-
Frequency tolerance	± 7	ppm	@25 °C (See below for more options)
Storage temperature	-55 to +125	°C	-
Operating temperature	FCXO-05	-40 to +85	°C (See below for more options)
	FCXO-05W	-40 to +105	
Frequency / temperature characteristics	± 10 (-30 °C to +85 °C) ± 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, T _J = 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 : $\phi 180$ mm

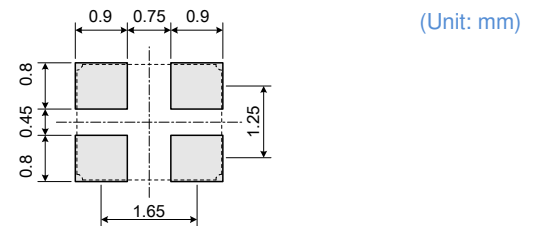
OUTLINE DIMENSIONS



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

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

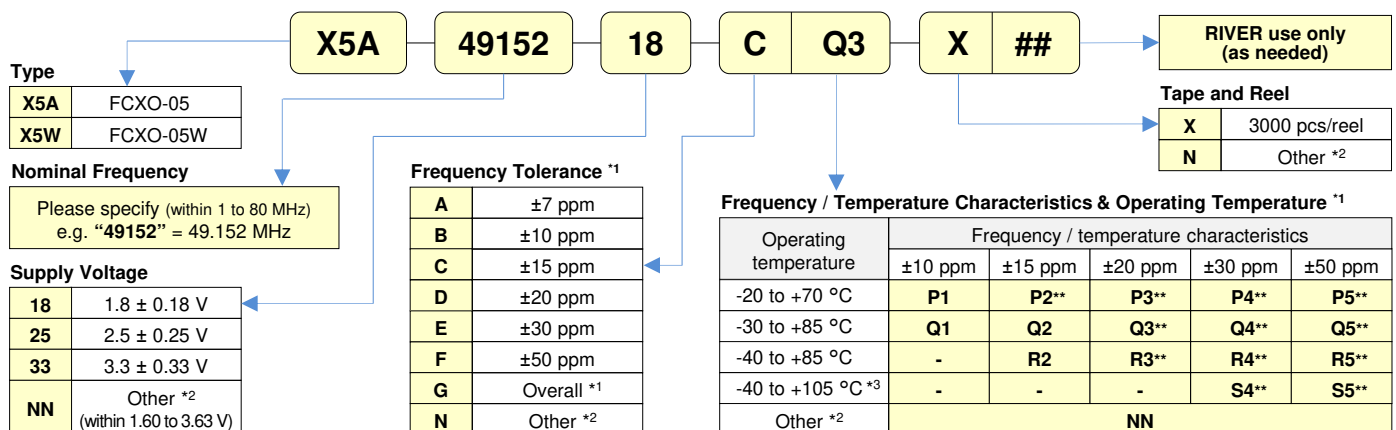
RECOMMENDED LAND PATTERN



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



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-05W.