SMD Crystal Clock Oscillator (SPXO)

Low phase noise / 2.0 mm x 1.6 mm / 22.5792 MHz to 50 MHz / CMOS / 1.8 V to 3.3 V

FCXO-06E

FEATURES

- 2016 size CMOS oscillator (22.5792 MHz to 50 MHz) with ultra-low phase noise for audio systems :
 - → -157 dBc/Hz typical @offset 1 kHz
 - → -165 dBc/Hz typical @offset 100 kHz
- Frequency tolerance of ±7 ppm (@25 °C) available
- Wide operating temperature range of -40 °C to +105 °C available
- · Robust ceramic package with metal lid sealed by electron beam
- · Specifications in conformity with AEC-Q200 available on request









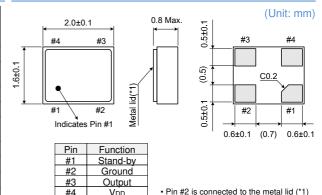
APPLICATIONS

- · Hi-Fi audio / video systems, mobile communication, wireless-modules
- · Car audio systems, car GPS units, remote keyless entry, dash cameras

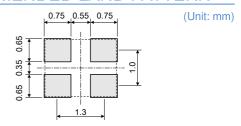
STANDARD SPECIFICATIONS

ltem		Specifications			
		Standard	High performance	Unit	Conditions / Remarks
Nominal frequency		22.5792 to 50		MHz	-
Frequency tolerance		±7		ppm	@25 °C (See below for more options)
Storage temperature		-55 to +125		°C	-
Operating temperature		-40 to +85 , -40 to +105		°C	(See below for more options)
Frequency / temperature characteristics		± 10 (-20 °C to +70 °C) ± 30 (-40 °C to +105 °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.)		5	10	mA	$V_{DD} = 3.0 \text{ V}$, No load
Stand-by current (Max.)		10	35	μΑ	Stand-by = " L "
Output voltage	V _{OH} (Min.)	0.9V _{DD}		V	-
	V _{OL} (Max.)	0.1V _{DD}		V	-
Drivability		± 4	±2	mA	-
Output load (Max.)		15		pF	-
Output level		CMOS		-	-
Symmetry (Duty Cycle)		50 ± 5		%	$V_{TH} = 0.5V_{DD}$
Rise time / Fall time (Max.)		6.0	4.7	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.)		3.0	3.5	ps	V _{DD} = 3.3 V Measured on WaveCrest 3100C
Total Jitter (Typ.)		43	47	ps	V _{DD} = 3.3 V , TJ = n*RJ (n ≒ 14.1 , BER = 10-12) Measured on WaveCrest 3100C
Phase Noise (Typ.)		-140	-157	dBc/Hz	Offset 1 kHz (V _{DD} = 1.8 V)
		-156	-165	dBc/Hz	Offset 100 kHz (V _{DD} = 1.8 V)
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



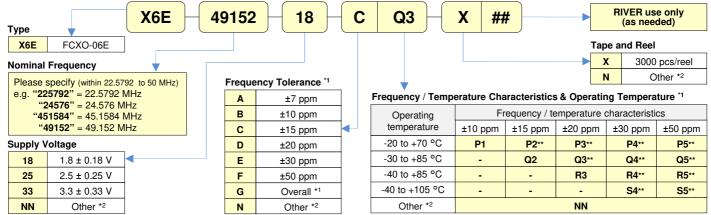
RECOMMENDED LAND PATTERN



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.
- \bullet 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.

ORDERING NUMBER GUIDE



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)) Please consult us for your requirements.



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