

Surface-Mount Oscillator



The XO-22C series is an ultra miniature package clock oscillator with dimensions 2.5 mm x 2.0 mm x 0.9 mm. It is mainly used in portable PC, mobile communications, and telecom devices and equipment.

FEATURES

- Size: 2.5 x 2.0 x 0.9 (mm)
- Ultra small package
- Tri-state enable / disable
- HCMOS compatible
- Tape and reel packaging
- I_R re-flow
- 1.8 V, 2.5 V, 3.3 V input voltage
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	SYMBOL	CONDITION	VALUE
Frequency range	F _O	-	1.0 MHz to 125 MHz
Frequency stability ⁽¹⁾		All conditions	± 20 ppm, ± 25 ppm, ± 30 ppm, ± 35 ppm, ± 50 ppm, ± 100 ppm
Operating temperature range	T _{OPR}	-	0 °C to 70 °C
			-40 °C to +85 °C (option)
Storage temperature range	T _{STG}	-	-55 °C to +125 °C
Power supply voltage	V _{DD}	Select desired voltage	1.8 V ± 10 %
	V _{DD}		2.5 V ± 10 %
	V _{DD}		3.3 V ± 10 %
Aging (first year)		25 °C ± 3 °C	± 5 ppm
Supply current	I _{DD}	Frequency dependent	25 mA typ.
Output symmetry	Sym	At ½ V _{DD}	40 % / 60 % (45 % / 55 % option)
Rise time	t _r	10 % V _{DD} to 90 % V _{DD}	5 ns max.
Rise/fall time	t _f	90 % V _{DD} to 10 % V _{DD}	5 ns max.
Output voltage	V _{OH}	-	90 % V _{DD} min.
	V _{OL}	-	10 % V _{DD} max.
Output load	HCMOS load	-	20 pF max. (15 pF typ.)
Start-up time	t _s	-	10 ms max.
Pin 1, tri-state function		-	Pin 1 = H or open (output active at pin 3) Pin 1 = L (high impedance at pin 3)

Note

⁽¹⁾ Include: 25 °C tolerance, operating temperature range, input voltage change, first year aging, load change, shock and vibration

DIMENSIONS in inches [millimeters]											
<p>0.098 ± 0.006 [2.50 ± 0.15] 0.079 ± 0.006 [2.00 ± 0.15]</p>	<p>0.037 max. [0.95 max.]</p>										
<p>0.012 x 45° [0.3 x 45°] 0.004 [0.10] 0.0226 [0.575] 0.026 [0.65] 0.0226 [0.575] 0.004 [0.10] 0.0266 [0.675] 0.037 [0.95] 0.0266 [0.675]</p>	<p>Typical pad layout</p> <p>0.031 [0.80] 0.018 [0.45] 0.031 [0.80] 0.035 [0.90] 0.030 [0.75] 0.035 [0.90]</p> <table border="1"> <thead> <tr> <th>PIN</th> <th>CONNECTION</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>Tri-state / NC</td> </tr> <tr> <td>#2</td> <td>Ground</td> </tr> <tr> <td>#3</td> <td>Output</td> </tr> <tr> <td>#4</td> <td>V_{DD}</td> </tr> </tbody> </table>	PIN	CONNECTION	#1	Tri-state / NC	#2	Ground	#3	Output	#4	V _{DD}
PIN	CONNECTION										
#1	Tri-state / NC										
#2	Ground										
#3	Output										
#4	V _{DD}										

Note

- A 0.01 μF bypass capacitor should be placed between V_{DD} (pin 4) and GND (pin 2) to minimize power supply line noise



PART NUMBER CONFIGURATIONS (to be used on all New Designs)									
X O	2 2	C	3	E	R	E	H	T	1 6 M 1 2 8
Oscillator	Package / Size	Logic	Voltage	Stability	Temp.	Tri-State	Package	Options	Frequency
	2 2	C = CMOS	3 = 3.3 V 2 = 2.5 V 1 = 1.8 V	C = ± 100 ppm D = ± 50 ppm F = ± 35 ppm G = ± 30 ppm E = ± 25 ppm H = ± 20 ppm	S = -10 °C to +70 °C R = -40 °C to +85 °C	N = no connect E = Tri-State	H = tape and reel	X = no options T = 45/55 Contact factory for available options	Use "M" as decimal place holder Frequency must be six digits - complete with "0" at the end

PART MARKING	
Line 1:	V25.00 (frequency)
Line 2:	YWWA (date code / factory)



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