Surface-Mount Oscillator

The XO-12C series is an ultra miniature package clock oscillator with dimensions 2.0 mm x 1.6 mm x 0.8 mm. It is primarily used in tablets, mobile communications, medical devices, industrial controls, and consumer platforms.

FEATURES

- Size: 2.0 x 1.6 x 0.8 (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

Pb-free

RoHS COMPLIANT

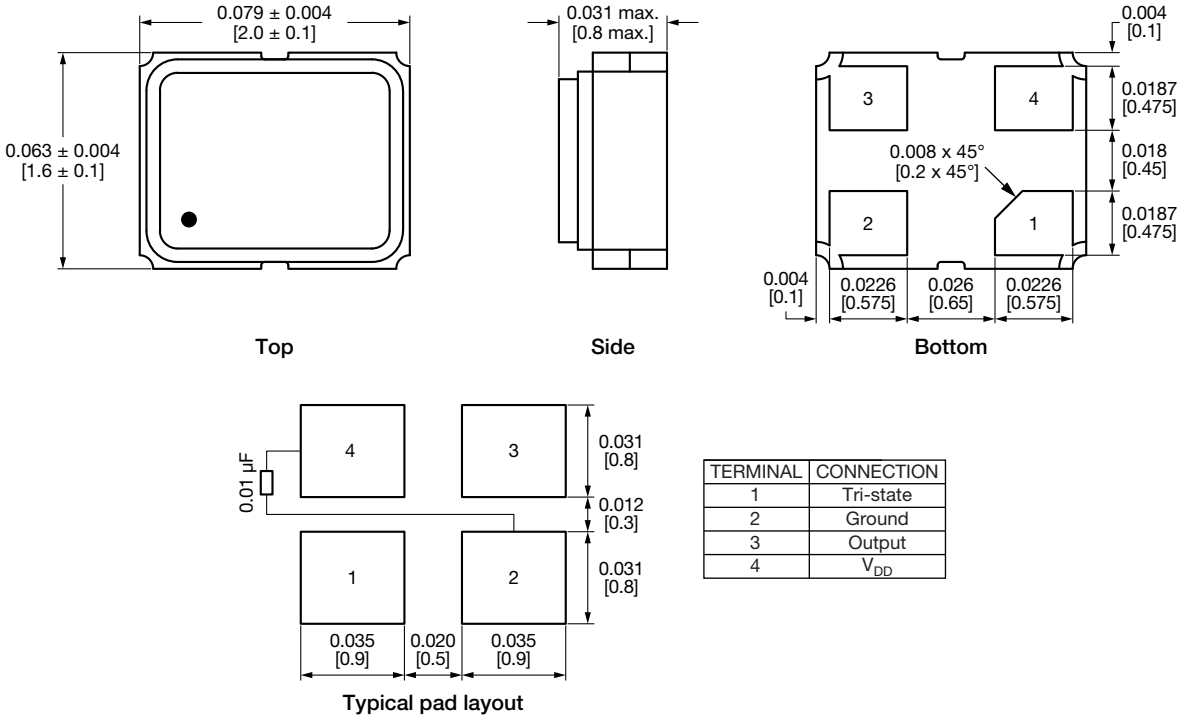
HALOGEN FREE

STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	**SYMBOL**	**CONDITION**	**VALUE**
Frequency range	F_O	-	1.0 MHz to 60 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}	-	35 mA max.
Output symmetry	Sym	At ½ V_{DD}	40 % / 60 % (45 % / 55 % option)
Rise time	t_r	10 % V_{DD} to 90 % V_{DD}	6 ns max.
Rise/fall time	t_f	90 % V_{DD} to 10 % V_{DD}	6 ns max.
Output voltage	V_{OH}	-	90 % V_{DD} min.
	V_{OL}	-	10 % V_{DD} max.
Output load	HCMOS load	-	30 pF max. (15 pF typ.)
Start-up time	t_s	-	10 ms max.
Phase jitter	J	12 kHz to 20 MHz	< 1.0 pS_{RMS}
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, aging, load change, shock and vibration

DIMENSIONS in inches [millimeters]



TERMINAL	CONNECTION
1	Tri-state
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	1 2	C	3	E	R	E	H	T	1 6 M 1 2 8
Oscillator	Package / Size **1** **2**	Logic **C** = CMOS	Voltage **3** = 3.3 V **2** = 2.5 V **1** = 1.8 V	Stability **C** = ± 100 ppm **D** = ± 50 ppm **F** = ± 35 ppm **G** = ± 30 ppm **E** = ± 25 ppm **H** = ± 20 ppm	Temp. **S** = -10 °C to +70 °C **R** = -40 °C to +85 °C	Tri-State **N** = no connect **E** = Tri-State	Package **H** = tape and reel	Options **X** = no options **T** = 45/55 Contact factory for available options	Frequency 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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