



A Product Line of
Diodes Incorporated



PRODUCT SPECIFICATION

NOMINAL FREQUENCY	50.000000 MHz
PRODUCT TYPE	TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. (P/N)	UX5C50002Z
ISSUE DATE	November 14, 2022
VERSION	A

Diodes Incorporated

No.2, Ziqiang 5th Rd., Zhongli Industrial Park,
Zhongli Dist., Taoyuan City 32063, Taiwan (R.O.C.)
TEL: 886-3-451-8888
FAX: 886-3-461-3865
<https://www.diodes.com>

*Pb-free
*RoHS Compliant
*HF-Halogen Free
*REACH Compliant
*MSL: Level 1

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

UX5C50002Z

VER. A 14-Nov-22

VERSION HISTORY

[illegible]

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

UX5C50002Z

VER. A 14-Nov-22

ELECTRICAL SPECIFICATIONS

SRe Part Number : UX5C50002Z

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F ₀	50.000000	MHz	
Frequency Stability	FT	± 25	ppm	**See note
Operating Temperature Range	TR	-40 to +85	°C	
Supply Voltage	V _{CC}	+3.3 ± 5.0%	V	
Logic Type	LT	LVDS		
Supply Current, Output Enabled	I _{CC} /OE	30	mA	Max.
Supply Current, Output Disabled	I _{CC} /OD	100	µA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T _R /T _F	0.35	ns	Max. measured 20/80% of Waveform
Output Voltage "0" Level	V _{OL}	1.10 / 0.9	V	Typ. / Min.
Output Voltage "1" Level	V _{OH}	1.43 / 1.6	V	Typ. / Max.
Output Load		100Ω & 5pF LVDS		
Jitter, Phase	RMS	0.3	ps	Max. 12KHz ~ 20MHz Frequency Band
Start Up Time		8	ms	Max.
Storage Temperature Range		-55 to +125	°C	

****Stability includes all combinations of Operating Temperature, Load changes, rated Input (Supply) Voltage changes, Initial Calibration Tolerance (25°C), Aging (1 year at 25°C Average Effective Ambient Temperature), Shock and Vibration.**

Output Enable / Disable Function

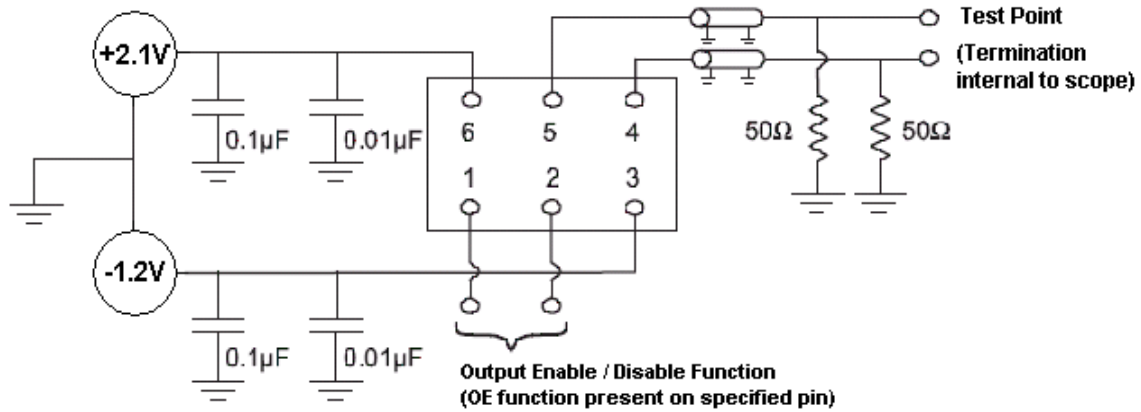
Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V _{CC}			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V _{CC}	V	Output is Hi-Z
Output Disable Delay			200	ns	
Output Enable Delay			2	ms	

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

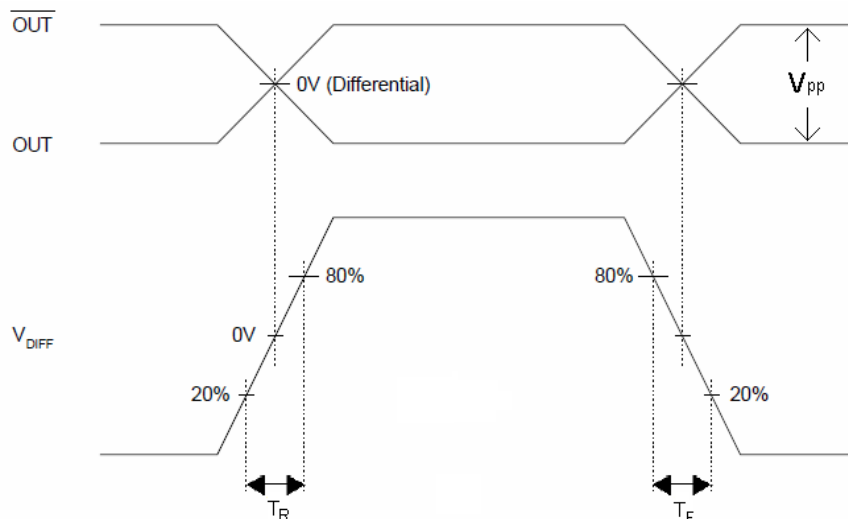
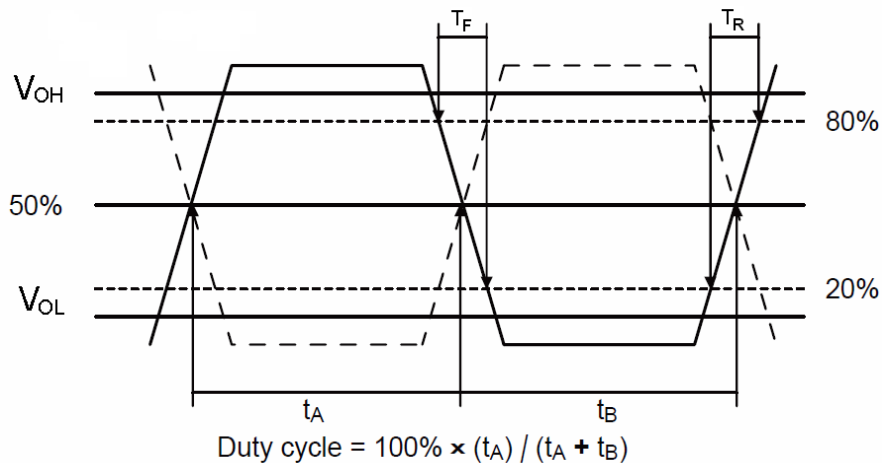
UX5C50002Z

VER. A 14-Nov-22

TEST CIRCUIT



OUTPUT WAVEFORM



RELIABILITY SPECIFICATIONS

ENVIRONMENTAL:

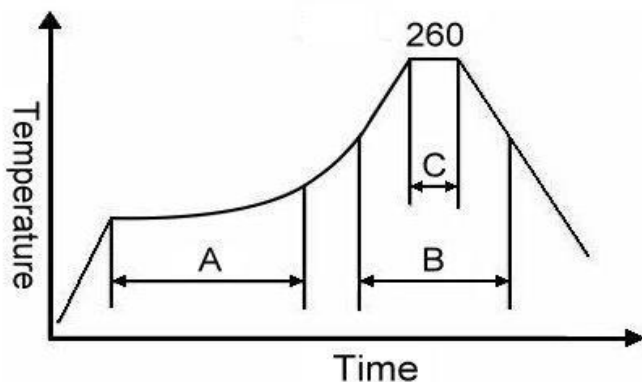
- a) THERMAL SHOCK: MIL-STD-883, Method 1011, Condition A
- b) MOISTURE RESISTANCE: MIL-STD-883, Method 1004
- c) VIBRATION: MIL-STD-883, Method 2007, Condition A
- d) RESISTANCE TO SOLDERING HEAT: J-STD-020D Table 5-2 Pb-free devices (except 2 cycles max)
- e) HAZARDOUS SUBSTANCE: Pb - free and RoHS/ Green Compliant.
- f) ESD Testing: JESD22 A114 / JESD22 C101
- g) Latch up Testing: JESD78

MECHANICAL:

- a) SHOCK: MIL-STD-883, Method 2002, Condition B
- b) SOLDERABILITY: JESD22-B102-D Method 2 (Preconditioning E)
- c) TERMINAL STRENGTH: MIL-STD-883, Method 2004, Test Condition D
- d) GROSS LEAK: MIL-STD-883, Method 1014, Condition C
- e) FINE LEAK: MIL-STD-883, Method 1014, Condition A2, $R1=2 \times 10^{-8}$ atm cc/s
- f) SOLVENT RESISTANCE: MIL-STD-202, Method 215

SUGGESTED IR REFLOW PROFILE

*As per IPC-JEDEC J-STD-020D



Note:

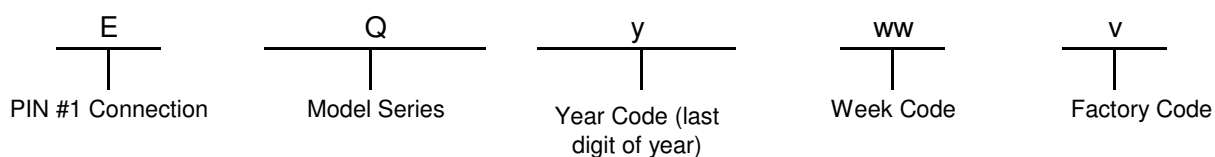
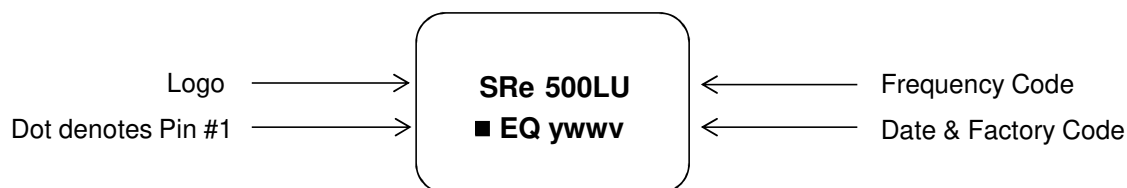
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

UX5C50002Z

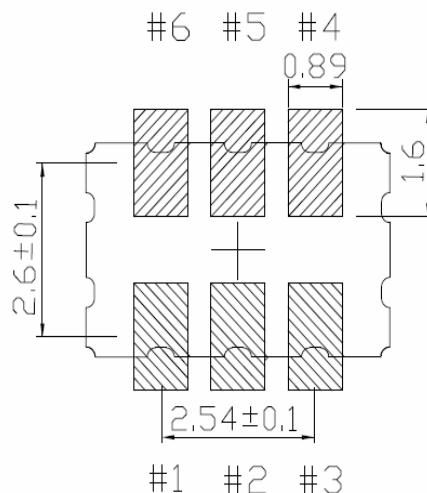
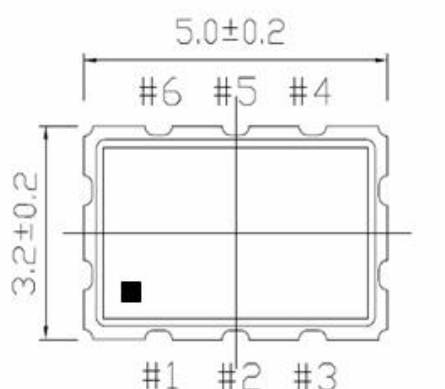
VER. A 14-Nov-22

MARKING

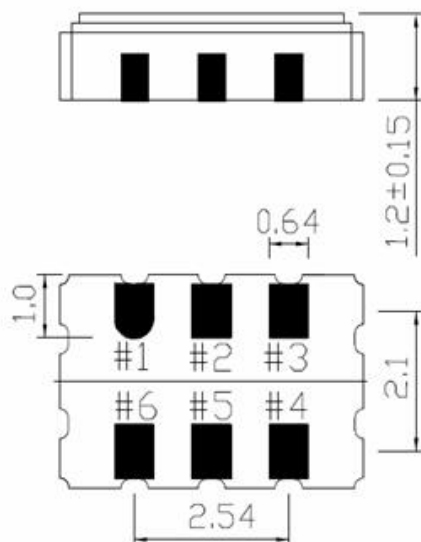


MECHANICAL DRAWINGS (Scale: None. Dimensions are in mm.)

Recommended Land Pattern*



*External high-frequency power decoupling is recommended. (see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.



(Bottom View)

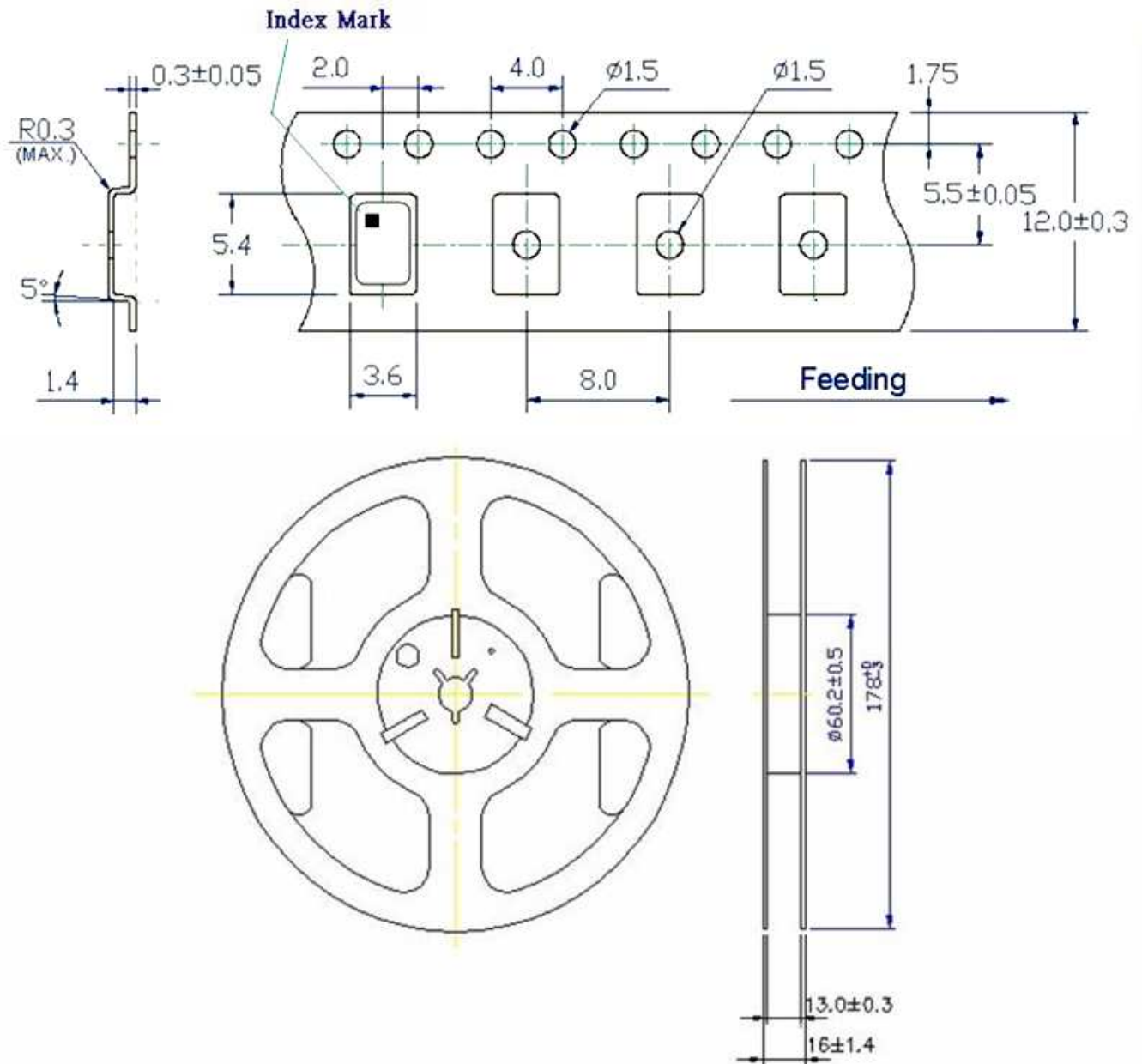
Pin	Function
1	EN
2	NC
3	V _{EE}
4	OUTPUT
5	OUTPUT N
6	V _{CC}

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

UX5C50002Z

VER. A 14-Nov-22

TAPE & REEL



1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

TYPE UX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

UX5C50002Z

VER. A 14-Nov-22

PACKING

