



A Product Line of  
Diodes Incorporated



## SPECIFICATION FOR APPROVAL

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY 25.000000 MHz

HOLDER TYPE TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

SPEC. NO. ( P/N ) HX3425001Z

CUSTOMER P/N \_\_\_\_\_

ISSUE DATE March 28, 2018

VERSION 02

APPROVED	PREPARED	QA
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### Diodes Incorporated

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- \*Pb-free
- \*RoHS Compliant
- \*HF-Halogen Free
- \*REACH Compliant

# TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

## ***HX3425001Z***

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### VERSION HISTORY

Version No.	Version Date	Description	Notes
01	Nov.18,2016	Initial Release	
02	Mar.28,2018	Updated logo	

PRELIMINARY



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### ELECTRICAL SPECIFICATIONS

SRe Part Number : HX3425001Z

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fo	25.000000	MHz	
Frequency Stability	FT	± 70	ppm	**See note
Operating Temperature Range	TR	-40 to +125	°C	
Supply Voltage	V <sub>CC</sub>	+3.3 ± 10.0%	V	
Logic Type	LT	HCSL		
Supply Current, Output Enabled	I <sub>CC</sub> /OE	30	mA	Max.
Supply Current, Output Disabled	I <sub>CC</sub> /OD	100	µA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T <sub>R</sub> /T <sub>F</sub>	0.7	ns	Max. measured from Vol=0.175V to Voh=0.525V
Output Voltage "0" Level	V <sub>OL</sub>	-0.150 / 0	V	Min. / Typ.
Output Voltage "1" Level	V <sub>OH</sub>	0.66 / 0.70 / 0.90	V	Min. / Typ. / Max.
Output Load		Rs=33Ω, Rp=50Ω, CL=2pF		Typ. In HCSL termination
Jitter, Phase	RMS	0.75	ps	Max. 10KHz ~ 5MHz Frequency Band
Jitter, Peak to Peak	Pk-Pk	40	ps	Max. 100,000 Random Periods
Jitter, Cycle to Cycle	C2C	50	ps	Max.
Start Up Time		2	ms	Max.
Edge Rate	Edge_rate	0.6 / 4.0	V/ns	Min. / Max., measured from -150mV to +150mV on the differential waveform
Absolute Crossing Point Voltages	V <sub>cross absolute</sub>	250 / 550	mV	Min. / Max., measured at crossing point of output and output N on the single ended waveform
Variation Of Crossing Over All Rising Clock Edges	V <sub>cross Delta</sub>	140	mV	Max.
Storage Temperature Range		-55 to +125	°C	

**\*\* This product doesn't include harmful substance that stipulated by SONY SS-00259 Level 1 and S-AT2-001 Level 1 standard. RoHS Compliant (Pb - Free).**

**\*\*Stability includes all combinations of Operating Temperature, Load changes, rated Input (Supply) Voltage changes, Initial Calibration Tolerance (25°C), Aging (5 years at 40°C Average Effective Ambient Temperature), Shock and Vibration.**

#### OUTPUT ENABLE / DISABLE

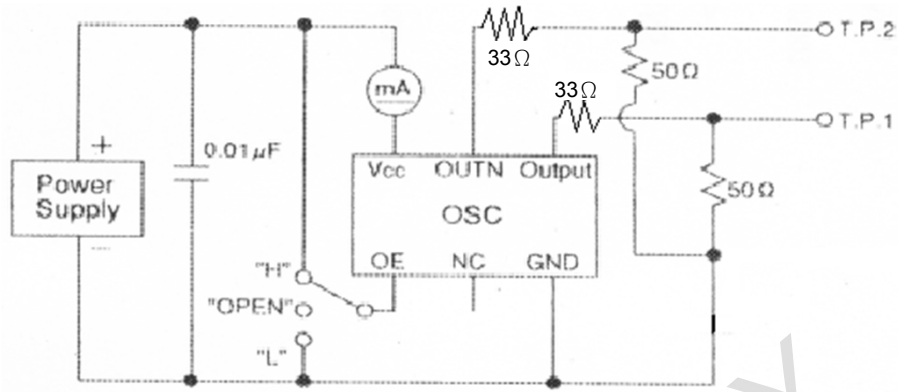
Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V <sub>CC</sub>			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V <sub>CC</sub>	V	Output is Hi-Z
Output Disable Delay			200	ns	
Output Enable Delay			2	ms	

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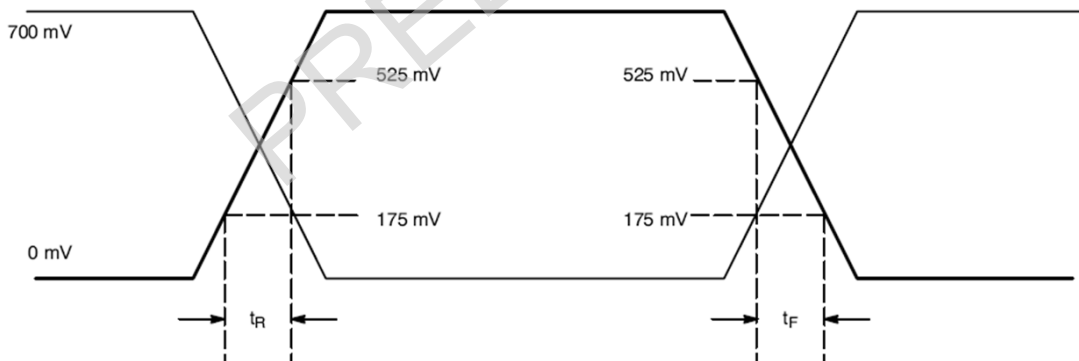
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### TEST CIRCUIT



### OUTPUT WAVEFORM



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## RELIABILITY SPECIFICATIONS

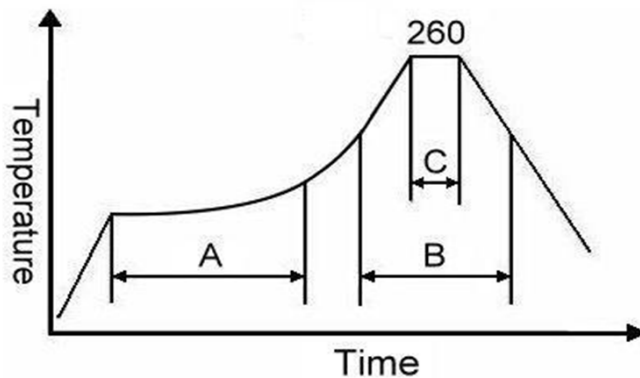
### ENVIRONMENTAL:

- 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: RoHS Compliant

### 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



Note:

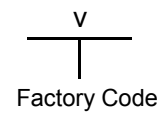
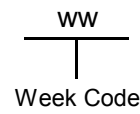
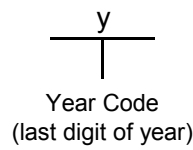
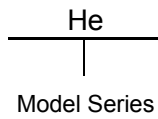
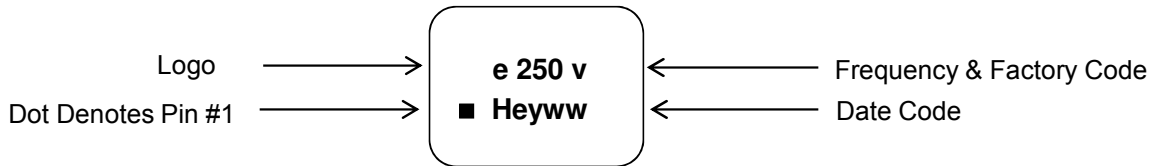
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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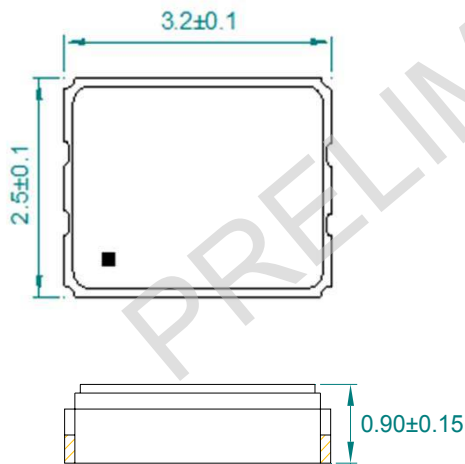
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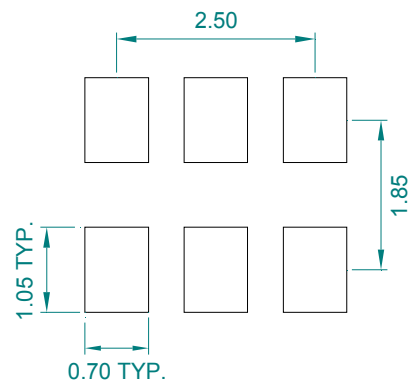
### MARKING



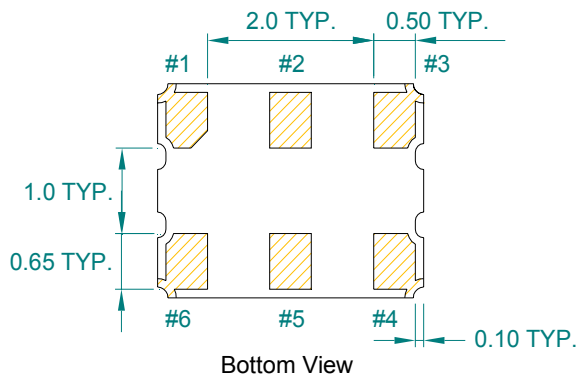
### MECHANICAL DRAWINGS ( Scale:None. Dimensions are in mm.)



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.



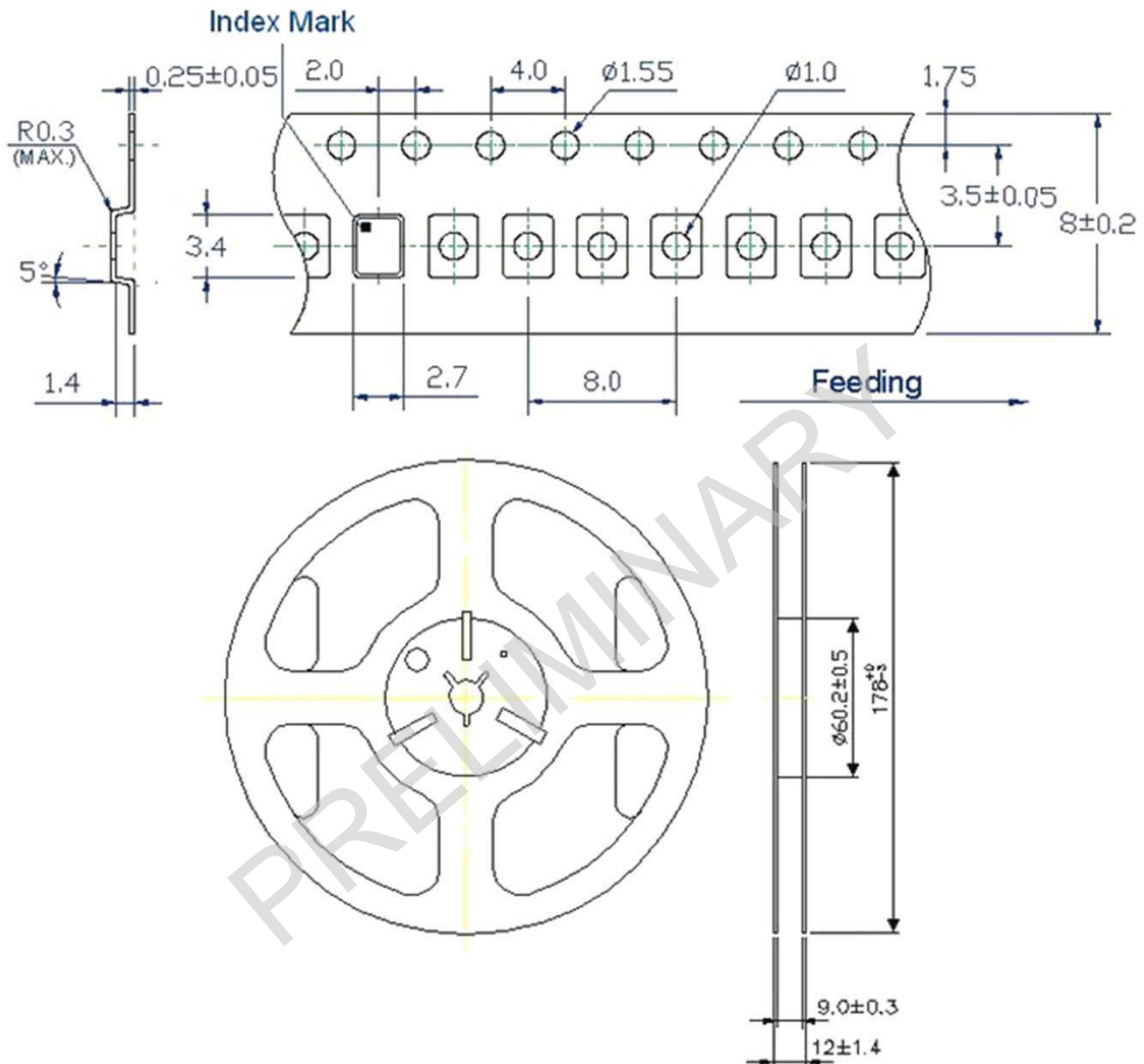
Pin	Function
1	OE
2	NC
3	V <sub>EE</sub>
4	OUTPUT
5	OUTPUT N
6	V <sub>CC</sub>

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### 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.

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### PACKING

