



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

TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

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ELECTRICAL SPECIFICATIONS

SRe Part Number : HX3425001Z

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F ₀	25.000000	MHz	
Frequency Stability	FT	± 70	ppm	**See note
Operating Temperature Range	TR	-40 to +125	°C	
Supply Voltage	V _{CC}	+3.3 ± 10.0%	V	
Logic Type	LT	HCSL		
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	0.7	ns	Max. measured from Vol=0.175V to Voh=0.525V
Output Voltage "0" Level	V _{OL}	-0.150 / 0	V	Min. / Typ.
Output Voltage "1" Level	V _{OH}	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 _{cross absolute}	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 _{cross Delta}	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

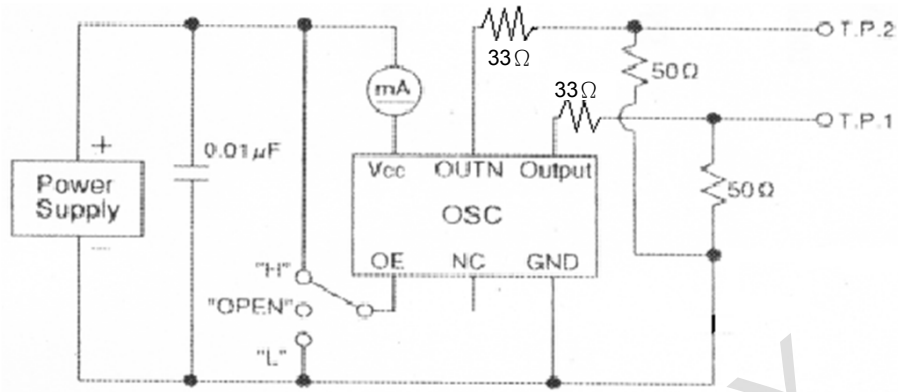
Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V _{CC}			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V _{CC}	V	Output is Hi-Z
Output Disable Delay			200	ns	
Output Enable Delay			2	ms	

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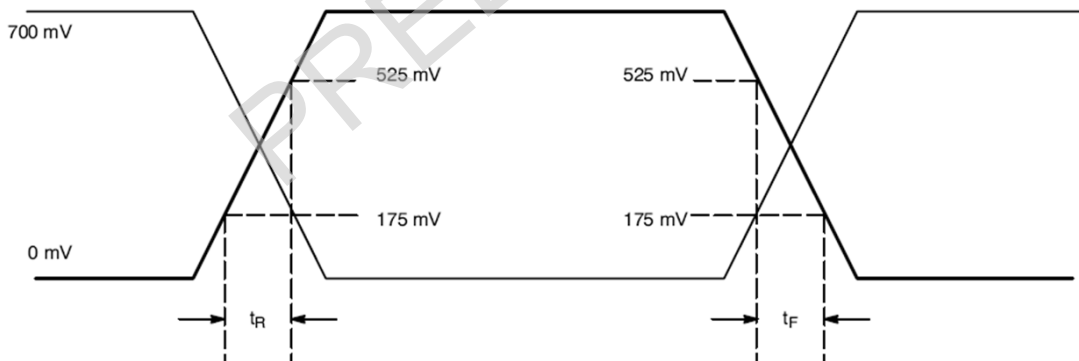
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TEST CIRCUIT



OUTPUT WAVEFORM



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RELIABILITY SPECIFICATIONS

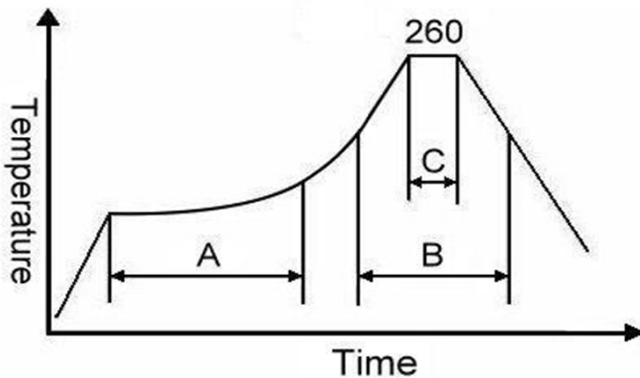
ENVIRONMENTAL:

- 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:

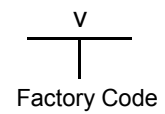
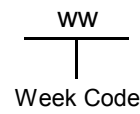
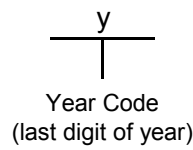
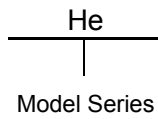
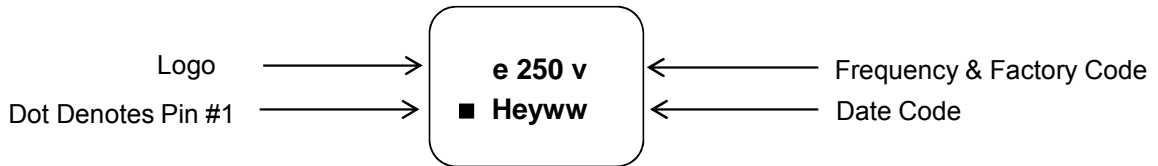
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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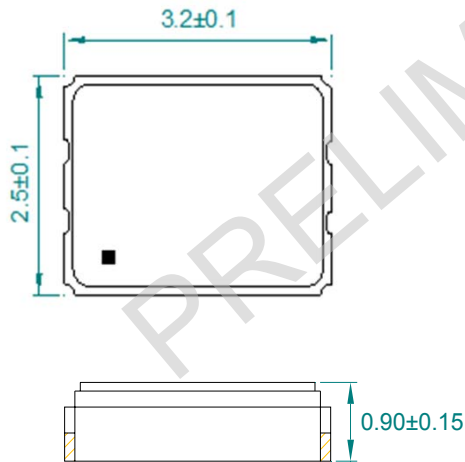
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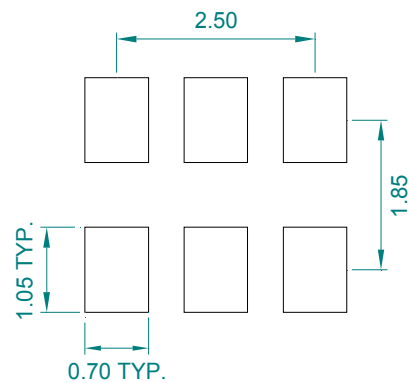
MARKING



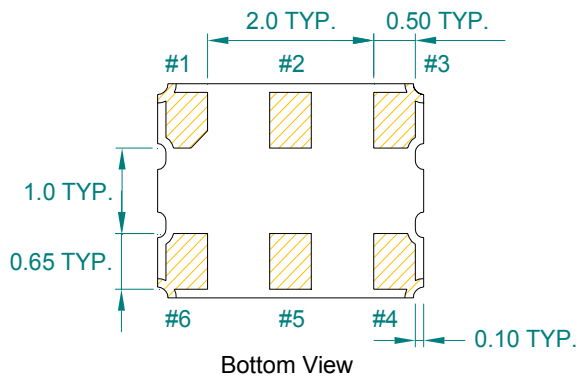
MECHANICAL DRAWINGS (Scale:None. Dimensions are in mm.)



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.



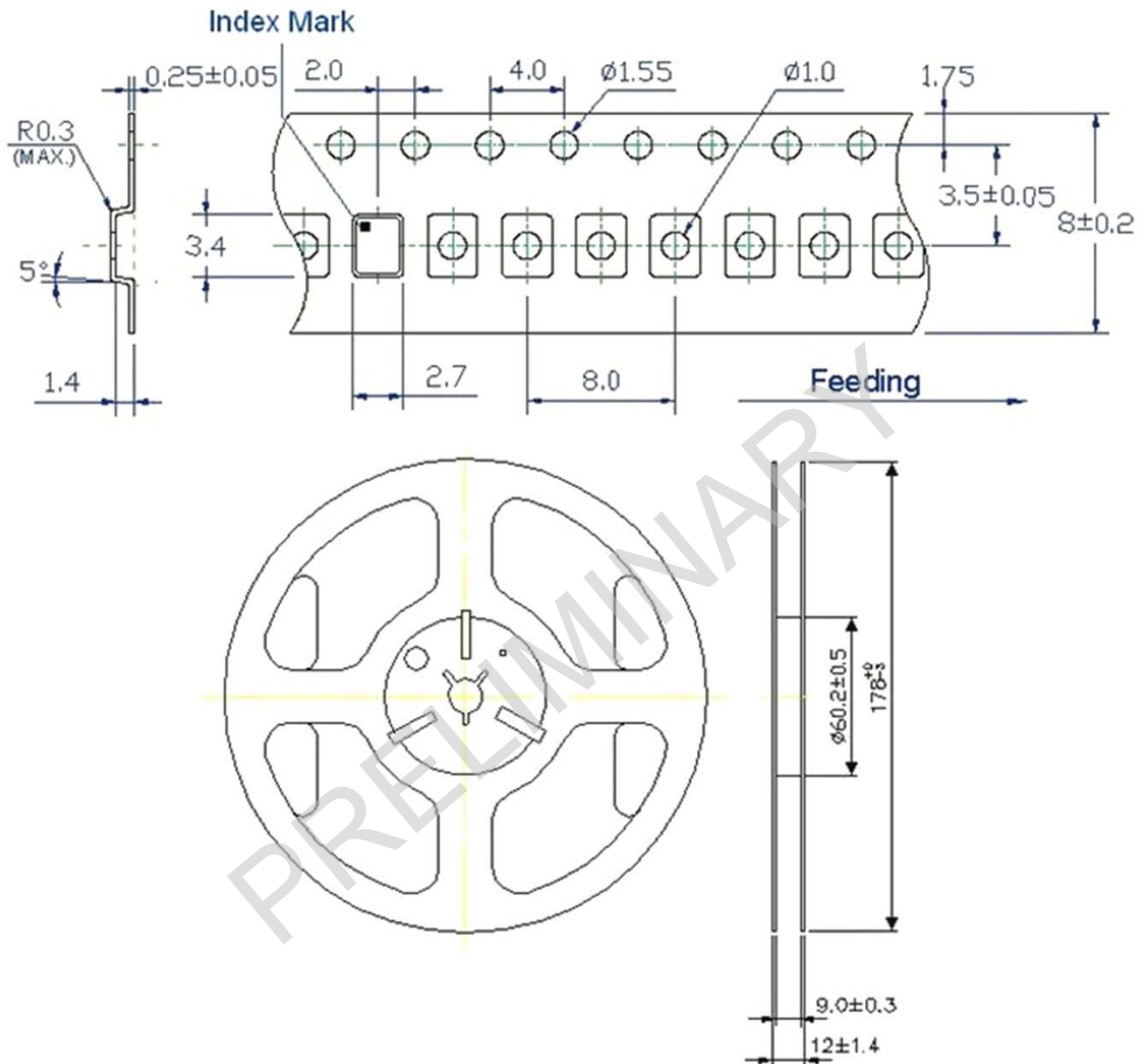
Pin	Function
1	OE
2	NC
3	V _{EE}
4	OUTPUT
5	OUTPUT N
6	V _{CC}

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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

