PSE Technology Corporation

SPECIFICATION FOR APPROVAL

CUSTOMER	
NOMINAL FREQUENCY	133.333333 MHz
PRODUCT TYPE	TYPE NX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. (P/N)	NX53D3301Z
CUSTOMER P/N	
ISSUE DATE	September 25, 2015
VERSION	D

APPROVED	PREPARED	QA
		
APPROVED BY CUSTOMER :		**AVL Status**
Please return one copy with approval to PSE-TW		

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

*** *A company of* PERICOM *Semiconductor Corporation* ***

VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Sep.7,2015			Initial Release	
B	Sep.11,2015			Updated Nominal Frequency to 133.333333MHz	
C	Sep.22,2015			Changed Rise / Fall Time & Output Voltage "1" Level	
D	Sep.25,2015			1. Added edge rate, overshoot voltage & undershoot voltage 2. Updated logic type & output enable / disable Function table	

TYPE NX 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

NX53D3301Z

VER. D 25-Sep-15

ELECTRICAL SPECIFICATIONS

SRe Part Number : NX53D3301Z

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fo	133.333333	MHz	
Frequency Stability	FT	± 50	ppm	**See note
Operating Temperature Range	TR	-40 to +85	°C	
Supply Voltage	V_{CC}	+3.3 ± 5.0%	V	
Logic Type	LT	Specific common mode differential		
Supply Current, Output Enabled	I_{CC}/OE	70	mA	Max.
Supply Current, Output Disabled	I_{CC}/OD	40	mA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T_R/T_F	500	ps	Max. measured 20/80% of Waveform
Output Voltage "0" Level	V_{OL}	0 / 0.5	V	Min. / Max.
Output Voltage "1" Level	V_{OH}	1.4	V	Max.
Output Common Model	VCM	0.50 / 0.60 / 0.65	V	Min / Typ / Max.
Differential Output Voltage	V_{OD}	0.99 / 1.32	V	Min. / Max.
Edge Rate		1 / 12	V/ns	Min. / Max., Edge rate = V_{OD} / T_R
Overshoot Voltage	V_{OVS}	+0.2	V	Max., from V_{OH}
Undershoot Voltage	V_{uds}	-0.2	V	Min., from V_{OL}
Output Load		35Ω shunted to GND		Output requires termination(special case)
Jitter, Phase	RMS	0.4 / 1	ps	Typ. / Max. 12KHz~20MHz Frequency Band
Phase Noise		-140 / -130	dBc/Hz	Typ. / Max., At 1MHz frequency offset
Jitter, Accumulated	RMS(1-σ)	6	ps	Max. 20,000 Consecutive Periods
Jitter, Peak to Peak	Pk-Pk	40	ps	Max. 100,000 Random Periods
Storage Temperature Range		-55 to +125	°C	

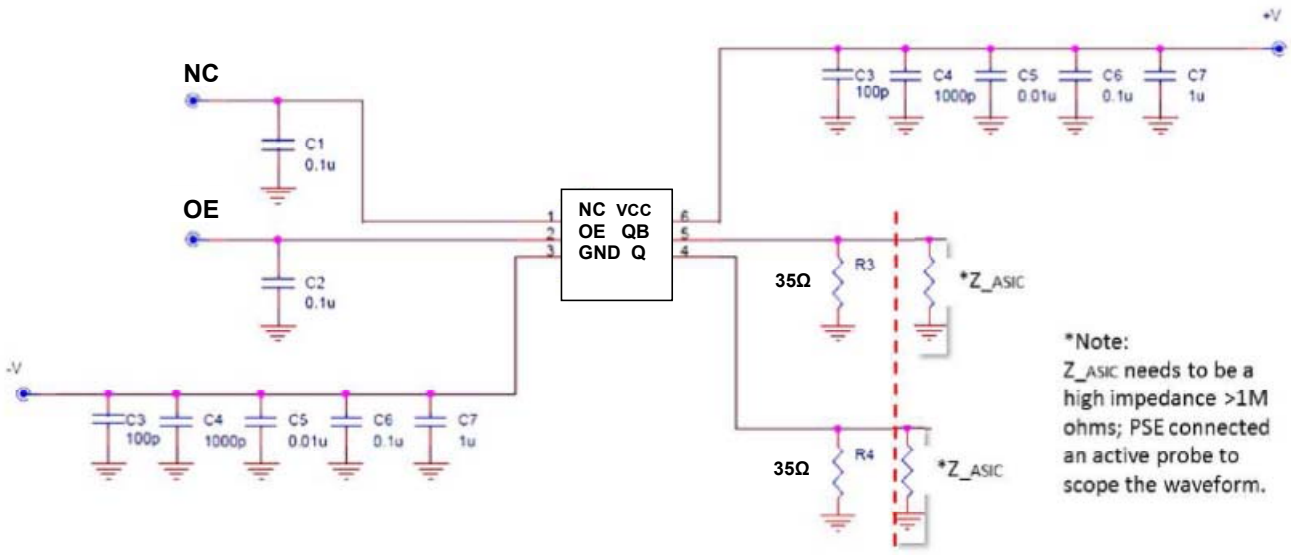
※ This product doesn't include harmful substance that stipulated by SONY SS-00259 Level 1 and S-AT2-001 Level 1 standard. RoHS Compliant (Pb - Free).

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

Output Enable / Disable Function

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin2), Output Enable	$0.7V_{CC}$			V	Or Open
Input Voltage (Pin2), Output Disable (low power standby)			$0.3V_{CC}$	V	Output is Hi-Z
Output Disable Delay			5	us	
Output Enable Delay			20	us	
Start Up Time			10	ms	

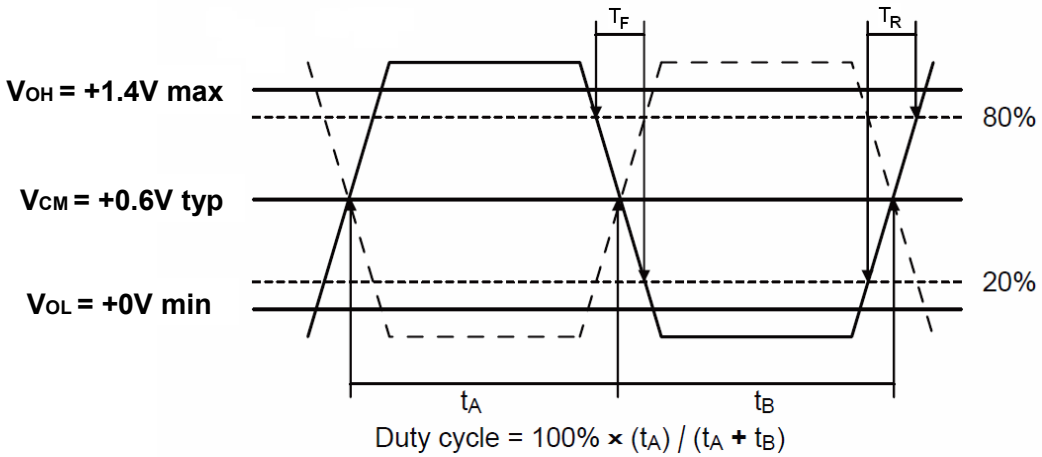
TEST CIRCUIT



- ***Test Condition:***

V+ : 3.3V, V- : GND.
OE & Pin2 : Hi-Z or Floated.
Q : Shunt a R4 to GND, and scope by a Hi-Z probe.
QB : Shunt a R3 to GND, and scope by a Hi-Z probe.

OUTPUT WAVEFORM



Duty cycle = 100% × (t_A) / (t_A + t_B)

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.

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

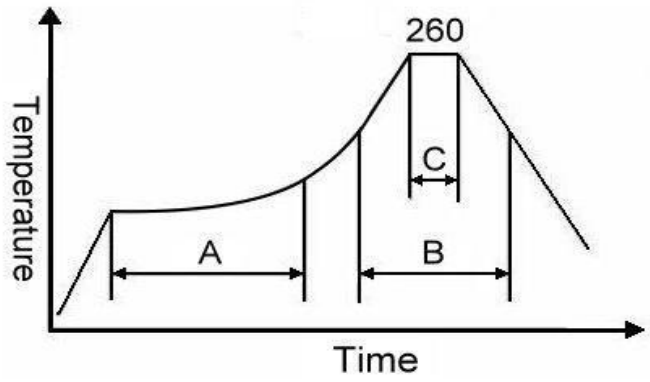
d) GROSS LEAK: MIL-STD-883, Method 1014, Condition C

e) FINE LEAK: MIL-STD-883, Method 1014, Condition A2, R1=2x10^{-8} atm cc/s

f) SOLVENT RESISTANCE: MIL-STD-202, Method 215

SUGGESTED IR REFLOW PROFILE

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

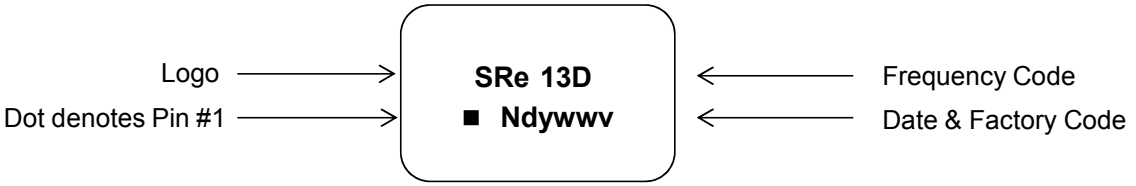


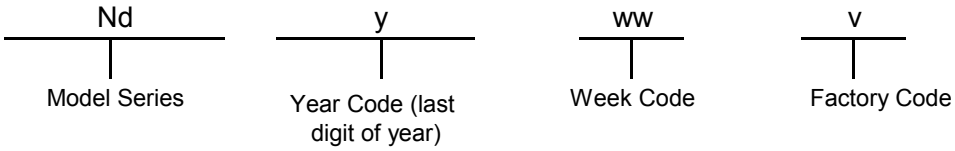
Note:

	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

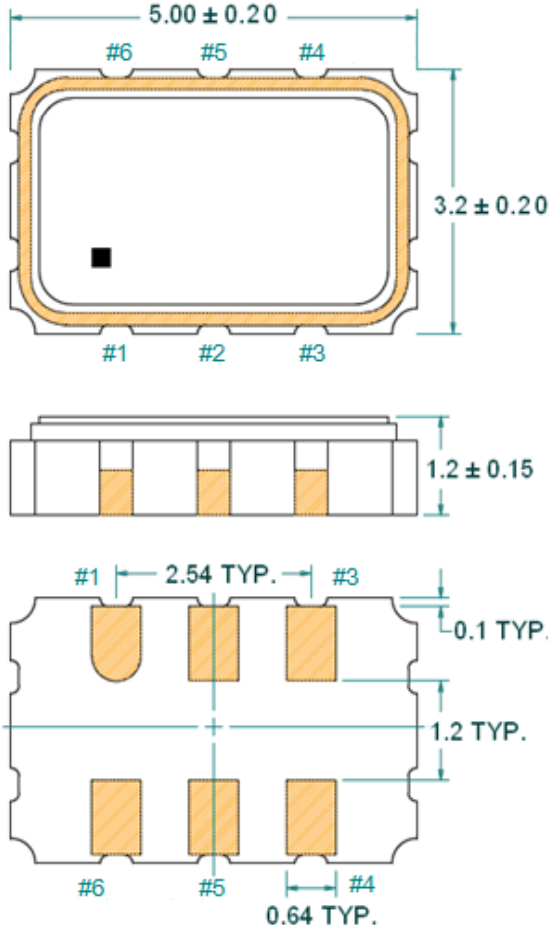
For soldering reflow profile and reliability test ratings go to: http://www.pericom.com/pdf/sre/reflow.pdf

MARKING

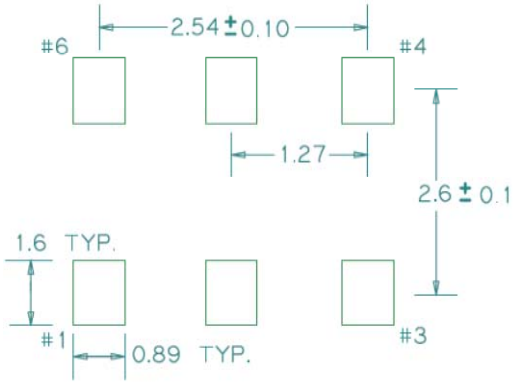




MECHANICAL DRAWINGS (Scale: None. Dimensions are in mm.)



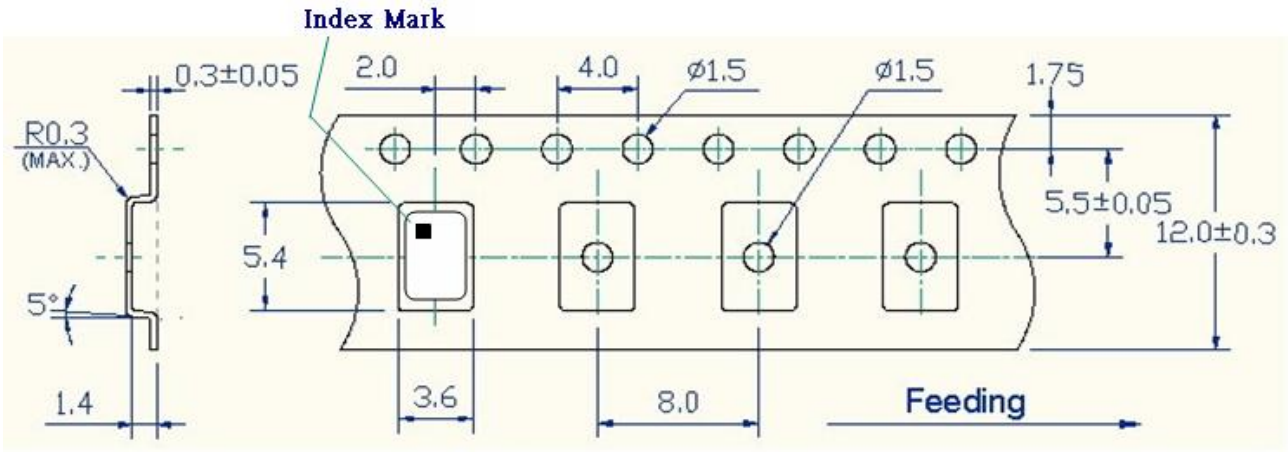
Recommended Land Pattern*

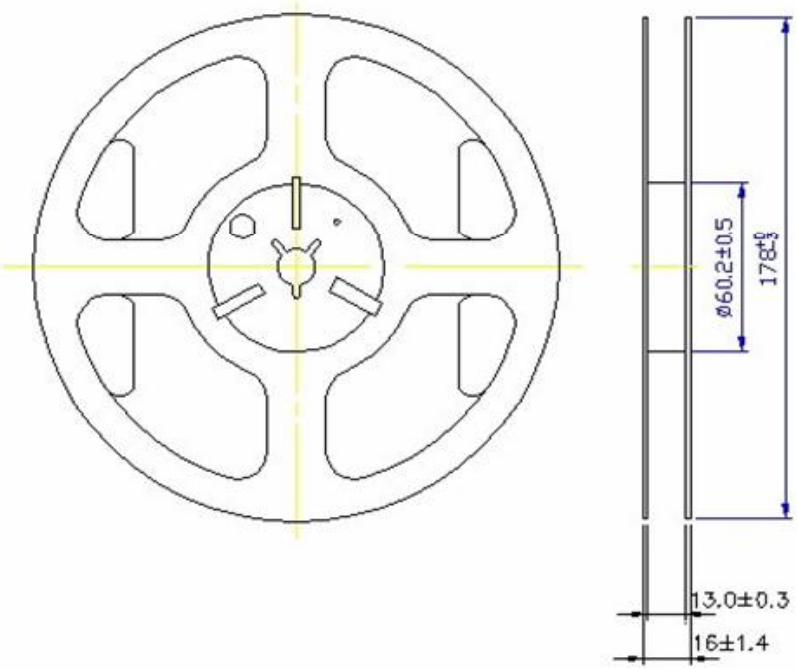


*External high-frequency power decoupling is recommended.(see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

Pin	Function
1	NC
2	OE
3	Ground
4	Q
5	$\overline{Q}$
6	V_{CC}

TAPE & REEL





1. 230mm minimum leafer 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.

PACKING