

# PSE Technology Corporation

## SPECIFICATION FOR APPROVAL

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY 100.000000 MHz




PRODUCT TYPE TYPE SH 7.0x5.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

SPEC. NO. ( P/N ) SHA000001

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

ISSUE DATE November 1, 2011

VERSION K

APPROVED	PREPARED	QA
		
<b>APPROVED BY CUSTOMER :</b>		<b>AVL Status</b>
Please return one copy with approval to PSE-TW		

### PSE Technology Corporation

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\*RoHS Exception  
 \*REACH Compliant

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

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**SHA000001**

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## VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Apr.16,2008			New	
B	Nov.24,2008			Revised format	
C	Jun.10,2009			Revised Tr/Tf unit	
D	Jul.22,2009			Revised VOH:0.9V	
E	Jul.29,2009			Revised jitter spec	
F	Aug.4,2009			Changed Output Phase Jitter-PCle Gen2 from 3.1ps to 2.5ps	
G	Aug.10,2009			Added typ. and min. values to $V_{OH}$ and $V_{OL}$	
H	Apr.27,2010			Changed Supply Current, Output Disabled from 10mA to 15mA	
I	Feb.17,2011			Updated Suggested IR Reflow Profile & Format	
J	Sep.22,2011			Changed Output Load, Rs from 33.3Ω to 33Ω & Added Output Phase Jitter-PCle Gen3: 1ps max	
K	Nov.1,2011			Updated Packing Drawing	



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### ELECTRICAL SPECIFICATIONS

SRe Part Number : SHA000001

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F <sub>0</sub>	100.000000	MHz	
Frequency Stability	FT	± 50	ppm	**See note
Operating Temperature Range	TR	-40 to +85	°C	
Supply Voltage	V <sub>CC</sub>	+3.3 ± 10.0%	V	
Logic Type	LT	HCSL		
Supply Current, Output Enabled	I <sub>CC/OE</sub>	40	mA	Max.
Supply Current, Output Disabled	I <sub>CC/OD</sub>	15	mA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T <sub>R</sub> /T <sub>F</sub>	700	ps	Max. measured from Vol=0.175V to Voh=0.525V
Output Voltage "0" Level	V <sub>OL</sub>	-0.150	V	Min. 0.0V Typ.
Output Voltage "1" Level	V <sub>OH</sub>	0.900	V	Max. 0.660V Min. 0.700V Typ.
Output Load		Rs=33Ω, Rp=50Ω, CL=2pF		Typ. In HCSL termination
Output Phase Jitter-PCIe Gen2		2.5	ps RMS	Max.
Output Phase Jitter-PCIe Gen3		1	ps RMS	Max.
Jitter, Phase	RMS(1-σ)	1	ps	Max. 12KHz ~ 20MHz Frequency Band
Jitter, Peak to Peak	Pk-Pk	40	ps	Max. 100,000 Random Periods
Storage Temperature Range		-55°C to +125°C	°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 year at 40°C Average Effective Ambient Temperature), Shock and Vibration.

#### OUTPUT ENABLE / DISABLE

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	2.2			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.8	V	Output is Hi-Z
Output Disable Delay			200	ns	
Output Enable Delay			10	ms	

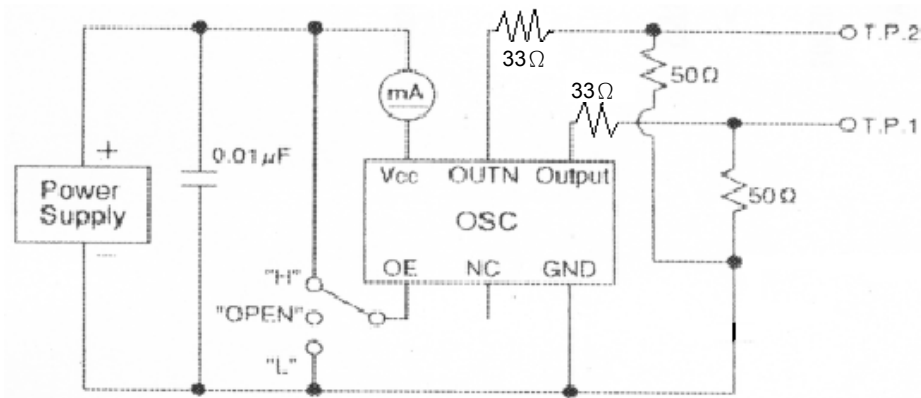


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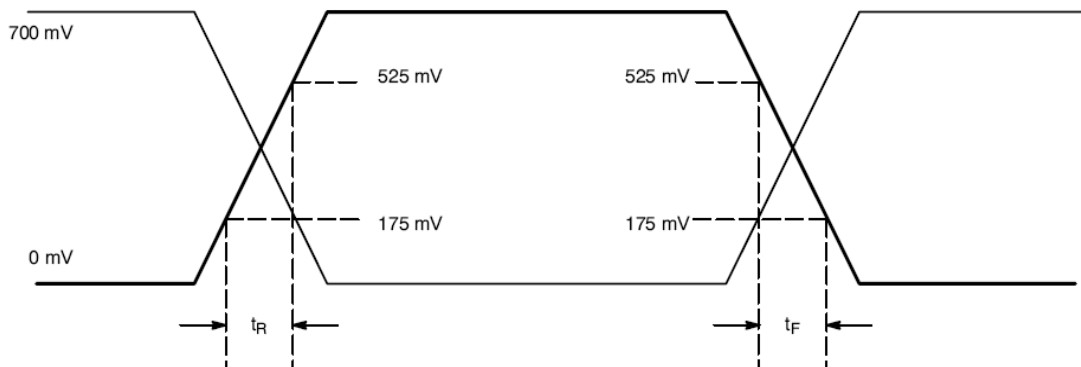
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## TEST CIRCUIT



## OUTPUT WAVEFORM



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## RELIABILITY SPECIFICATIONS

### ENVIRONMENTAL:

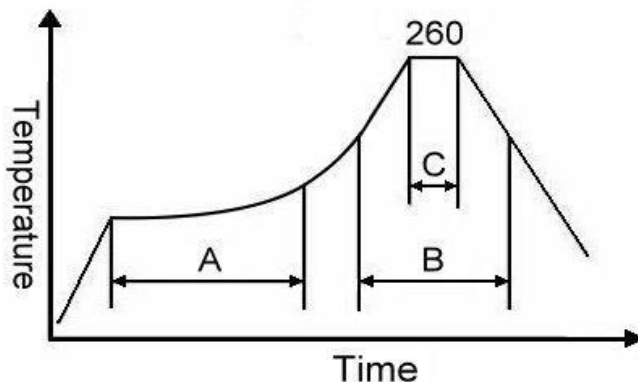
- a) THERMAL SHOCK: MIL-STD-883, Method 1011, Condition A
- b) MOISTURE RESISTANCE: MIL-STD-883, Method 1004
- c) VIBRATION: MIL-STD-883, Method 2007, Condition A
- d) RESISTANCE TO SOLDERING HEAT: J-STD-020D Table 5-2 Pb-free devices (except 2 cycles max)
- e) HAZARDOUS SUBSTANCE: RoHS Compliant by Exemption

### 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

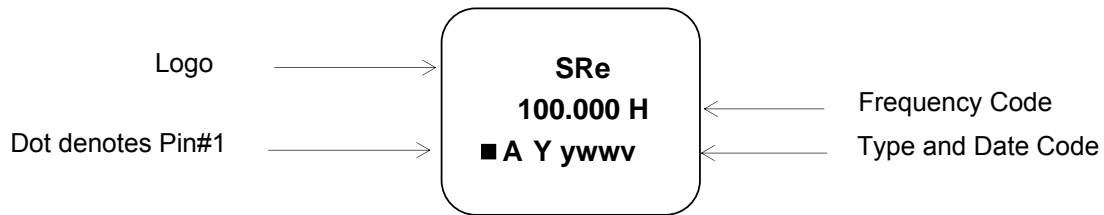
For soldering reflow profile and reliability test ratings go to: <http://www.pericom.com/pdf/sre/reflow.pdf>

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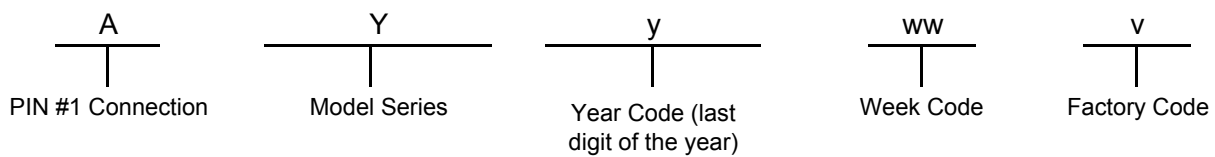
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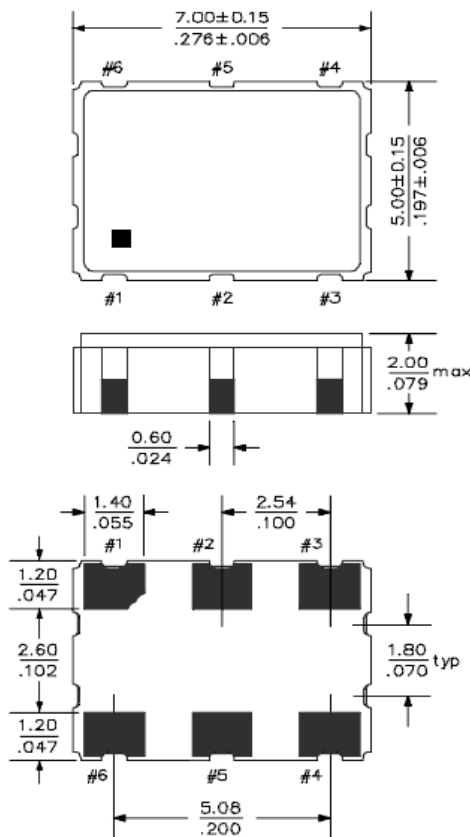
### MARKING



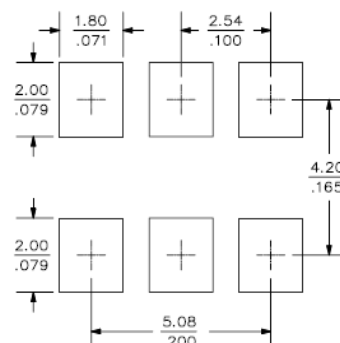
### TYPE AND DATE CODE



### 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.

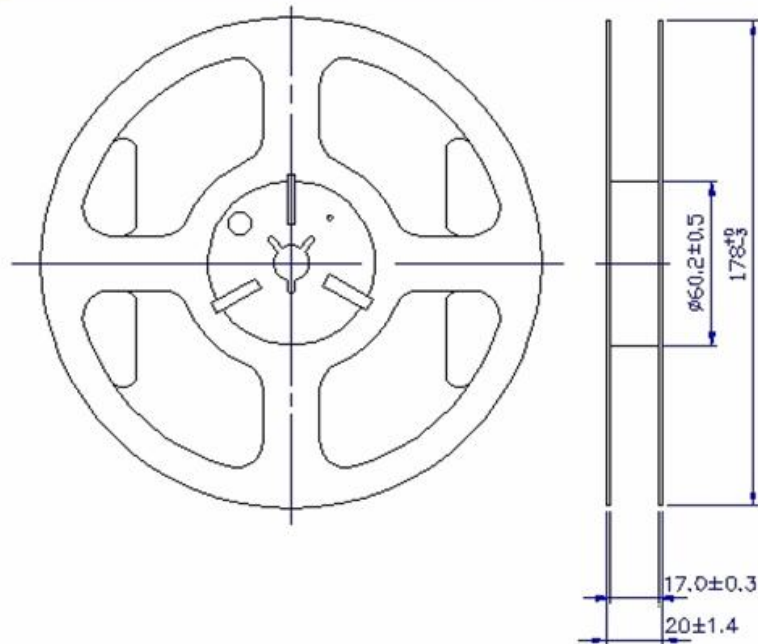
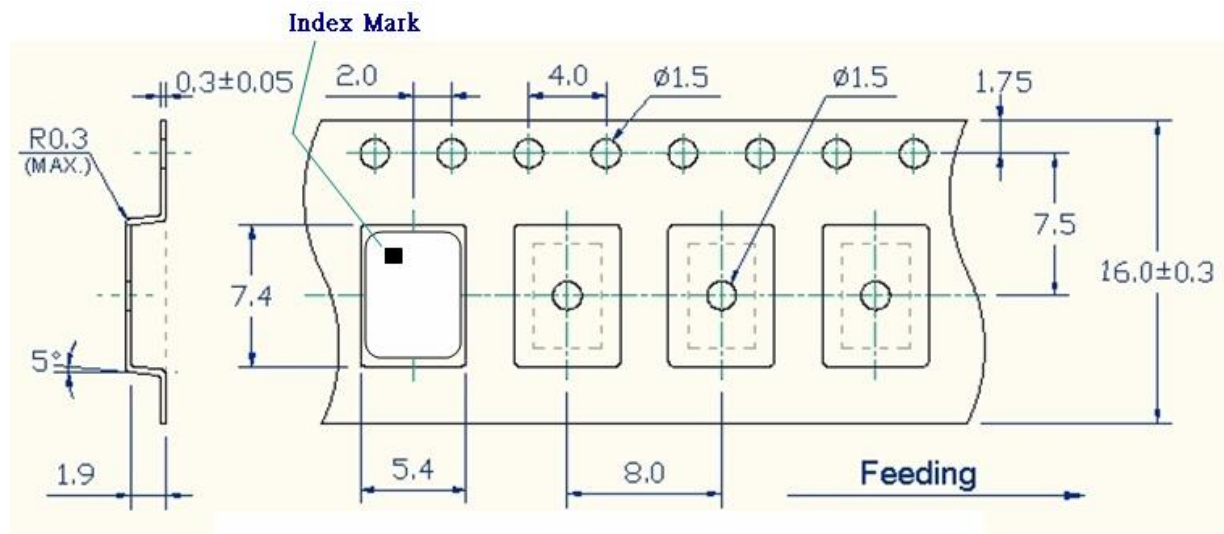
Pin	Function
1	OE
2	NC
3	V <sub>EE</sub>
4	OUTPUT
5	OUTPUT N
6	V <sub>CC</sub>

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## PACKING



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

