



PSE Technology Corporation

SPECIFICATION FOR APPROVAL

CUSTOMER _____

NOMINAL FREQUENCY 100.000000 MHz

HOLDER TYPE TYPE SQ SEAM SEALED CRYSTAL CLOCK OSCILLATOR

SPEC. NO. (P/N) SQA000001

CUSTOMER P/N _____

ISSUE DATE September 6, 2017

VERSION G

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

PSE Technology Corporation

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



TYPE SQ SEAM SEALED CRYSTAL CLOCK OSCILLATOR

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VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Feb.6,2011			New	
B	Mar.4,2011			Changed Output Load, Rs from 33.3Ω to 33Ω & Updated Mechanical drawings & Packing from 500pcs/reel to 1000pcs/reel	
C	Apr.18,2011			Revised Packing from 1000pcs/reel to 500pcs/reel	
D	Aug.3,2011			Changed T _R /T _F from 700ps max to 500ps max	
E	Sep.20,2011			Added Output Phase Jitter-PCIe Gen3: 1ps max	
F	Oct.1,2013			Revised to RoHS Compliant	
G	Sep.6,2017			1.Added Output Phase Jitter-PCIe Gen4: 0.5ps max 2.Updated logo	



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ELECTRICAL SPECIFICATIONS

SRe Part Number : SQA000001

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F _o	100.000000	MHz	
Frequency Stability	FT	± 50	ppm	**See note
Operating Temperature Range	TR	-40 to +85	°C	
Supply Voltage	V _{CC}	+3.3 ± 10.0%	V	
Logic Type	LT	HCSL		
Supply Current, Output Enabled	I _{CC/OE}	40	mA	Max.
Supply Current, Output Disabled	I _{CC/OD}	10	mA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T _R /T _F	500	ps	Max. measured from Vol=0.175V to Voh=0.525V
Output Voltage "0" Level	V _{OL}	-0.150	V	Min.
Output Voltage "1" Level	V _{OH}	0.900	V	Max.
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.
Output Phase Jitter-PCIe Gen4		0.5	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 years at 40°C Average Effective Ambient Temperature), Shock and Vibration.

OUTPUT ENABLE / DISABLE

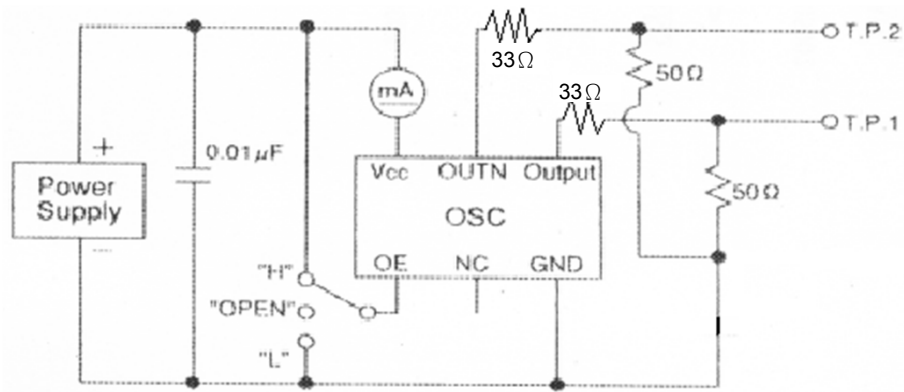
Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V _{DD}			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V _{DD}	V	Output is Hi-Z
Output Disable Delay			200	ns	
Output Enable Delay			2	ms	

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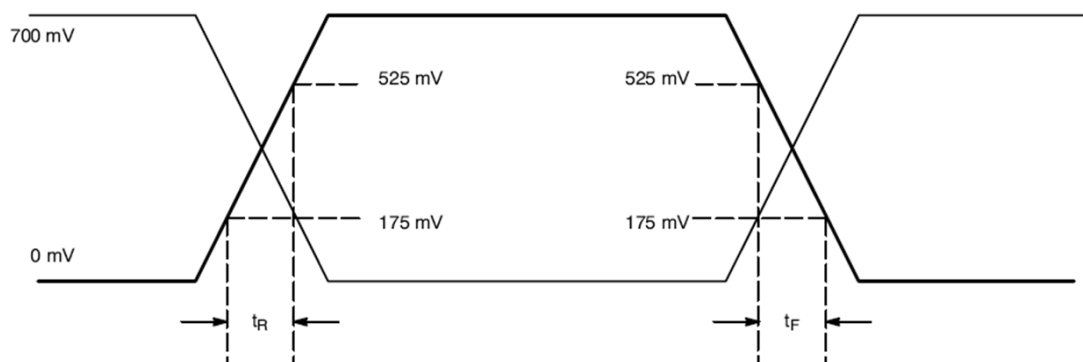
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TEST CIRCUIT



OUTPUT WAVEFORM



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RELIABILITY SPECIFICATIONS

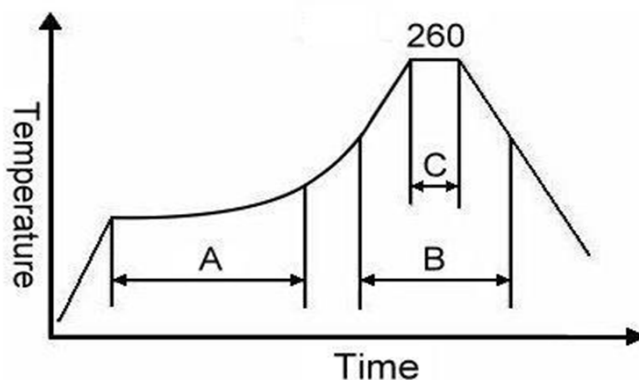
ENVIRONMENTAL:

- 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:

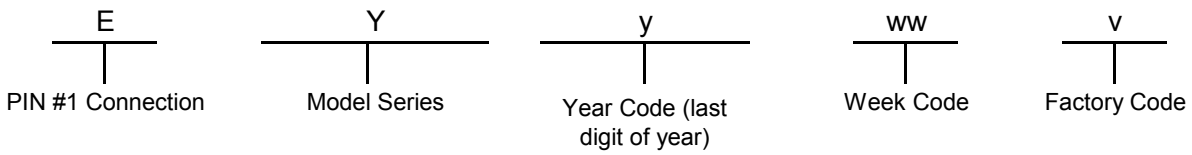
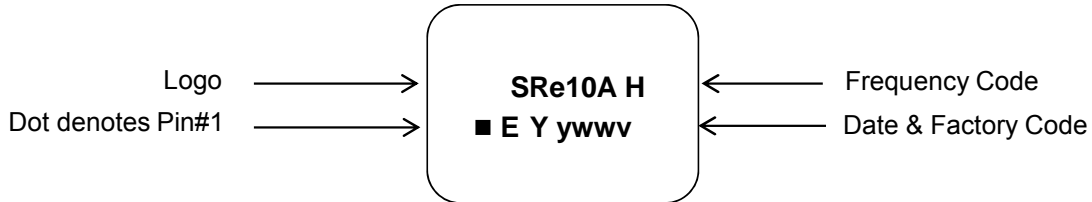
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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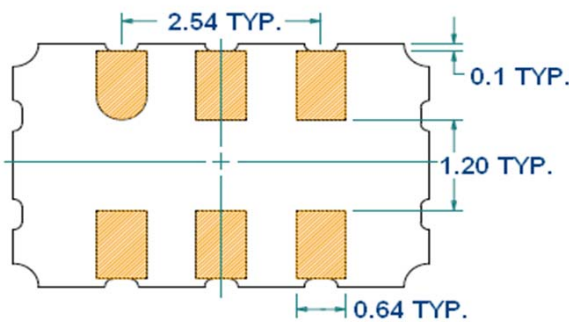
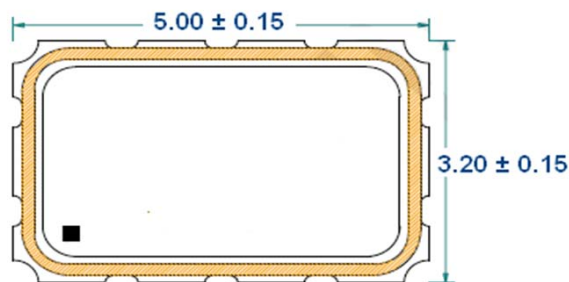
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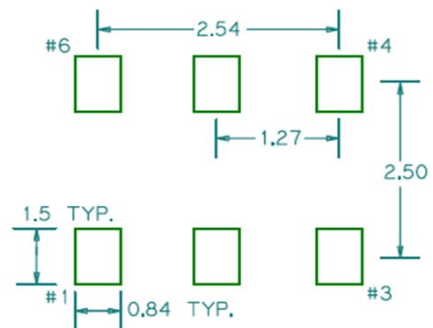
MARKING



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.

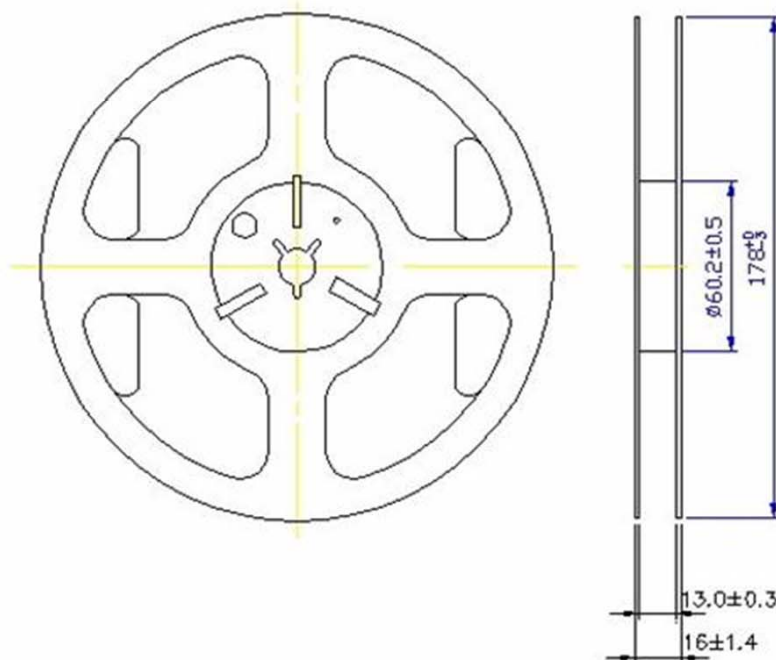
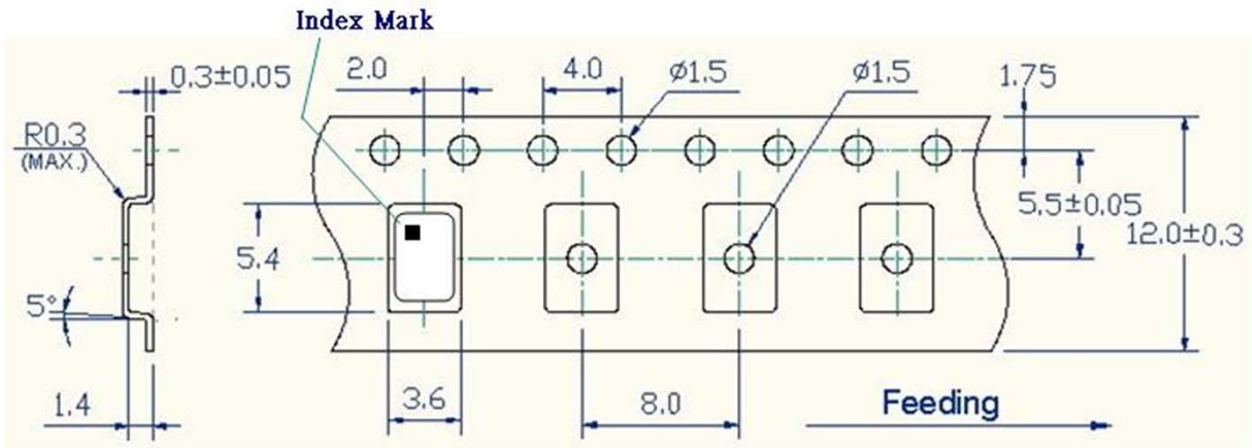
Pin	Function
1	OE
2	NC
3	V _{EE}
4	OUTPUT
5	OUTPUT N
6	V _{CC}

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TAPE&REEL



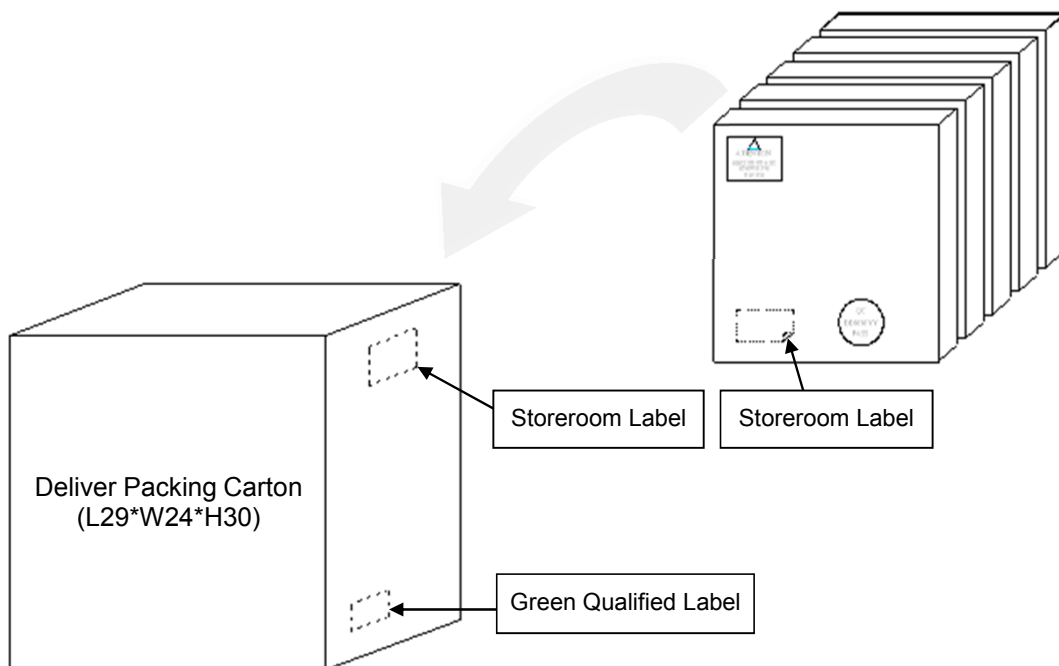
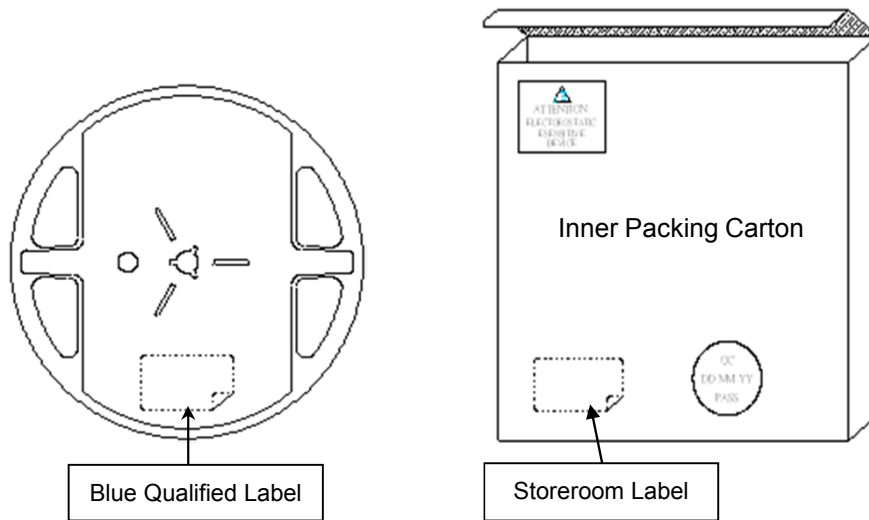
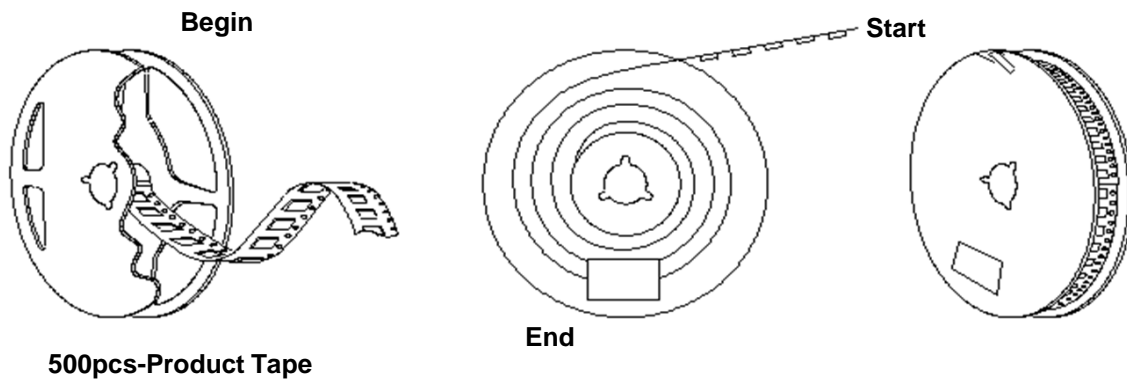
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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PACKING



Mouser Electronics

Authorized Distributor

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