



A Product Line of
Diodes Incorporated



SPECIFICATION FOR APPROVAL

CUSTOMER _____

NOMINAL FREQUENCY 32.768 KHz

PRODUCT TYPE TYPE KX 2.0x1.6 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

SPEC. NO. (P/N) KX1132707Q

CUSTOMER P/N _____

ISSUE DATE September 27, 2017

VERSION A

APPROVED	PREPARED	QA

Diodes Incorporation

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- *Pb-free
- *RoHS Compliant
- *HF-Halogen Free
- *REACH Compliant
- *AEC-Q200 Compliant

TYPE KX 2.0x1.6 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

KX1132707Q

VER. A 27-Sep-17

VERSION HISTORY

Version No.	Version Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Sep.27,2017			Initial Release	



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ELECTRICAL SPECIFICATIONS

SRe Part Number : KX1132707Q

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F ₀	32.768	KHz	
Frequency Stability	FT	± 25	ppm	**See note
Operating Temperature Range	TR	-40 to +85	°C	
Supply Voltage	V _{DD}	+3.3 ± 5%	V	
Logic Type	LT	LVC MOS		
Supply Current, Output Enabled	I _{DD} /OE	25 / 30	μA	Typ. / Max.
Supply Current, Output Disabled	I _{DD} /OD	0.5	μA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T _R /T _F	20 / 30	ns	Typ. / Max. Measured at 20 / 80% of Waveform
Output Voltage "0" Level	V _{OL}	10% V _{DD}	V	Max.
Output Voltage "1" Level	V _{OH}	90% V _{DD}	V	Min.
Output Load	CL	15	pF	Max.
Start Up Time		10	ms	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 (1 year at 25°C Average Effective Ambient Temperature), Shock and Vibration.

Output Enable / Disable Function

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			100	ns	
Output Enable Delay			10	ms	

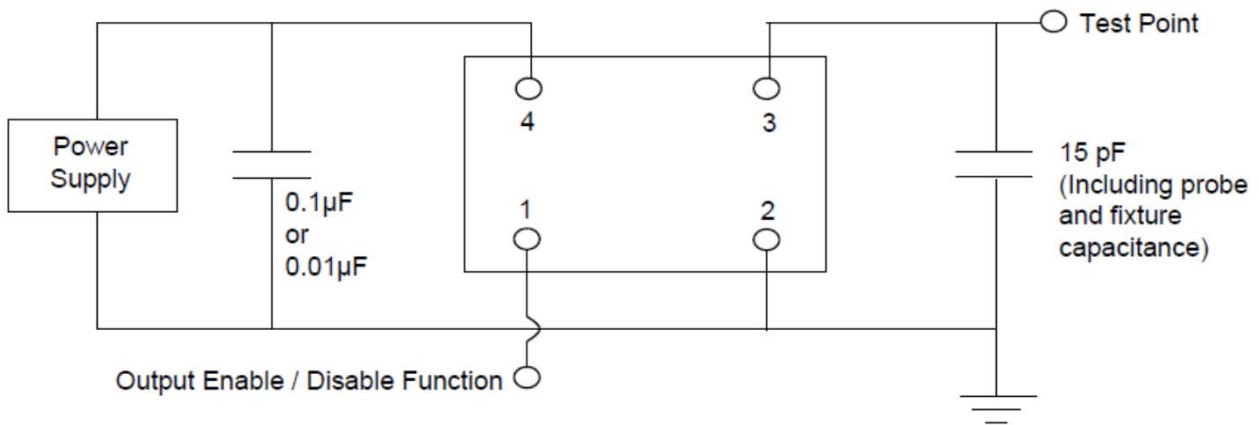


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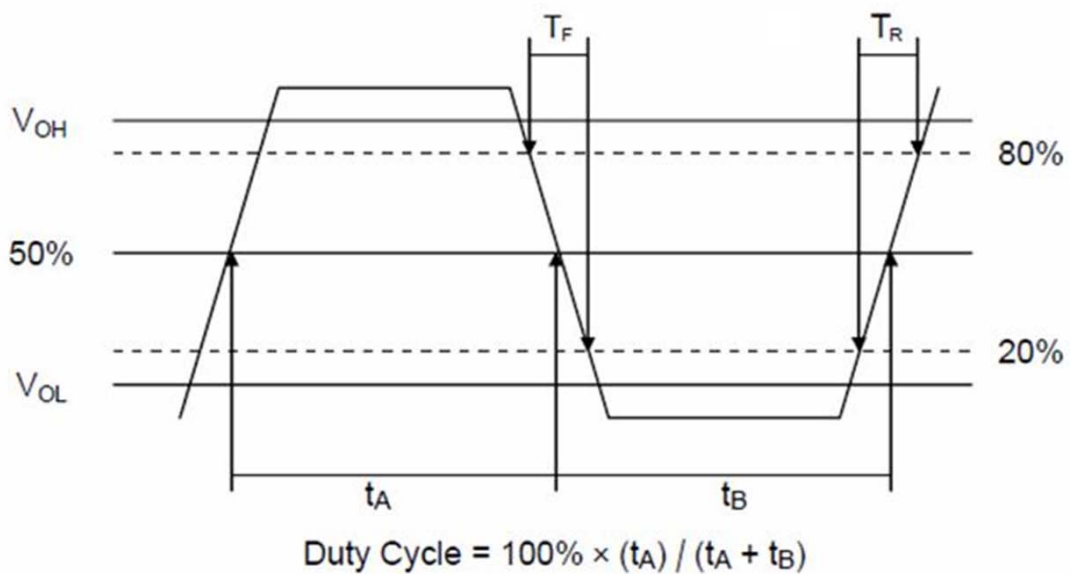
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VER. A 27-Sep-17

TEST CIRCUIT



OUTPUT WAVEFORM



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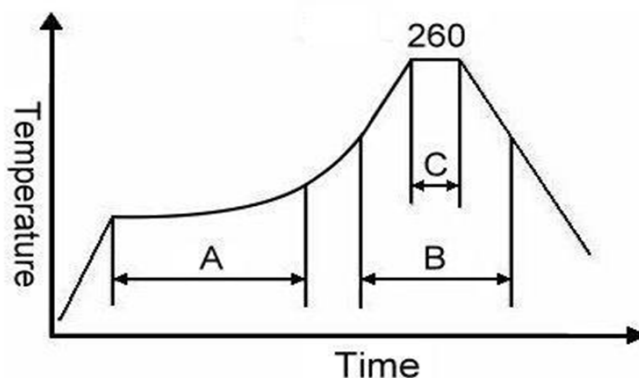
VER. A 27-Sep-17

AEC-Q200 RELIABILITY TEST SPECIFICATIONS:

1. Initial
 - 1.1 Physical Dimensions: JESD22, Method JB1-100
 - 1.2 External Visual: MIL-STD-883, Method 2009
 - 1.3 Freq. Vs. Temperature: Per Specification/Datasheet
2. Mechanical
 - 2.1 Mechanical Shock: MIL-STD-202 Method 213
 - 2.2 Vibration: MIL-STD-202 Method 204
 - 2.3 Solderability: J-STD-002
 - 2.4 Board Flex: AEC Q200-005
 - 2.5 Terminal Strength (SMD): AEC Q200-006
3. Environmental
 - 3.1 Temp Cycle: JESD22, Method JA-104
 - 3.2 Resistance to Solder Heat: MIL-STD-202 Method 210
 - 3.3 High Temperature Operating Life: MIL-STD-202, Method 108
 - 3.4 High Temp Exposure: MIL-STD-202, Method 108
 - 3.5 High Temp & High Humidity: MIL-STD-202, Method 103
 - 3.6 Thermal Shock: MIL-STD-202, Method 107

SUGGESTED IR REFLOW PROFILE

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



Note:

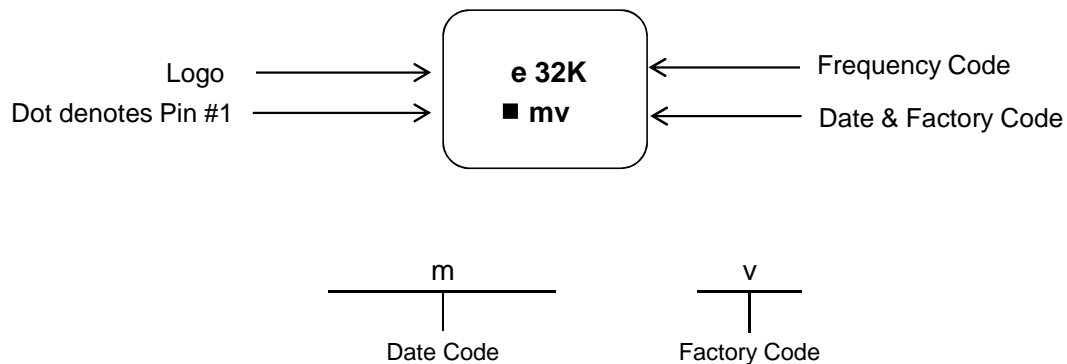
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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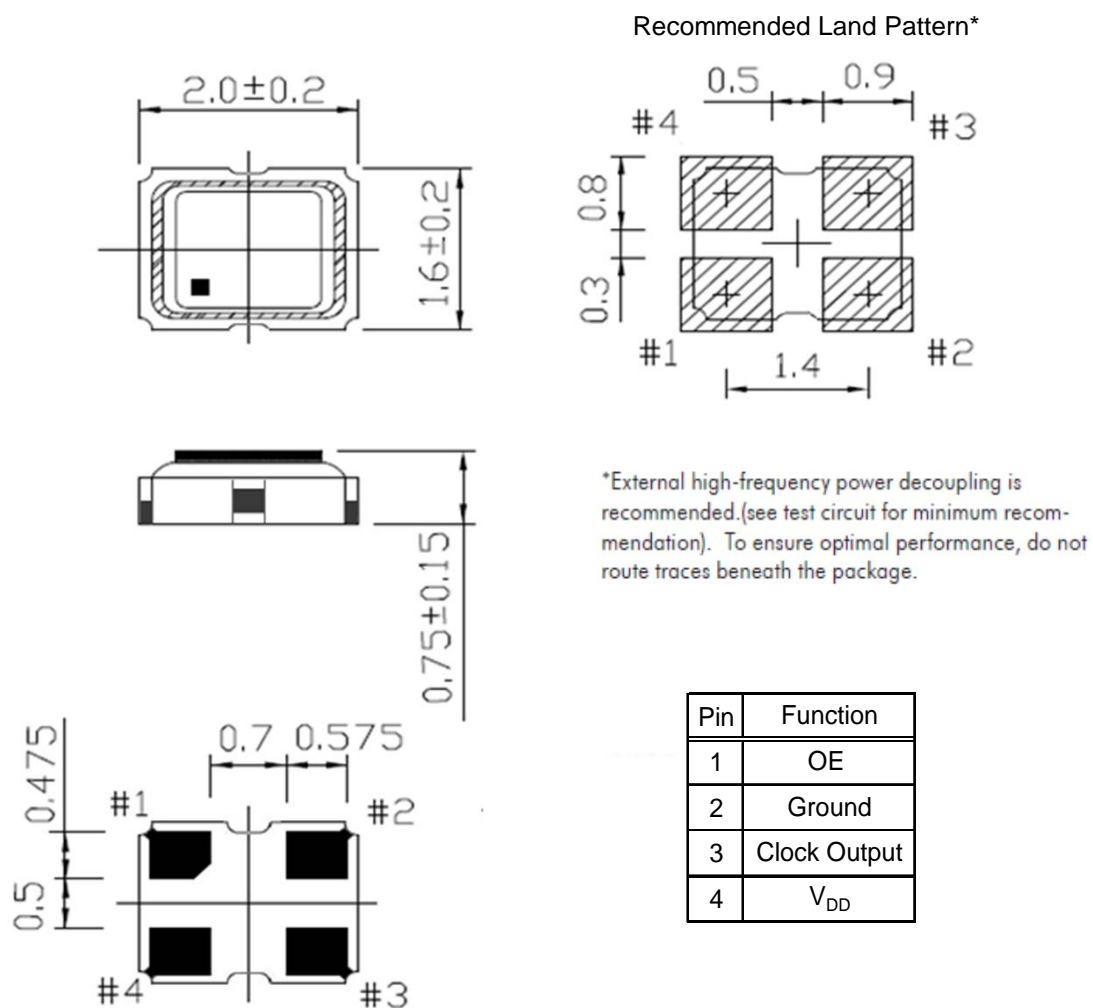
KX1132707Q

VER. A 27-Sep-17

MARKING



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

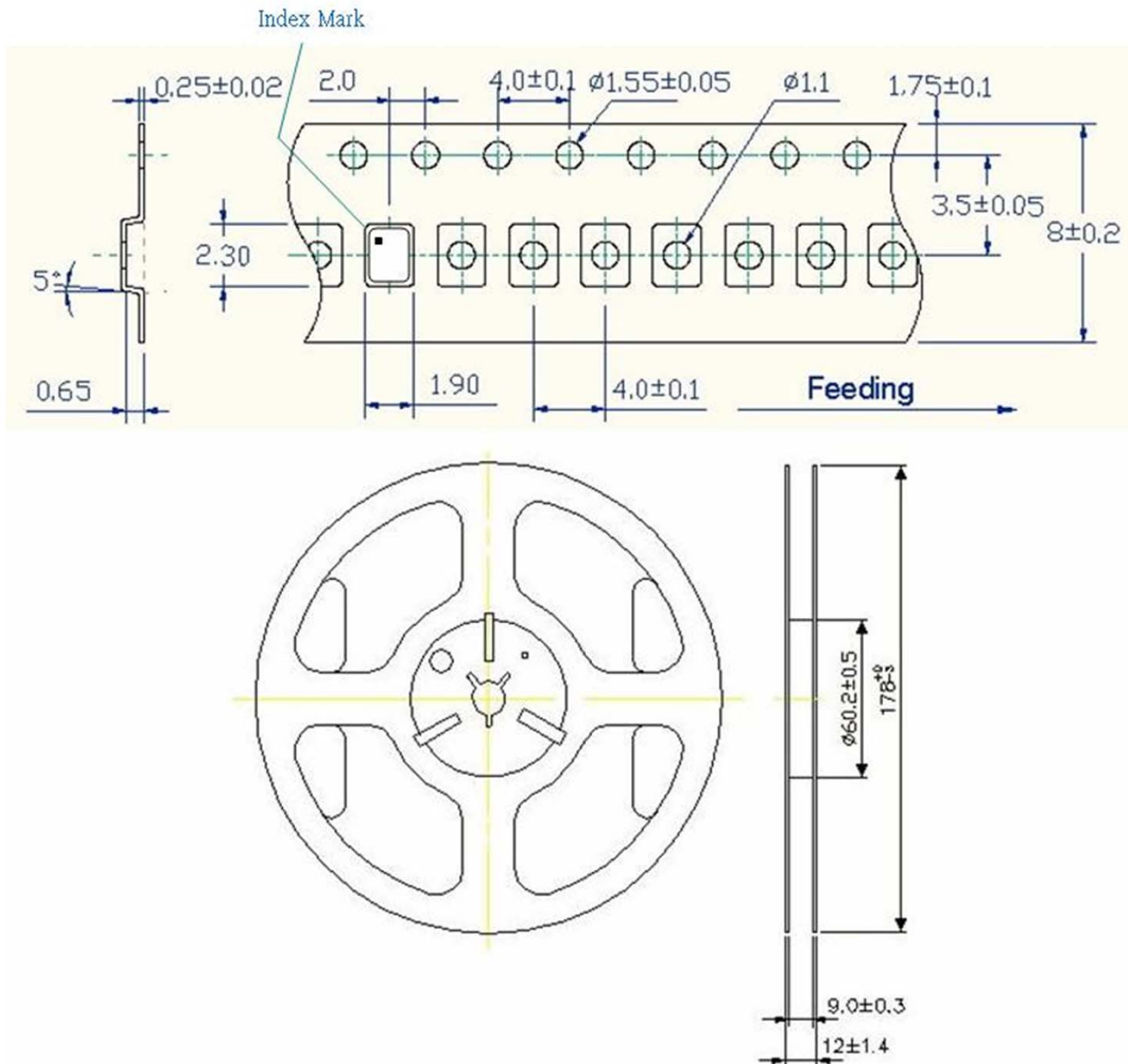


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TAPE&REEL



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

