



A Product Line of
Diodes Incorporated



PRODUCT SPECIFICATION

NOMINAL FREQUENCY	125.000000 MHz
PRODUCT TYPE	TYPE HX 7.0x5.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. (P/N)	HX73C5001Q
ISSUE DATE	March 4, 2022
VERSION	B

Diodes Incorporated

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*Pb-free
*RoHS Compliant
*HF-Halogen Free
*REACH Compliant
*AEC-Q200 Compliant
*MSL: Level 1

TYPE HX 7.0x5.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

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VERSION HISTORY

[illegible]

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ELECTRICAL SPECIFICATIONS

SRe Part Number : HX73C5001Q

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fo	125.000000	MHz	
Frequency Stability	FT	± 50	ppm	**See note
Operating Temperature Range	TR	-40 to +125	°C	
Supply Voltage	V _{CC}	+3.3 ± 5%	V	
Logic Type	LT	LVDS		
Supply Current, Output Enabled	I _{CC} /OE	60	mA	Max.
Supply Current, Output Disabled	I _{CC} /OD	30	uA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T _R /T _F	850	ps	Max. measured 20/80% of Waveform
Output Voltage "0" Level	V _{OL}	1.10 / 0.9	V	Typ. / Min.
Output Voltage "1" Level	V _{OH}	1.43 / 1.6	V	Typ. / Max.
Differential Output Voltage	V _{OD}	247 / 454	mV	Min. / Max.
Output Load		100Ω & 5pF LVDS		
Jitter, Phase	RMS	1	ps	Max. 12KHz ~ 20MHz Frequency Band
Jitter, Accumulated	RMS(1-σ)	4	ps	Max. 20,000 Consecutive Periods
Jitter, Peak to Peak	Pk-Pk	40	ps	Max. 100,000 Random Periods
Start Up Time		10	ms	Max.
Storage Temperature Range		-55 to +125	°C	

****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

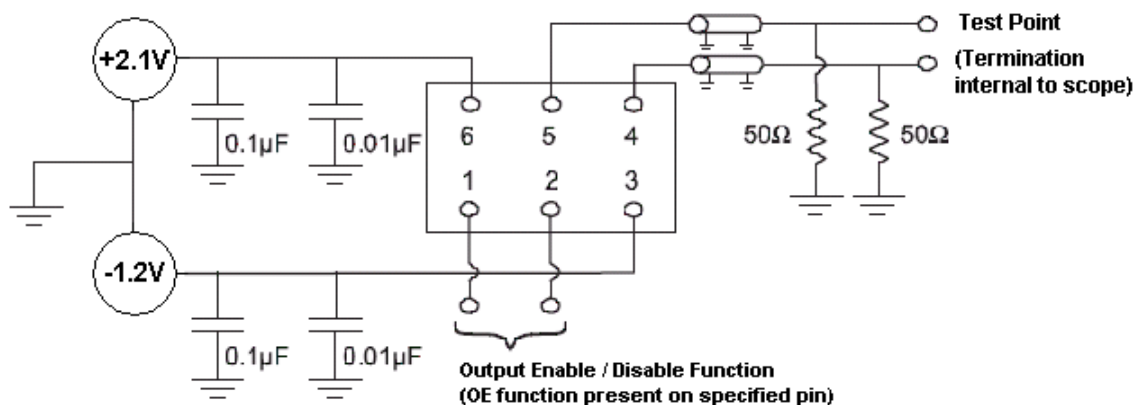
Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V _{CC}			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V _{CC}	V	Output is Hi-Z
Internal Pullup Resistance	30			KΩ	
Output Disable Delay			200	ns	

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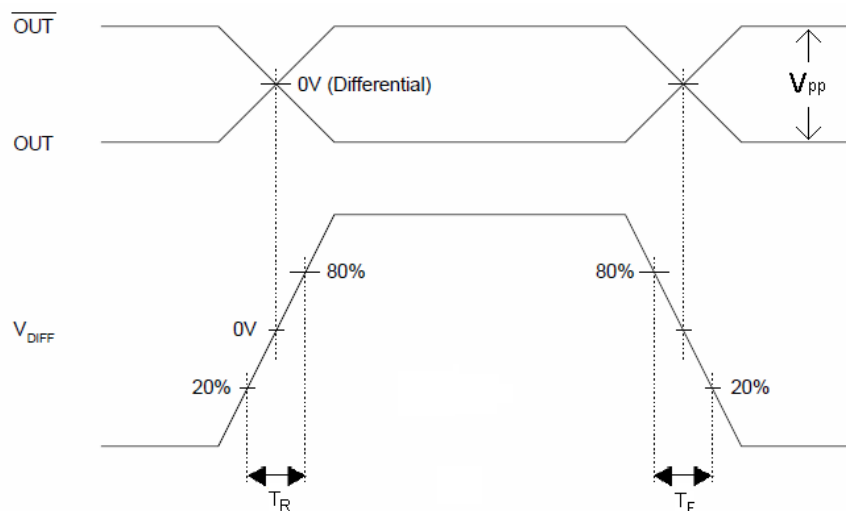
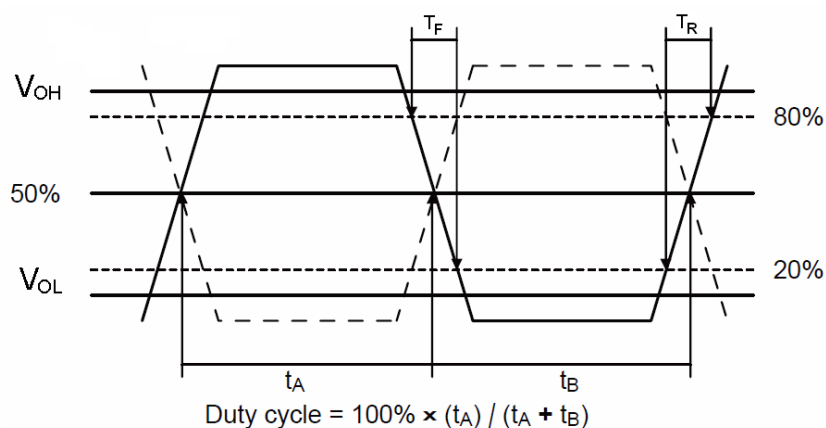
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TEST CIRCUIT



OUTPUT WAVEFORM



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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 Temperature 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 Temperature Exposure: MIL-STD-202, Method 108

3.5 High Temperature & High Humidity: MIL-STD-202, Method 103

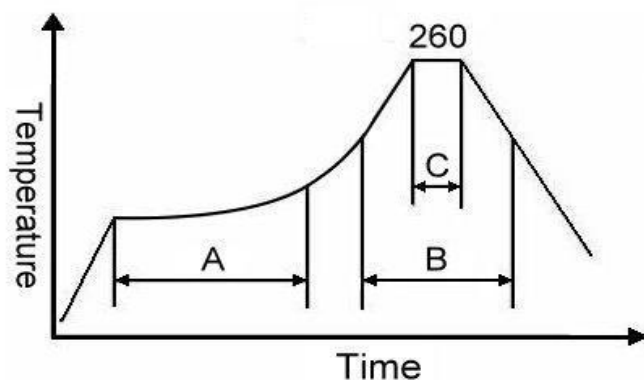
3.6 Thermal Shock: MIL-STD-202, Method 107

3.7 ESD Testing : JEDEC JS-001 / JEDEC JS-002

3.8 Latch up Testing : JESD78

SUGGESTED IR REFLOW PROFILE

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



Note:

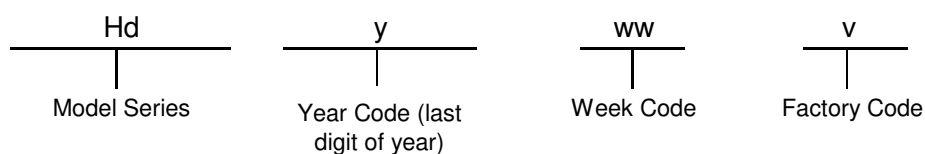
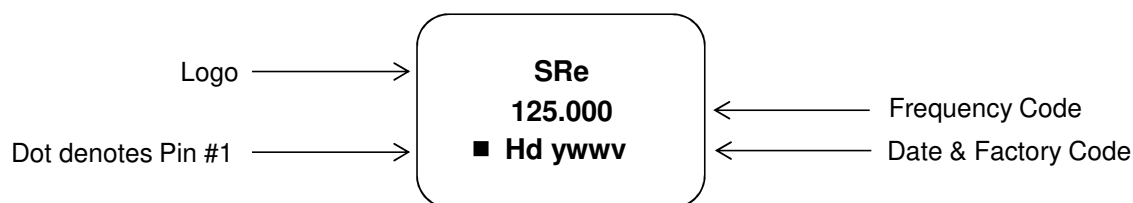
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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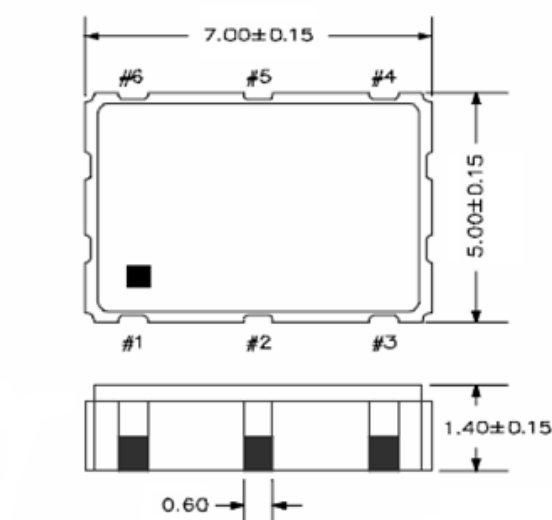
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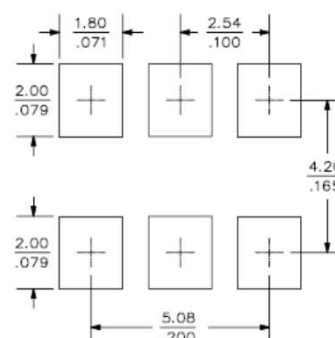
MARKING



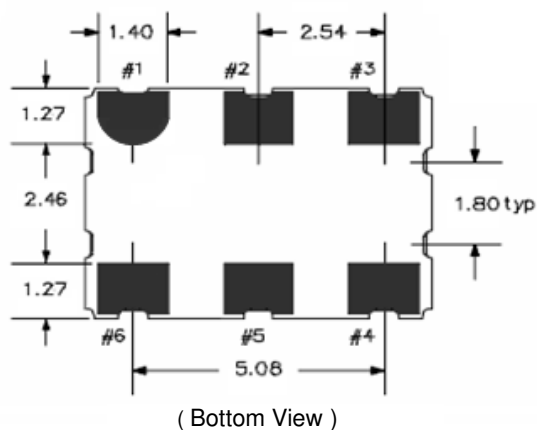
MECHANICAL DRAWINGS (Scale: None. Dimensions are in mm.)



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.



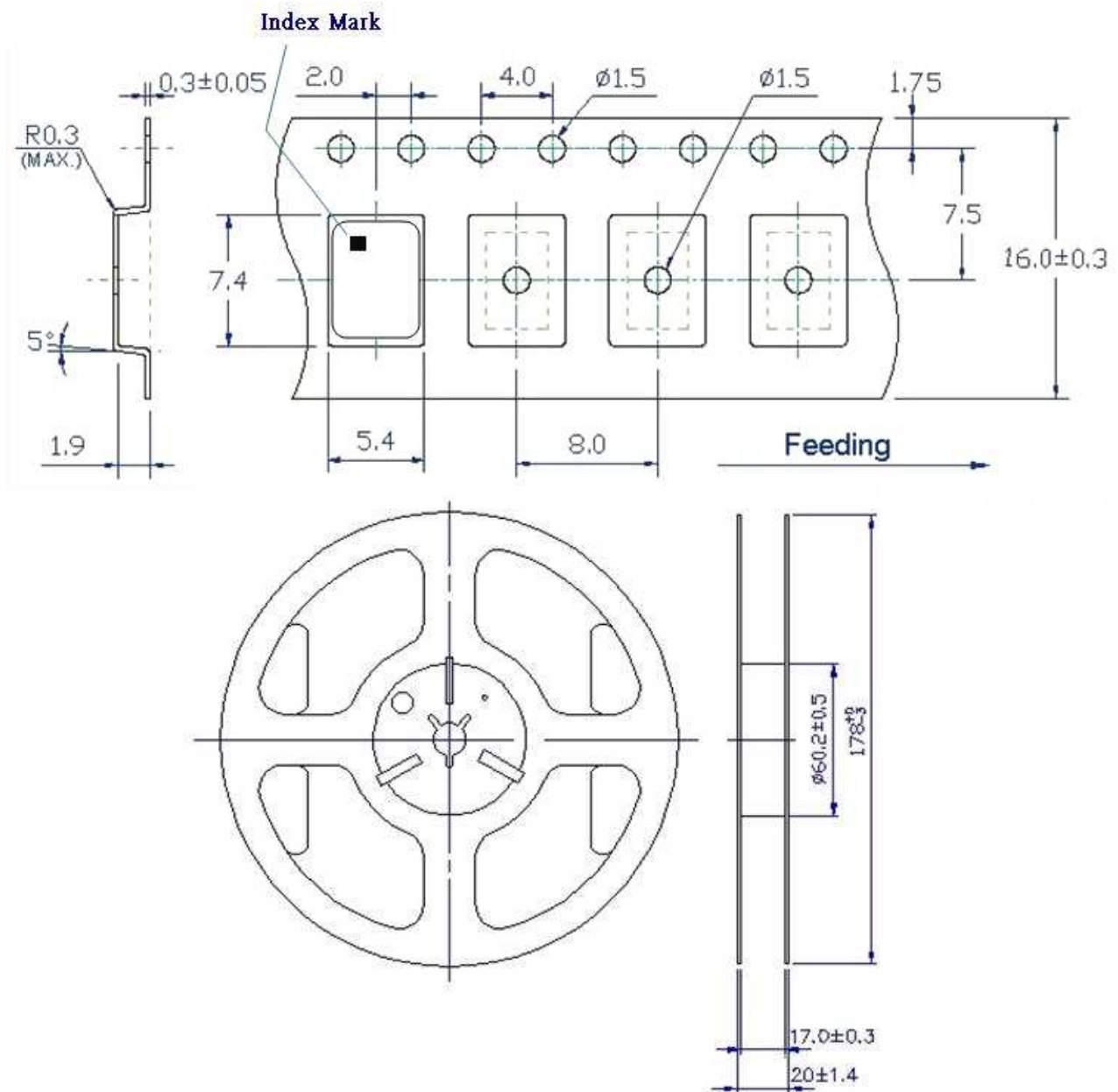
Pin	Function
1	EN
2	NC
3	V _{EE}
4	OUTPUT
5	OUTPUT N
6	V _{CC}

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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

