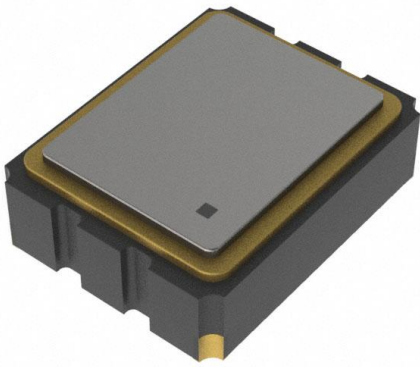


# HX3150003Q Datasheet

[www.digi-electronics.com](http://www.digi-electronics.com)



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	HX3150003Q-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	HX3150003Q
Description	XTAL OSC XO 50.0000MHZ CMOS SMD
Detailed Description	50 MHz XO (Standard) CMOS Oscillator 3.3V Enable /Disable 4-SMD, No Lead



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

**Manufacturer Product Number:**

HX3150003Q

**Series:**

SaRonix-eCera™ HX

**Base Resonator:**

Crystal

**Frequency:**

50 MHz

**Output:**

CMOS

**Frequency Stability:**

±50ppm

**Operating Temperature:**

-40°C ~ 125°C

**Current - Supply (Max):**

20mA

**Mounting Type:**

Surface Mount

**Size / Dimension:**

0.126" L x 0.098" W (3.20mm x 2.50mm)

**Current - Supply (Disable) (Max):**

100µA

**Manufacturer:**

Diodes Incorporated

**Product Status:**

Active

**Type:**

XO (Standard)

**Function:**

Enable/Disable

**Voltage - Supply:**

3.3V

**Absolute Pull Range (APR):**

-

**Spread Spectrum Bandwidth:**

-

**Ratings:**

AEC-Q200

**Package / Case:**

4-SMD, No Lead

**Height - Seated (Max):**

0.045" (1.15mm)

**Base Product Number:**

HX3150003

## Environmental & Export classification

**RoHS Status:**

ROHS3 Compliant

**REACH Status:**

REACH Unaffected

**HTSUS:**

8542.39.0001

**Moisture Sensitivity Level (MSL):**

1 (Unlimited)

**ECCN:**

EAR99



A Product Line of  
Diodes Incorporated



## PRODUCT SPECIFICATION

NOMINAL FREQUENCY	50.000000 MHz
PRODUCT TYPE	TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. ( P/N )	HX3150003Q
ISSUE DATE	August 9, 2022
VERSION	C

### Diodes Incorporated

No.2, Ziqiang 5th Rd., Zhongli Industrial Park,  
Zhongli Dist., Taoyuan City 32063, Taiwan (R.O.C.)  
TEL: 886-3-451-8888  
FAX: 886-3-461-3865  
<https://www.diodes.com>

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

**TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR*****HX3150003Q***

VER. C 9-Aug-22

**VERSION HISTORY**

Version No.	Version Date	Description	Notes
A	Jun.16,2017	Initial Release	
B	Feb.26,2018	Updated logo	
C	Aug.9,2022	1. Updated Start Up Time to 2ms max 2. Updated format	

**TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****HX3150003Q**

VER. C 9-Aug-22

**ELECTRICAL SPECIFICATIONS****SRe Part Number : HX3150003Q**

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F <sub>0</sub>	50.000000	MHz	
Frequency Stability	FT	± 50	ppm	**See note
Operating Temperature Range	TR	-40 to +125	°C	
Supply Voltage	V <sub>DD</sub>	+2.25 to +3.6	V	at +3.3V Typ.
Logic Type	LT	LVC MOS		
Supply Current, Output Enabled	I <sub>DD</sub> /OE	20	mA	Max.
Supply Current, Output Disabled	I <sub>DD</sub> /OD	100	μA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T <sub>R</sub> /T <sub>F</sub>	2.5	ns	Max. measured 20/80% of Waveform
Output Voltage "0" Level	V <sub>OL</sub>	10% V <sub>DD</sub>	V	Max at I <sub>OL</sub> = 4.0mA Min.
Output Voltage "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub>	V	Min at I <sub>OH</sub> = -4.0mA Max.
Output Load	CL	15	pF	Max.
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		2	ms	Max.
Storage Temperature Range		-55 to +125	°C	

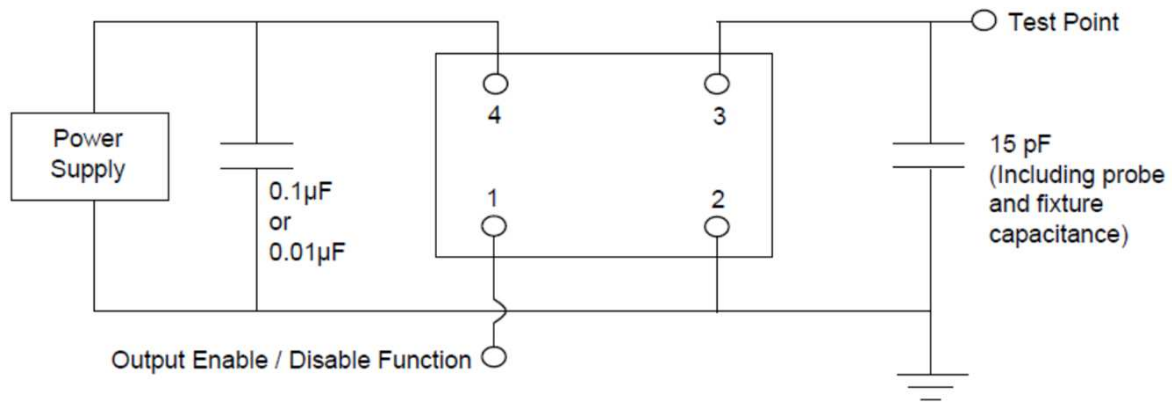
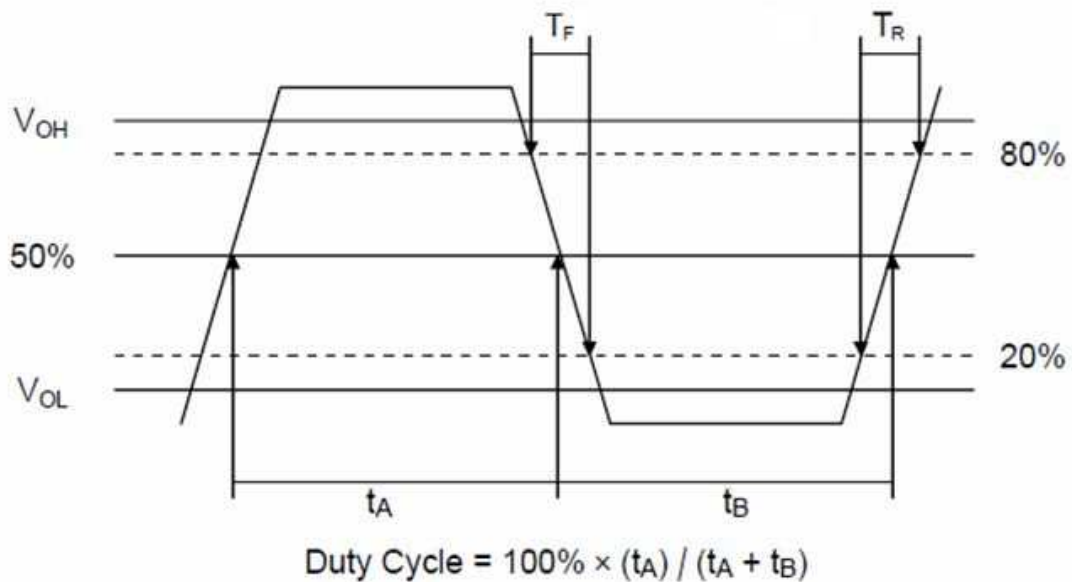
**\*\*Stability includes all combinations of Operating Temperature, Load changes, rated Input (Supply) Voltage changes, Initial Calibration Tolerance (25°C), Aging (1 year at 25°C Average Effective Ambient Temperature), Shock and Vibration.**

**Output Enable / Disable Function**

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (Pin1), Output Enable	0.7V <sub>DD</sub>			V	Or Open
Input Voltage (Pin1), Output Disable (low power standby)			0.3V <sub>DD</sub>	V	Output is Hi-Z
Internal Pullup Resistance	30			KΩ	
Output Disable Delay			50	ns	

**TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****HX3150003Q**

VER. C 9-Aug-22

**TEST CIRCUIT****OUTPUT WAVEFORM**

**TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****HX3150003Q**

VER. C 9-Aug-22

**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**

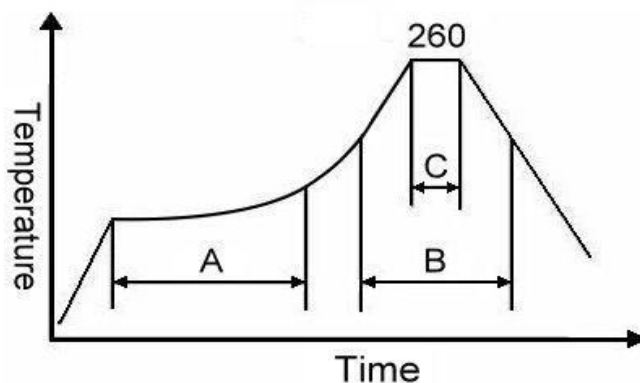
- 2.1 Mechanical Shock: MIL-STD-202 Method 213
- 2.2 Vibration: MIL-STD-202 Method 204
- 2.3 Solderability: J-STD-002
- 2.4 Board Flex: AEC Q200-005
- 2.5 Terminal Strength (SMD): AEC Q200-006

**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:

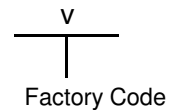
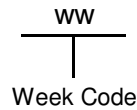
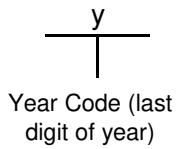
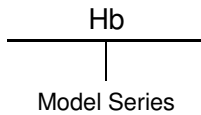
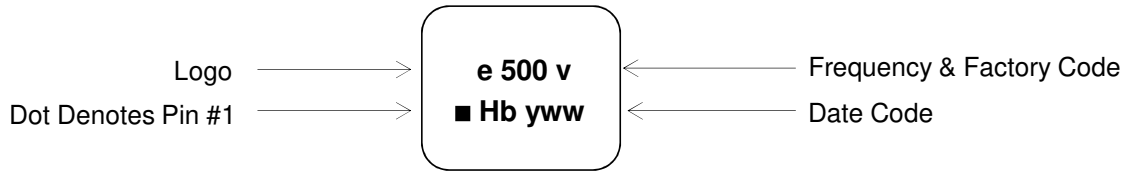
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

# TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

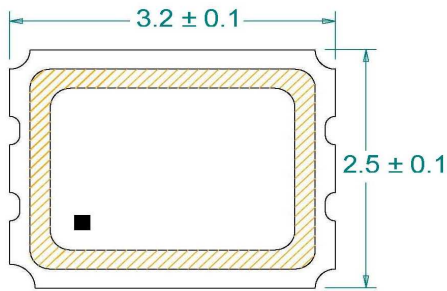
## HX3150003Q

VER. C 9-Aug-22

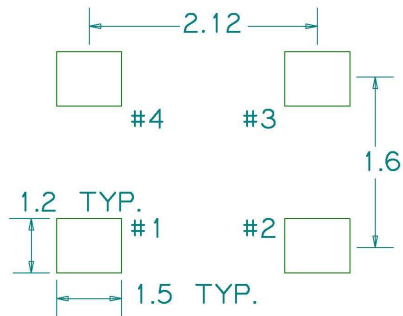
### MARKING



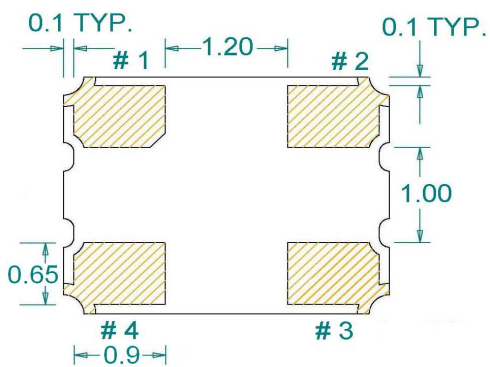
### MECHANICAL DRAWINGS ( Scale: None. Dimensions are in mm.)



#### 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.



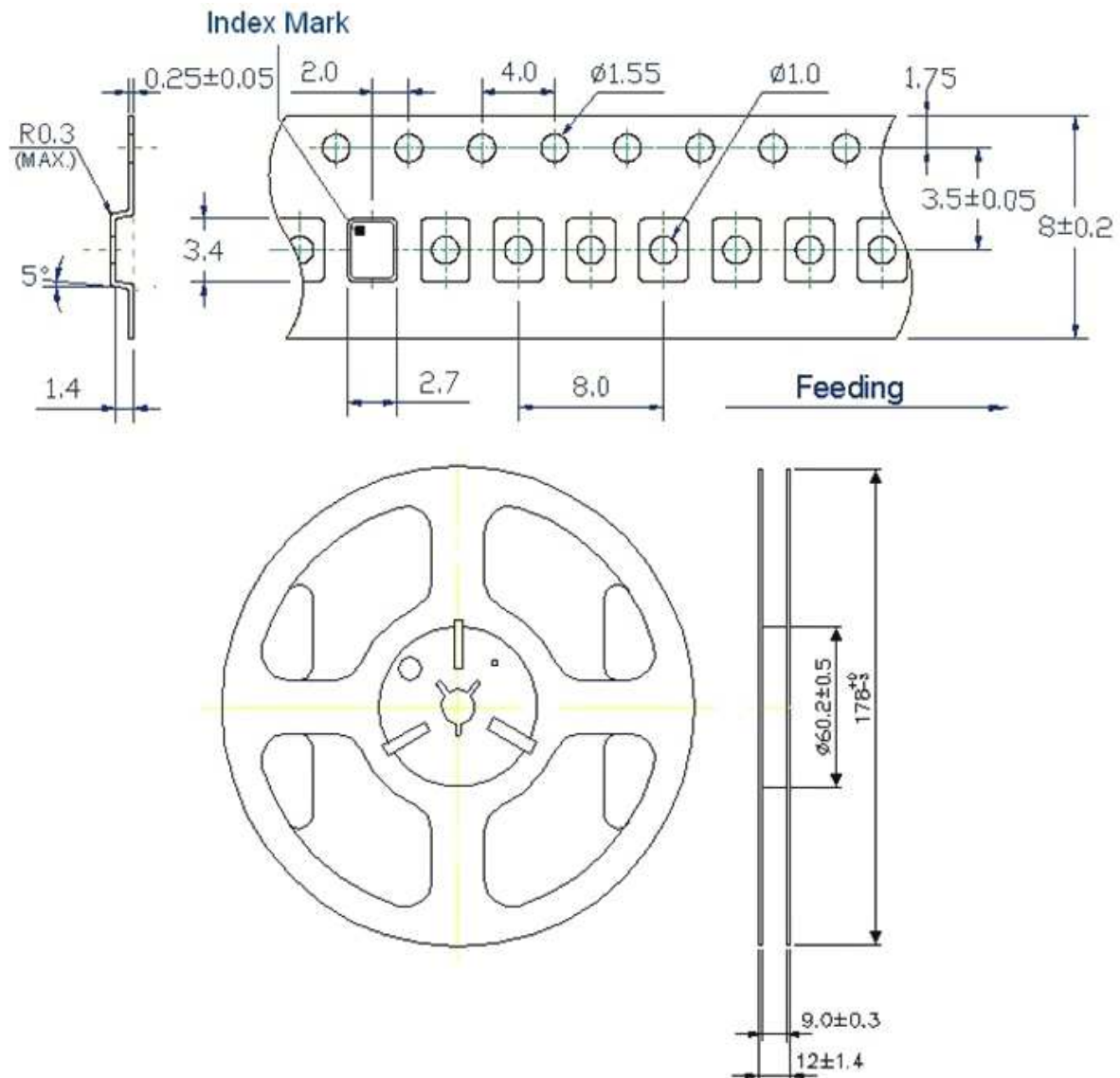
(Bottom View)

Pin	Function
1	OE
2	Ground
3	Clock Output
4	V <sub>DD</sub>



**TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR*****HX3150003Q***

VER. C 9-Aug-22

**TAPE&REEL**

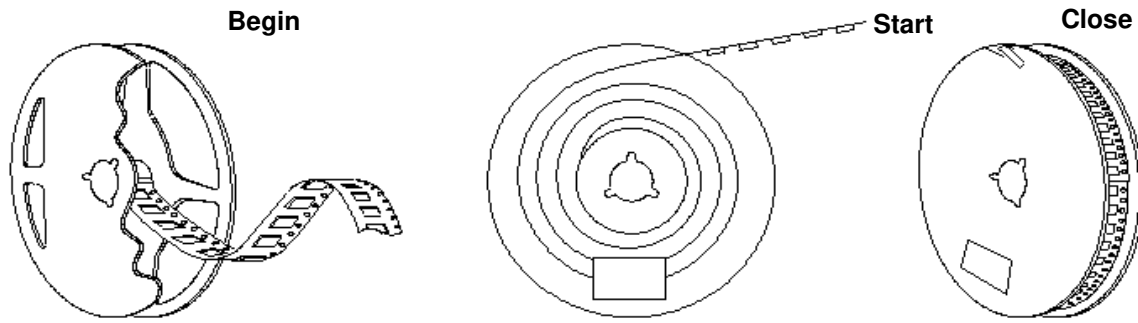
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

# TYPE HX 3.2x2.5 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

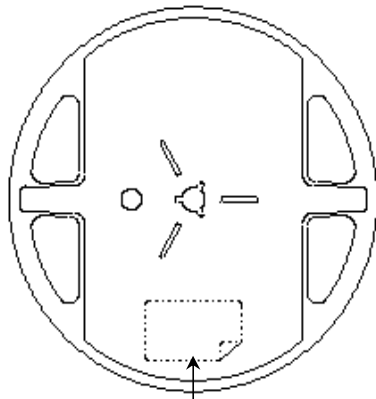
## HX3150003Q

VER. C 9-Aug-22

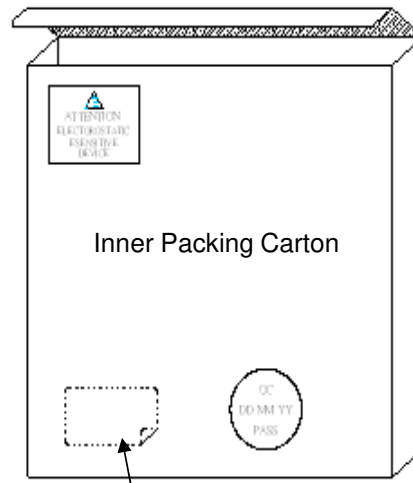
### PACKING



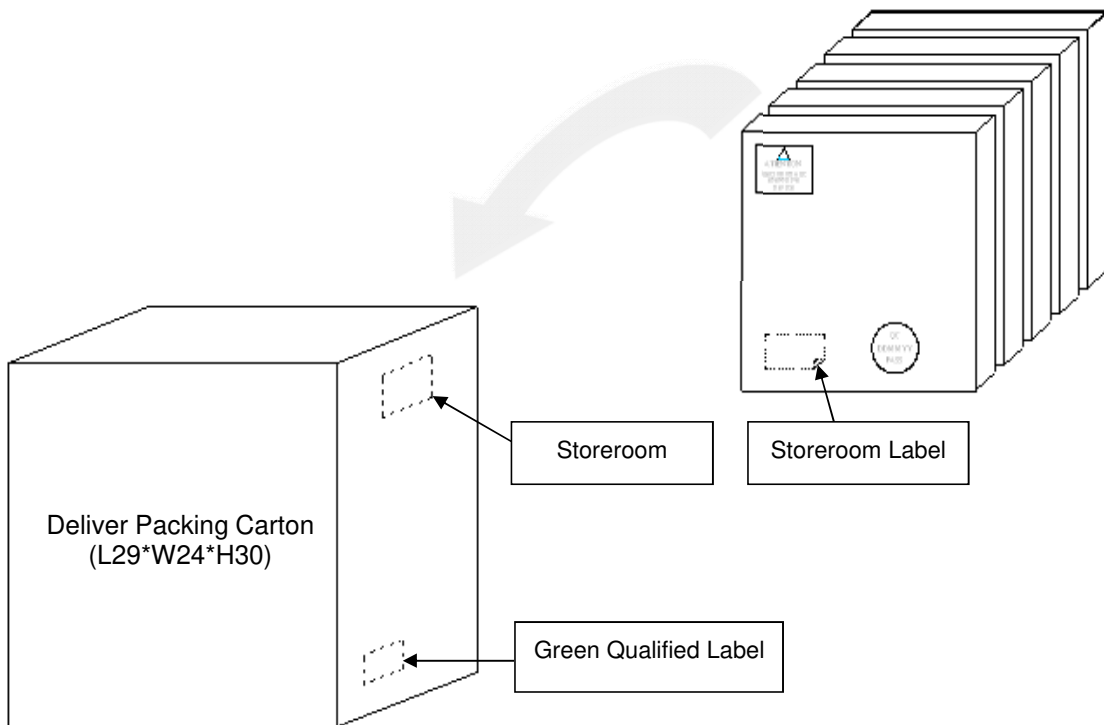
3000pcs-Product Tape



Blue Qualified Label



Storeroom Label



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