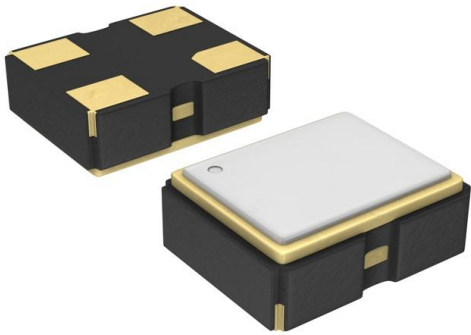


# FD0980001 Datasheet

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



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

DiGi Electronics Part Number	FD0980001-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	FD0980001
Description	XTAL OSC XO 9.8304MHZ CMOS SMD
Detailed Description	9.8304 MHz XO (Standard) CMOS Oscillator 1.8V 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:**

FD0980001

**Series:**

SaRonix-eCera™ FD

**Base Resonator:**

Crystal

**Frequency:**

9.8304 MHz

**Output:**

CMOS

**Frequency Stability:**

-

**Operating Temperature:**

-20°C ~ 70°C

**Ratings:**

-

**Package / Case:**

4-SMD, No Lead

**Height - Seated (Max):**

0.051" (1.30mm)

**Manufacturer:**

Diodes Incorporated

**Product Status:**

Active

**Type:**

XO (Standard)

**Function:**

Enable/Disable

**Voltage - Supply:**

1.8V

**Absolute Pull Range (APR):**

-

**Current - Supply (Max):**

4mA

**Mounting Type:**

Surface Mount

**Size / Dimension:**

0.197" L x 0.126" W (5.00mm x 3.20mm)

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

10µA

## 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



## SPECIFICATION FOR APPROVAL

CUSTOMER	_____
NOMINAL FREQUENCY	9.830400 MHz
PRODUCT TYPE	TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. ( P/N )	FD0980001
CUSTOMER P/N	_____
ISSUE DATE	May 14, 2018
VERSION	B

APPROVED	PREPARED	QA
<i>Brenda</i>	<i>Kelly</i>	<i>Jong Yang</i>

### 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

# TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

## FD0980001

VER. B 14-May-18

### VERSION HISTORY

Version No.	Version Date	Description	Notes
B	May.14,2018	Updated logo	



**TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FD0980001**

VER. B 14-May-18

**ELECTRICAL SPECIFICATIONS****SRe Part Number : FD0980001**

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F <sub>0</sub>	9.830400	MHz	
Frequency Stability	FT	± 25	ppm	**See note
Operating Temperature Range	TR	-20 to +70	°C	
Supply Voltage	V <sub>DD</sub>	+1.8 ± 5.0%	V	
Logic Type	LT	LVC MOS		
Supply Current, Output Enabled	I <sub>DD</sub> /OE	4	mA	Max.
Supply Current, Output Disabled	I <sub>DD</sub> /OD	10	µA	Max.
Duty Cycle (Symmetry)	DC/SY	45 / 55	%	Measured 50% of Waveform
Rise / Fall Time	T <sub>R</sub> /T <sub>F</sub>	4	ns	Max. measured 20/80% of Waveform
Output Voltage "0" Level	V <sub>OL</sub>	10% V <sub>DD</sub>	V	Max.
Output Voltage "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub>	V	Min.
Output Load	CL	15	pF	Max
Jitter, Accumulated	RMS(1-σ)	5	ps	Max. 20,000 Consecutive Periods
Jitter, Peak to Peak	Pk-Pk	50	ps	Max. 100,000 Random Periods
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 <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	

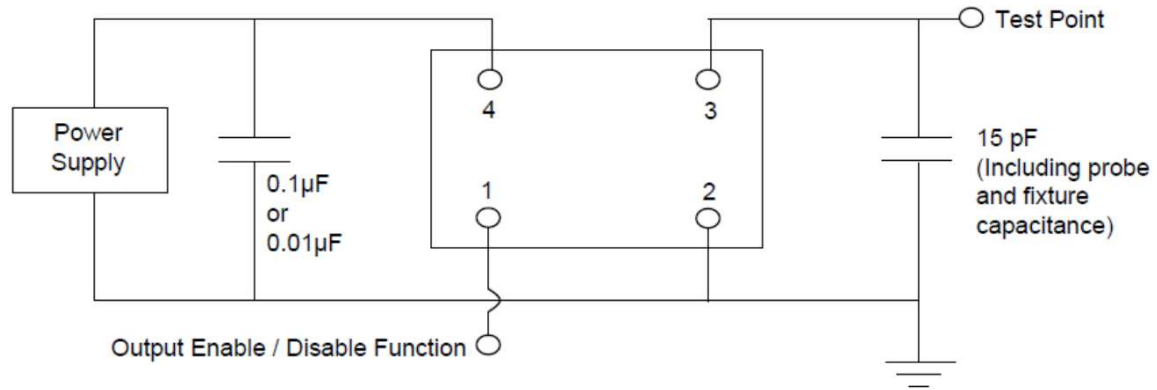


# TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

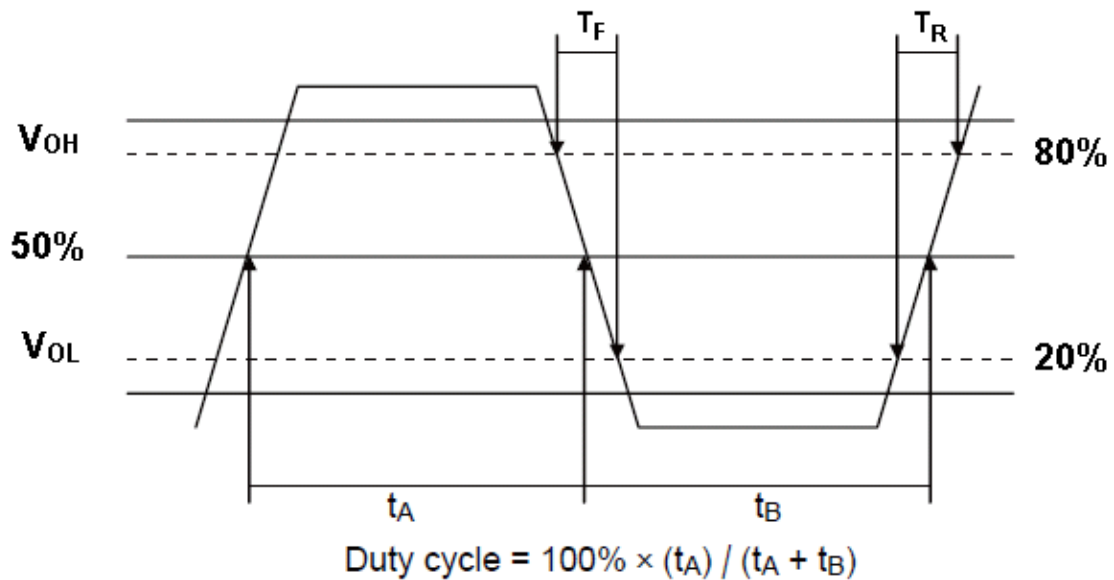
## FD0980001

VER. B 14-May-18

### TEST CIRCUIT



### OUTPUT WAVEFORM



**TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FD0980001**

VER. B 14-May-18

**RELIABILITY SPECIFICATIONS****ENVIRONMENTAL:**

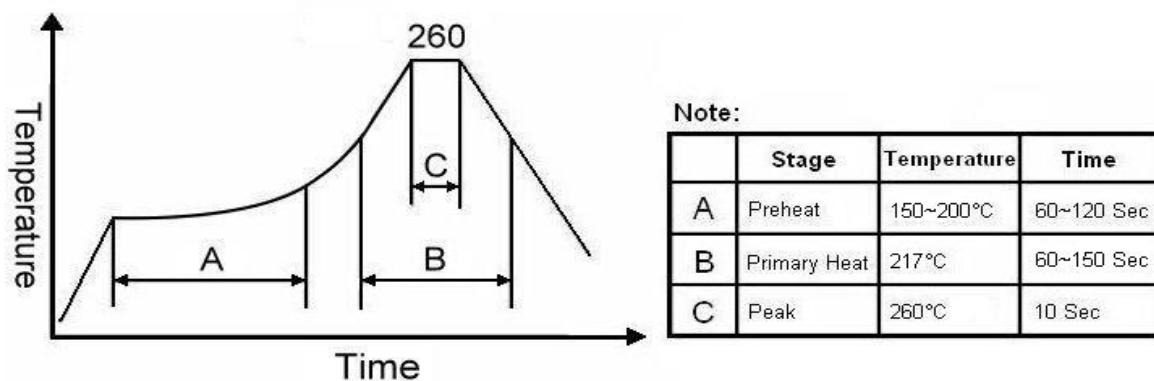
- a) THERMAL SHOCK: MIL-STD-883, Method 1011, Condition A
- b) MOISTURE RESISTANCE: MIL-STD-883, Method 1004
- c) VIBRATION: MIL-STD-883, Method 2007, Condition A
- d) RESISTANCE TO SOLDERING HEAT: J-STD-020D Table 5-2 Pb-free devices (except 2 cycles max)
- e) HAZARDOUS SUBSTANCE: Pb - free and RoHS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

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

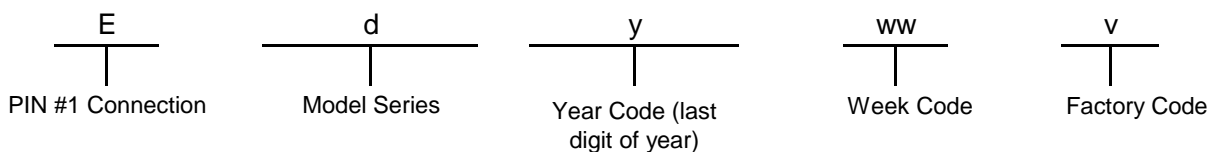
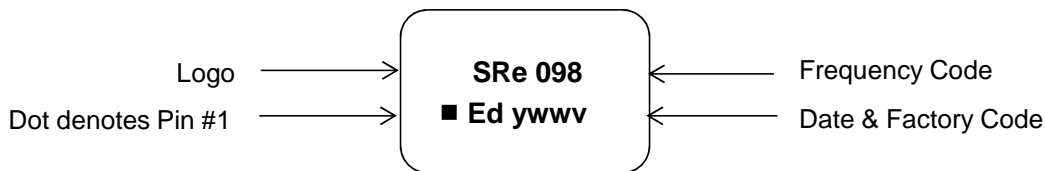


# TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

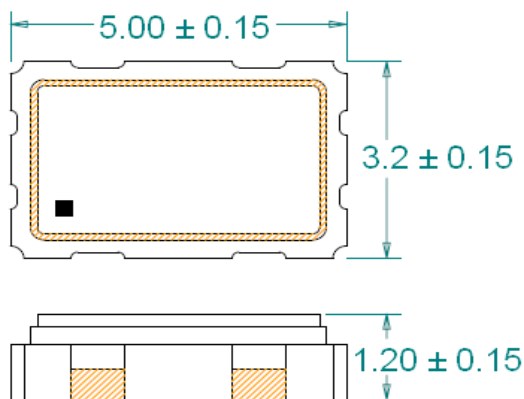
## FD0980001

VER. B 14-May-18

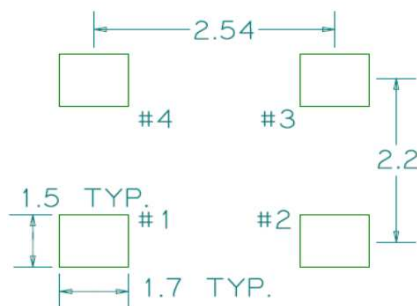
### MARKING



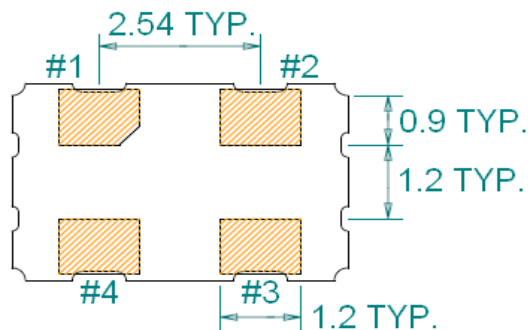
### MECHANICAL DRAWINGS ( Scale: None. Dimensions are in mm.)



#### 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.



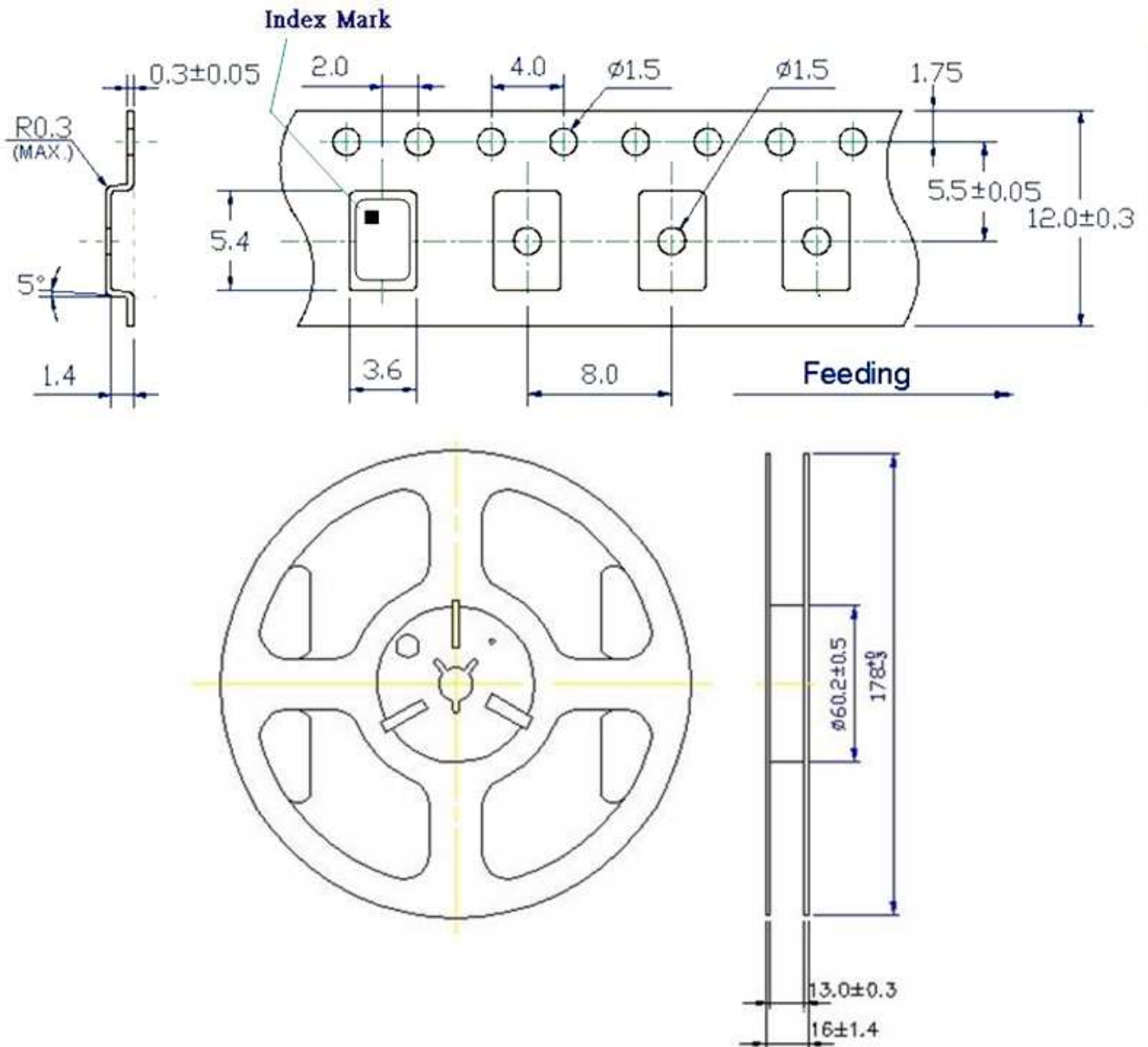
(Bottom View)

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



**TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FD0980001**

VER. B 14-May-18

**Tape & Reel**

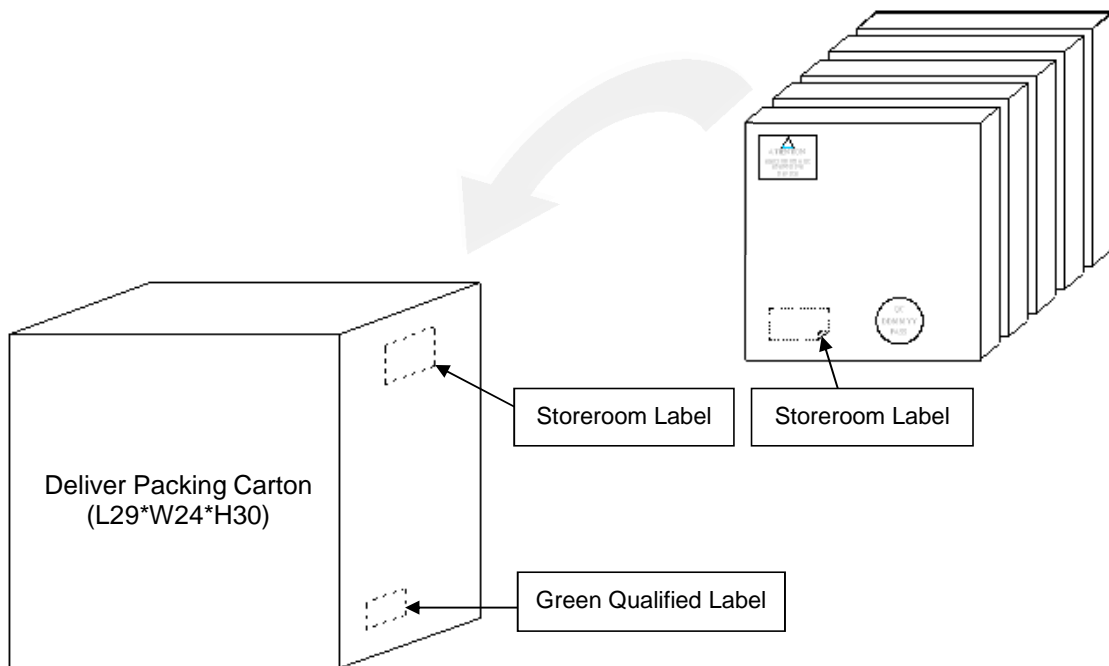
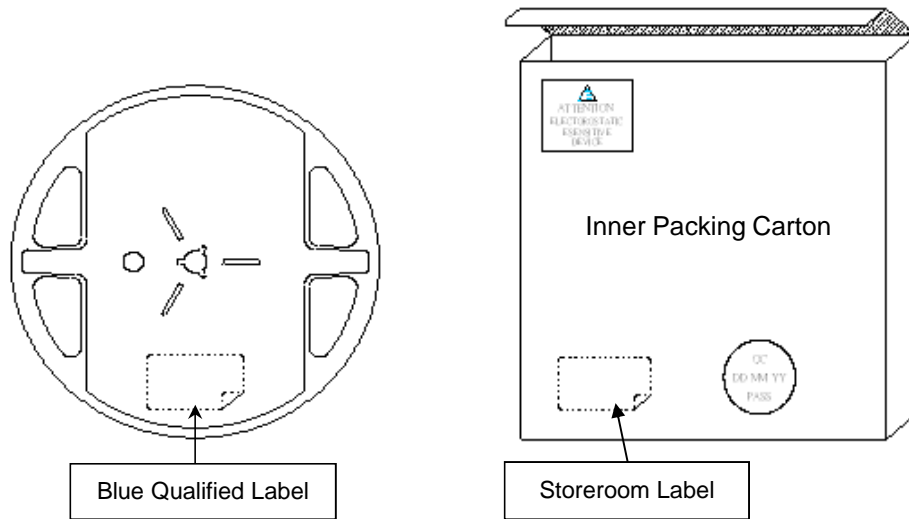
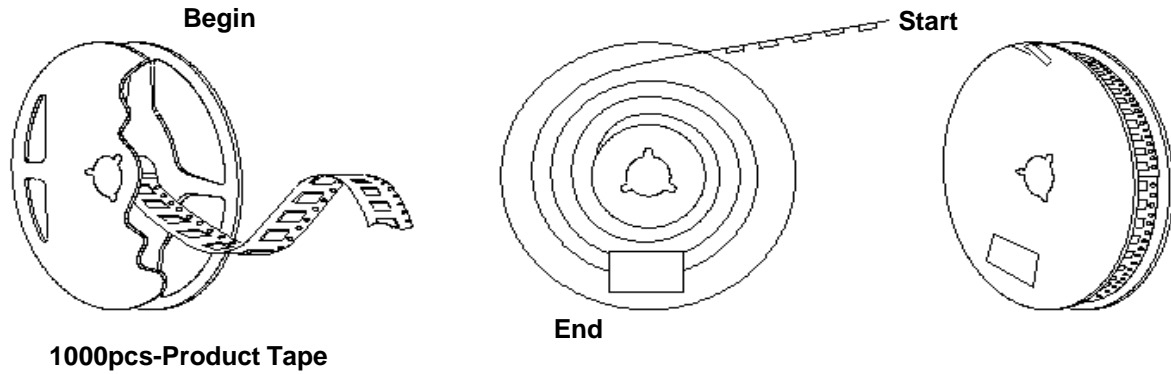
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

# TYPE FD 5.0x3.2 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

## FD0980001

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### PACKING





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