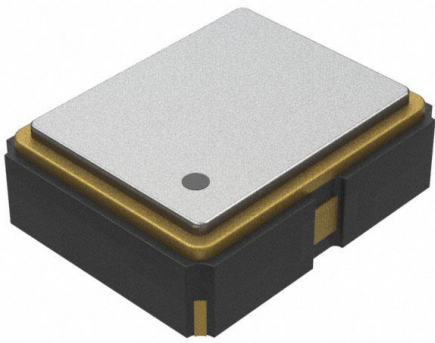


# FJ2400010 Datasheet

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



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

DiGi Electronics Part Number	FJ2400010-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	FJ2400010
Description	XTAL OSC XO 24.0000MHZ CMOS SMD
Detailed Description	24 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:**

FJ2400010

**Series:**

SaRonix-eCera™ FJ

**Base Resonator:**

Crystal

**Frequency:**

24 MHz

**Output:**

CMOS

**Frequency Stability:**

-

**Operating Temperature:**

-20°C ~ 70°C

**Ratings:**

-

**Package / Case:**

4-SMD, No Lead

**Height - Seated (Max):**

0.039" (1.00mm)

**Base Product Number:**

FJ2400010

**Manufacturer:**

Diodes Incorporated

**Product Status:**

Active

**Type:**

XO (Standard)

**Function:**

Enable/Disable

**Voltage - Supply:**

1.8V

**Absolute Pull Range (APR):**

-

**Current - Supply (Max):**

500µA

**Mounting Type:**

Surface Mount

**Size / Dimension:**

0.098" L x 0.079" W (2.50mm x 2.00mm)

**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	24.000000 MHz
PRODUCT TYPE	TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR
SPEC. NO. ( P/N )	FJ2400010
CUSTOMER P/N	_____
ISSUE DATE	June 11, 2018
VERSION	B

APPROVED	PREPARED	QA
<i>Brenda Kuo</i>	<i>Winnie Chang</i>	<i>Dony 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 FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

## **FJ2400010**

VER. B 11-Jun-18

### VERSION HISTORY

Version No.	Version Date	Description	Notes
A	Dec.28,2011	Initial Release	
B	Jun.11,2018	Updated Logo	



**TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FJ2400010**

VER. B 11-Jun-18

**ELECTRICAL SPECIFICATIONS****SRe Part Number : FJ2400010**

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F <sub>o</sub>	24.000000	MHz	
Frequency Stability	FT	± 30	ppm	**See note
Operating Temperature Range	TR	-20 to +70	°C	
Supply Voltage	V <sub>DD</sub>	+1.8 ± 5%	V	
Logic Type	LT	LVC MOS		
Supply Current, Output Enabled	I <sub>DD</sub> /OE	0.5	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>	6	ns	Max. measured 10 / 90% 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, Phase	RMS	1.5	ps	Max. 12KHz ~ 5MHz Frequency Band
Jitter, Accumulated	RMS(1-σ)	5	ps	Typ. 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).

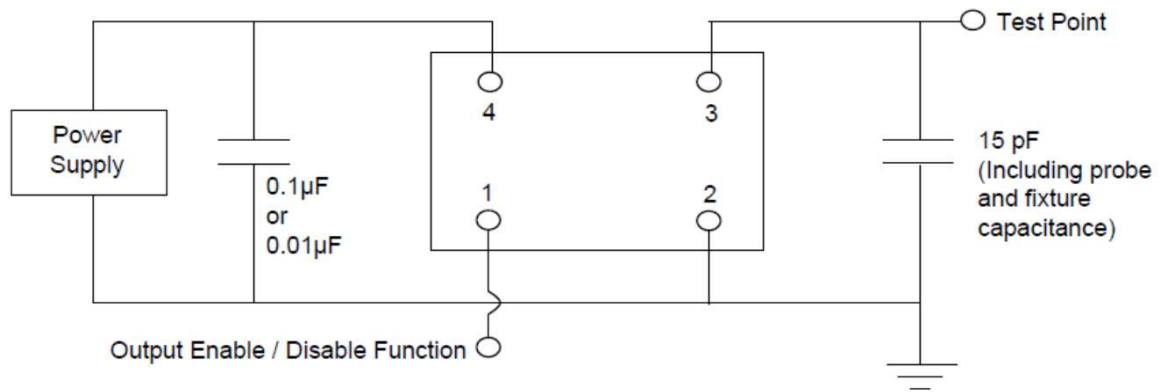
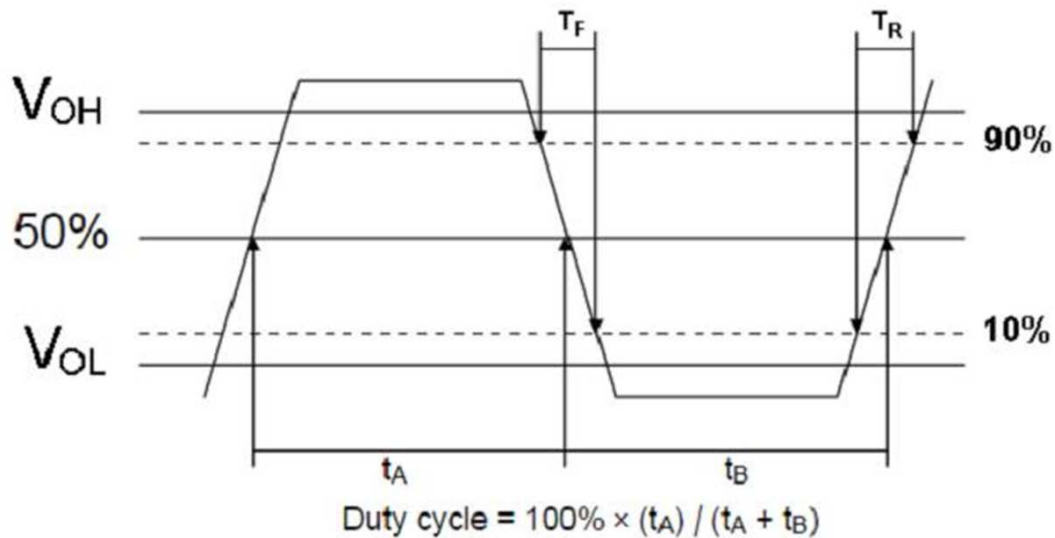
\*\*Stability includes all combinations of Operating Temperature, Load changes, rated Input (Supply) Voltage changes, Initial Calibration Tolerance (25°C), Aging (1 year at 25°C Average Effective Ambient Temperature), Shock and Vibration.

**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
Output Disable Delay			0.1	µs	
Output Enable Delay			2	ms	

**TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FJ2400010**

VER. B 11-Jun-18

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

**TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FJ2400010**

VER. B 11-Jun-18

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

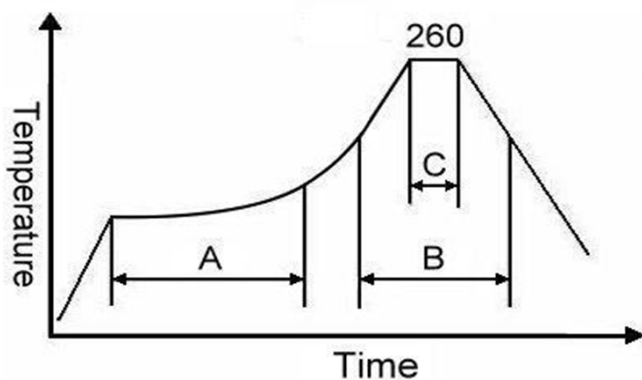
- a) THERMAL SHOCK: MIL-STD-883, Method 1011, Condition A
- b) MOISTURE RESISTANCE: MIL-STD-883, Method 1004
- c) VIBRATION: MIL-STD-883, Method 2007, Condition A
- d) RESISTANCE TO SOLDERING HEAT: J-STD-020D Table 5-2 Pb-free devices  
(except 2 cycles max)
- e) HAZARDOUS SUBSTANCE: Pb - free and RoHS/Green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



Note:

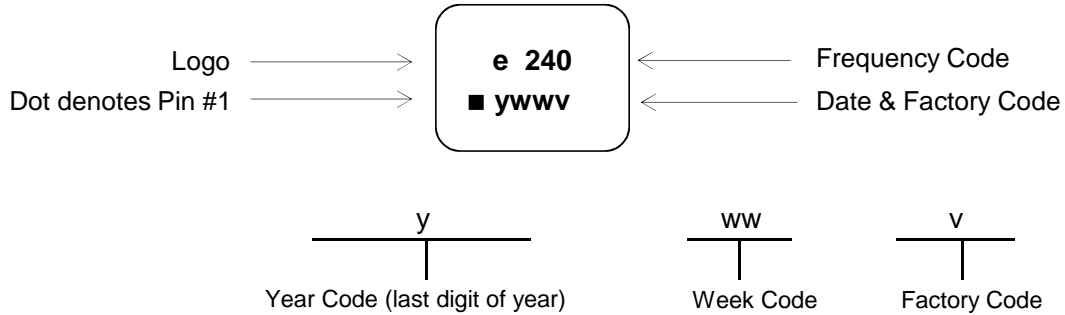
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

# TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

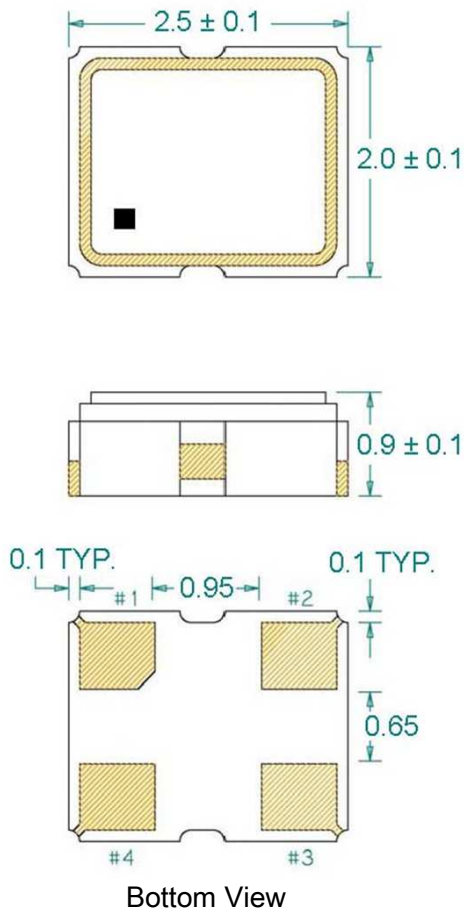
## FJ2400010

VER. B 11-Jun-18

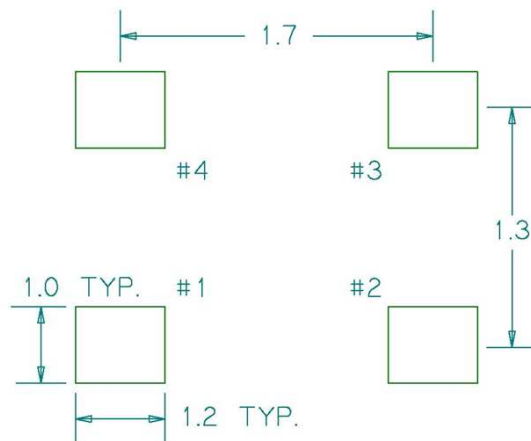
### MARKING



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



#### Recommended Land Pattern\*



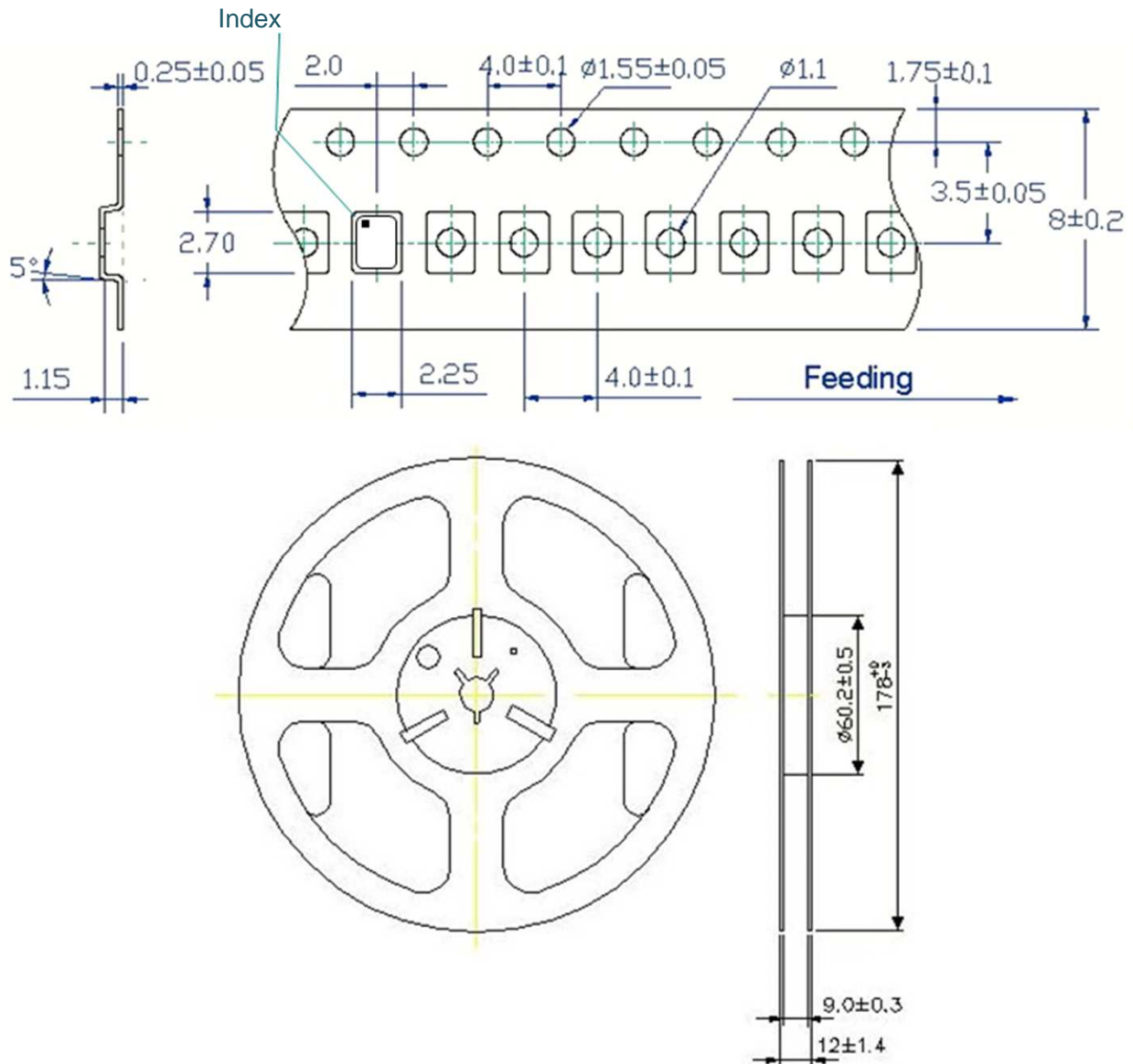
\*External high-frequency power decoupling is recommended.(see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

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



**TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR****FJ2400010**

VER. B 11-Jun-18

**TAPE & REEL**

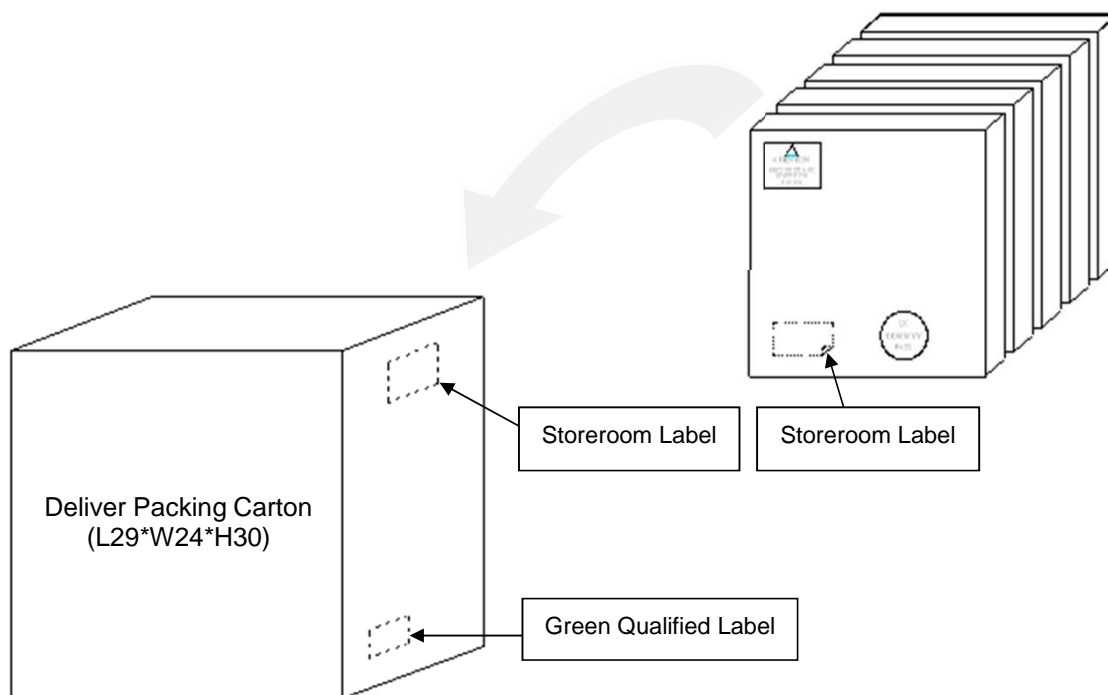
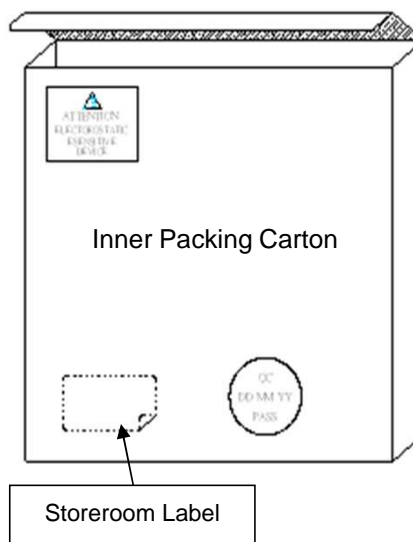
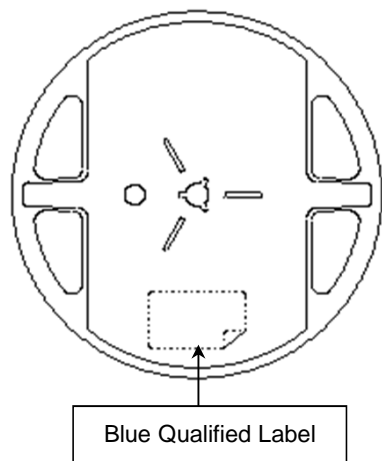
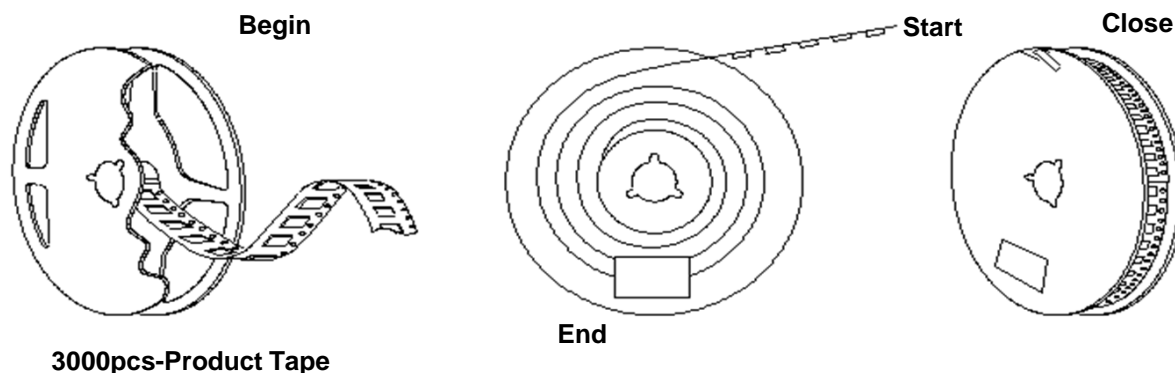
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

# TYPE FJ 2.5x2.0 SEAM SEALED CRYSTAL CLOCK OSCILLATOR

## FJ2400010

VER. B 11-Jun-18

### PACKING





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