



A Product Line of  
Diodes Incorporated



# SPECIFICATION FOR APPROVAL

CUSTOMER

NOMINAL FREQUENCY

**8.000000 MHz**

PRODUCT TYPE

**TYPE F9 5x3.2 GLASS SEALED CRYSTAL**

PART NUMBER

**F90800014**

CUSTOMER P/N

ISSUE DATE

**May 11, 2018**

VERSION

**C**

APPROVED	PREPARED	QA
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## Diodes Incorporated

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\*RoHS Exemption

\*HF-Halogen Free

\*REACH Compliant

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**F90800014**

VER.C 11-MAY-18

## ELECTRICAL SPECIFICATIONS

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	8.000000	MHz	
Mode of Oscillation	MO	AT Cut-Fundamental		
Calibration Load Capacitance	CL	18	pF	
Calibration Tolerance	FL	± 20	ppm	at 25°C±3°C
Operating Temperature Range	TR	-20 to +70	°C	
Frequency Stability(Frequency Deviation over the Operating Temperature Range)	F/T	± 20	ppm	Reference to the Frequency at 25°C
Operating Drive Level		10	μW	
Maximum Drive Level		100	μW	
Equivalent Series Resistance	ESR	100	Ω	Max.
Shunt Capacitance	C0	5	pF	Max.
Aging at 25°C		± 5	ppm	Max, 1st year
Storage Temperature		-55 to +125	°C	
Insulation Resistance		500	MΩ	Min

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## RELIABILITY SPECIFICATIONS

### MECHANICAL AND ENVIRONMENTAL RATINGS:

- a) FINE LEAK TEST: JESD22-A109 (Condition 1A)
- b) GROSS LEAK TEST: JESD22-A109 (Condition C)
- c) MOISTURE RESISTANCE: JESD22-A113
- d) SHOCK: JESD22-B104 (Condition B)
- e) SOLDERABILITY : (RoHS version): J-STD-002
- f) VIBRATION: JESD22-B103
- g) SOLVENT RESISTANCE: JESD22-B107
- h) RESISTANCE TO SOLDERING HEAT (RoHS version): J-STD-020D Table 5.2 Pb free devices (3 cycles max)

## SUGGESTED IR REFLOW PROFILE

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



Note:

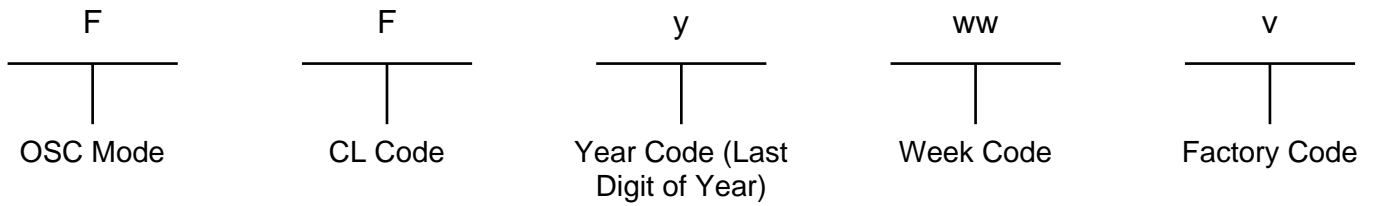
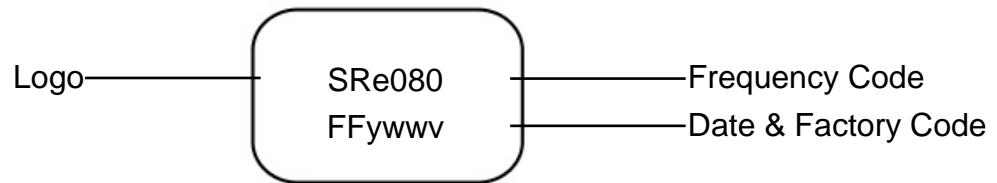
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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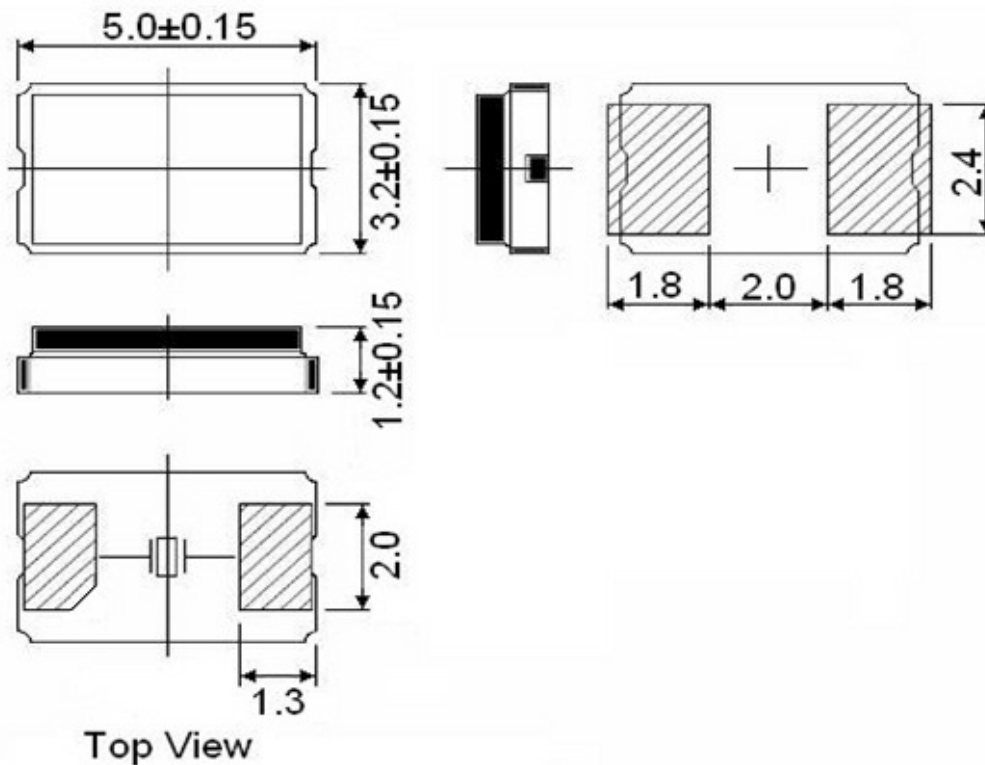
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## MARKING



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



### Note:

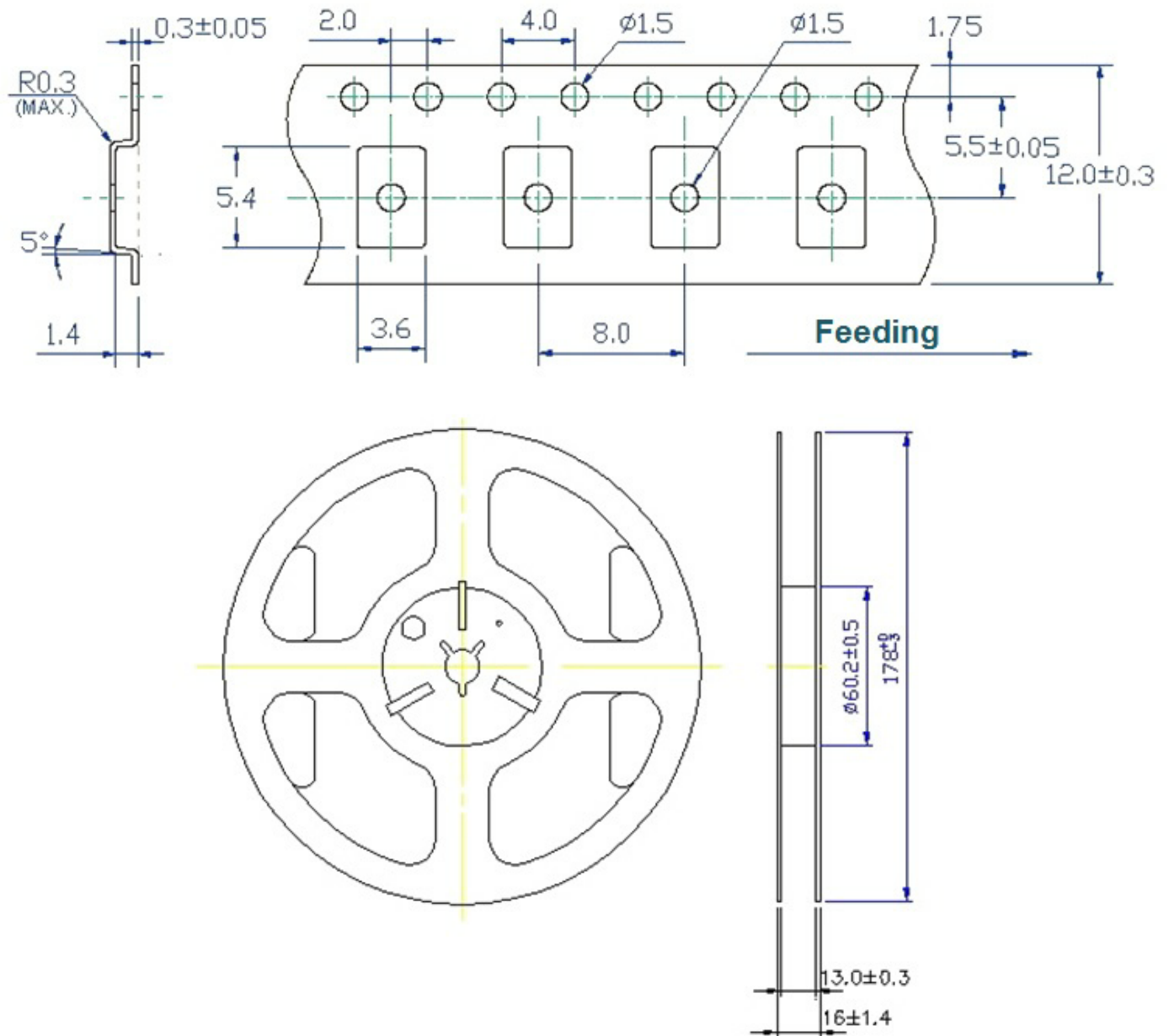
Pin shape is only for reference, and the Pin with chamfer or without chamfer is based on the real product.

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## Tape & Reel



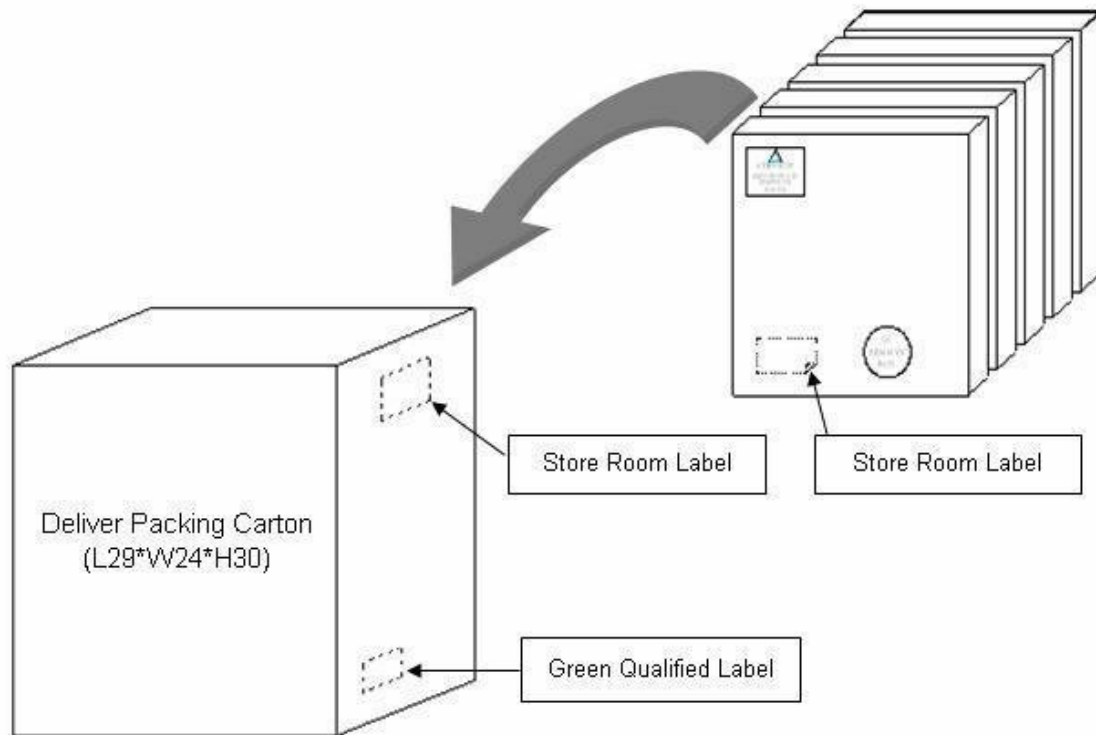
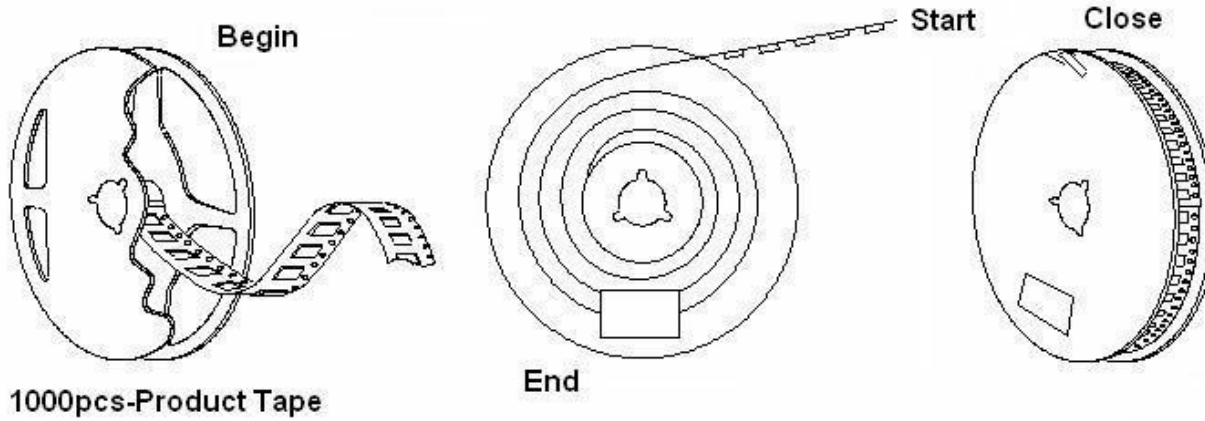
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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## PACKING



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## VERSION HISTORY

Version No.	Version Date	Description	Notes
A	Jun. 14, 2011	Initial Release	
B	May. 17, 2013	Updated mechanical drawing	
C	May. 11, 2018	Updated Logo	