A Product Line of Diodes Incorporated

SPECIFICATION FOR APPROVAL

CUSTOMER	
NOMINAL FREQUENCY	16.000000 MHz
HOLDER TYPE	**TYPE FQ 3.2x2.5 GLASS SEALED CRYSTAL**
SPEC. NO. (P/N)	FQ1600009Q
CUSTOMER P/N	
ISSUE DATE	January 30, 2018
VERSION	A

APPROVED	PREPARED	QA
Brenda	Nikki Lu	Jenny Jang

Diodes Incorporated

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*RoHS Exemption
*HF-Halogen Free
*REACH Compliant
*AEC-Q200 Compliant

REVISION HISTORY

Revision No.	Revision Date	Customer Receipt Date	Supplier Receipt Date	Description	Notes
A	Jan.30,2018			Initial Release	

TYPE FQ 3.2x2.5 GLASS SEALED CRYSTAL

FQ1600009Q

VER. A 30-Jan-18

ELECTRICAL SPECIFICATIONS

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	16.000000	MHz	
Mode of Oscillation	MO	AT Cut-Fundamental		
Calibration Load Capacitance	CL	8	pF	
Calibration Tolerance	FL	±30	ppm	at 25°C±3°C
Operating Temperature Range	TR	-40 to +105	°C	
Frequency Stability (Frequency Deviation over the Operating Temperature Range)	F/T	±50	ppm	Reference to the Frequency at 25°C
Operating Drive Level		10	µW	
Maximum Drive Level		100	µW	
Equivalent Series Resistance	ESR	90	Ω	Max
Shunt Capacitance	C0	3	pF	Max.
Aging at 25°C		±3	ppm	Max, 1st year
Storage Temperature		-55 to +125	°C	
Insulation Resistance		500	MΩ	Min

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 Temp 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

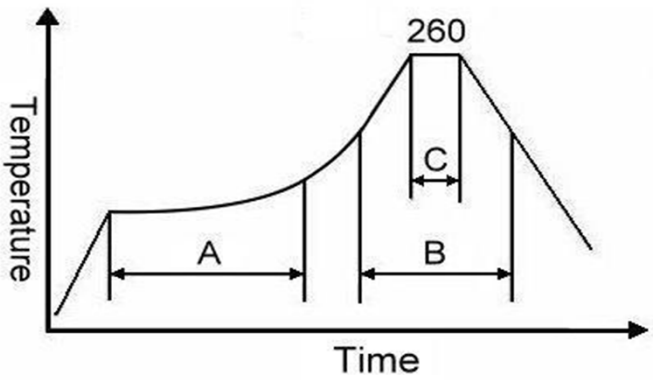
3.4 High Temp Exposure: MIL-STD-202, Method 108

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

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

SUGGESTED IR REFLOW PROFILE

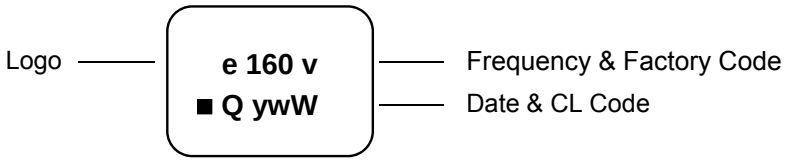
*As per IPC-JEDEC J-STD-020D



Note:

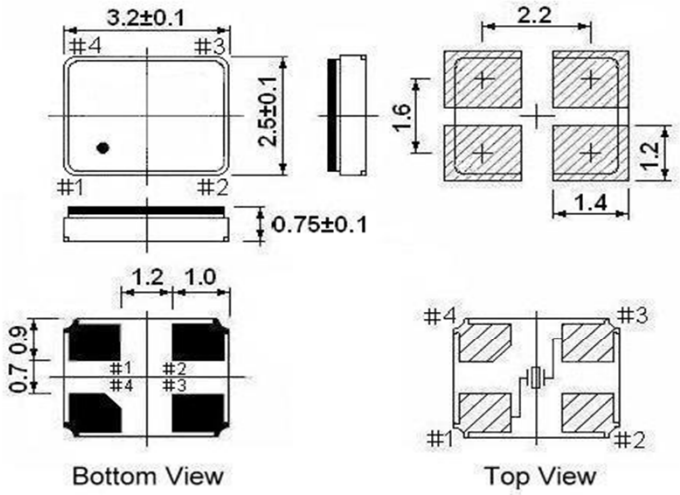
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

MARKING



Q	y	w	W	v
Automotive	Year Code (last digit of year)	Week Code	CL Code	Factory Code

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

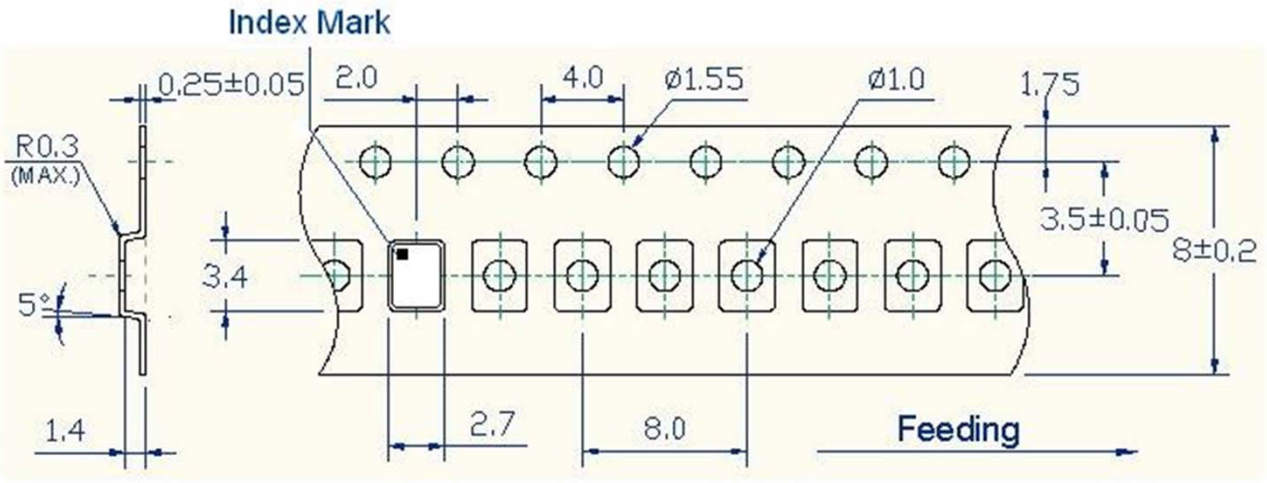


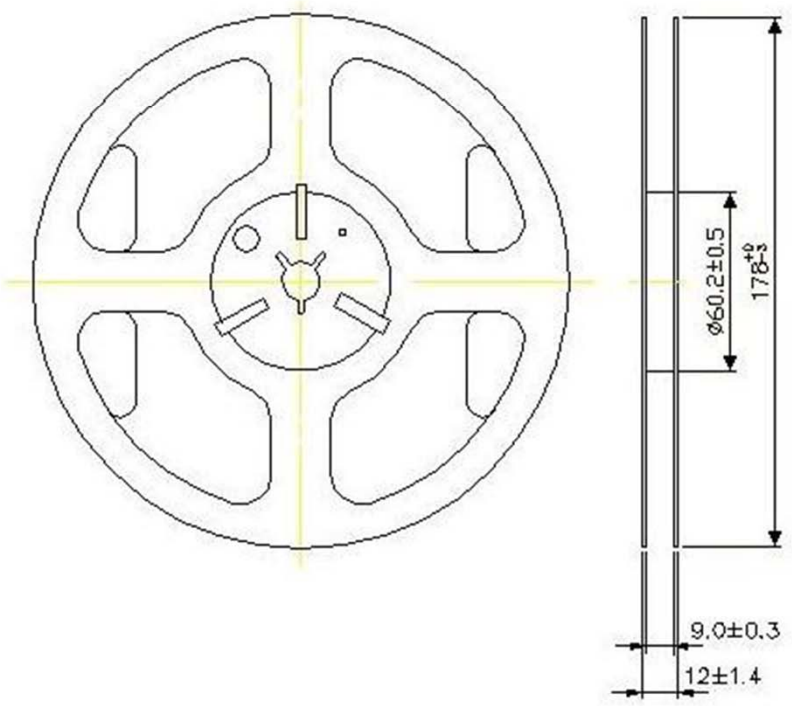
** Recommended - Pin 1 & 3 : CRYSTAL
Pin 2 & 4 : GND

Note:

1. The marking dot denotes Pin#1.
2. Pin positions of the drawing is only for reference, and the Pin with chamfer is based on the real product.

Tape & Reel

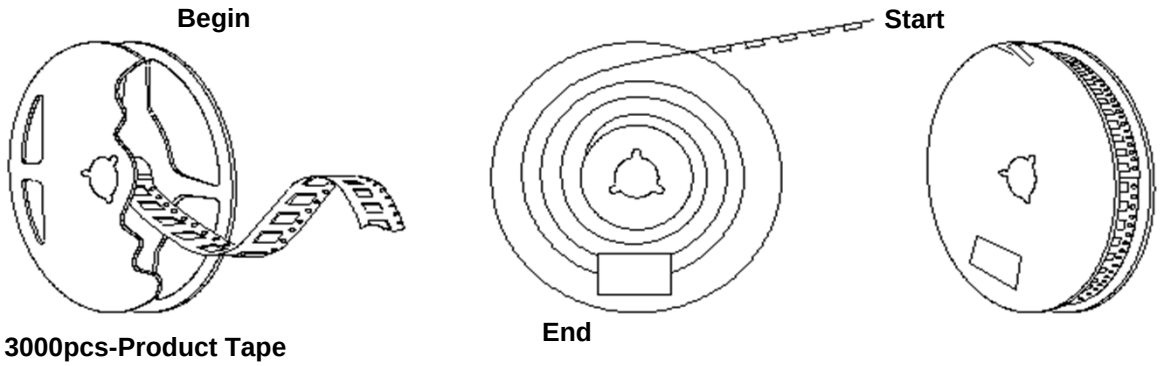


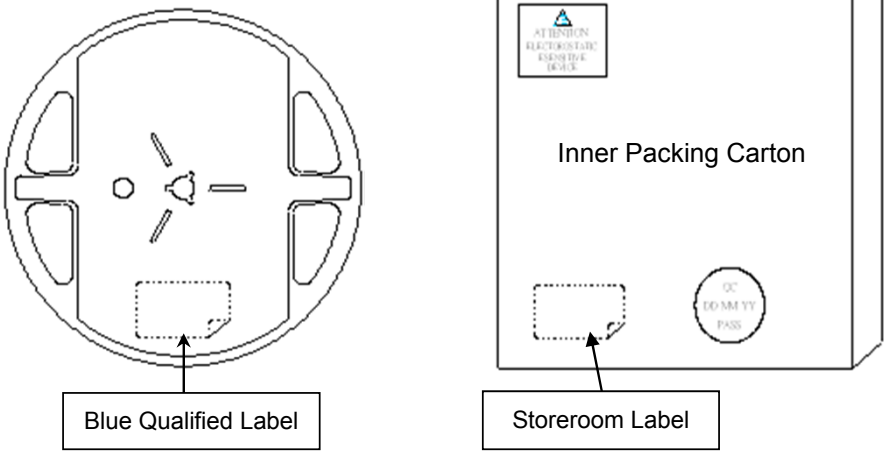


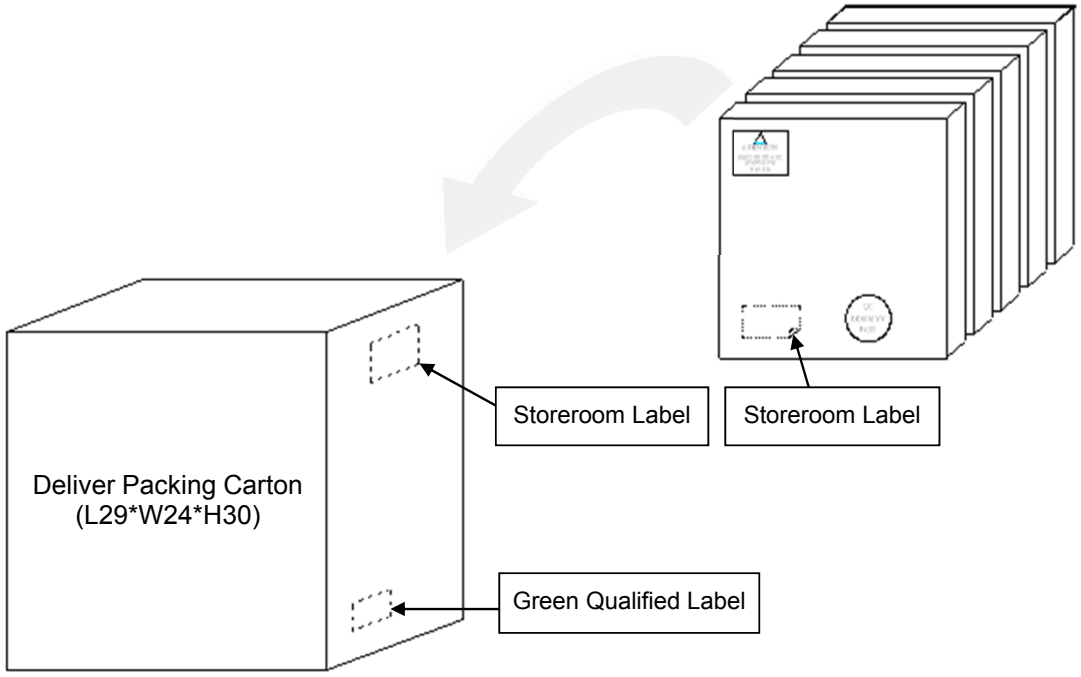
1. 230mm minimum leafer which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.

2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

PACKING


Begin
Start
End
3000pcs-Product Tape


Inner Packing Carton
Blue Qualified Label
Storeroom Label


Deliver Packing Carton
(L29*W24*H30)
Storeroom Label
Storeroom Label
Green Qualified Label