



A Product Line of  
Diodes Incorporated



## SPECIFICATION FOR APPROVAL

CUSTOMER \_\_\_\_\_

NOMINAL FREQUENCY \_\_\_\_\_ 40.000000 MHz \_\_\_\_\_



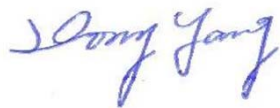
PRODUCT TYPE \_\_\_\_\_ **TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL** \_\_\_\_\_

SPEC. NO. ( P/N ) \_\_\_\_\_ FW4000044Q \_\_\_\_\_

CUSTOMER P/N \_\_\_\_\_

ISSUE DATE \_\_\_\_\_ November 15, 2017 \_\_\_\_\_

VERSION \_\_\_\_\_ B \_\_\_\_\_

APPROVED	PREPARED	QA
		

### 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



# TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL

## FW4000044Q

VER. B 15-Nov-17

### ELECTRICAL SPECIFICATIONS

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	40.000000	MHz	
Mode of Oscillation	MO	AT Cut-Fundamental		
Calibration Load Capacitance	CL	8	pF	
Calibration Tolerance	FL	±10	ppm	at 25°C±3°C
Operating Temperature Range	TR	-40 to +125	°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	Max.
Equivalent Series Resistance	ESR	50	Ω	Max
Shunt Capacitance	C0	2	pF	Max
Aging at 25°C		±3	ppm	Max, 1st year
Storage Temperature		-55 to +125	°C	
Insulation Resistance		500	MΩ	Min

※ 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).

# TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL

**FW4000044Q**

VER. B 15-Nov-17

## 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

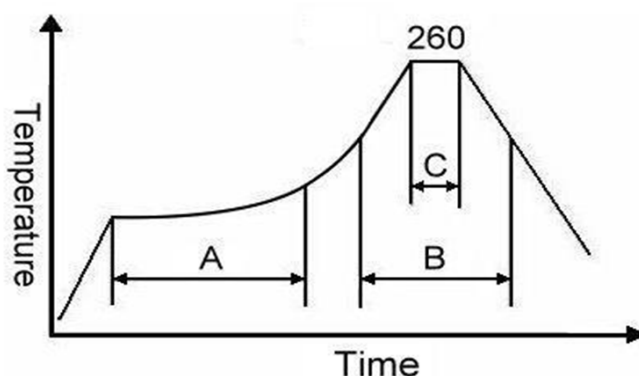
- 2.1 Mechanical Shock: MIL-STD-202 Method 213
- 2.2 Vibration: MIL-STD-202 Method 204
- 2.3 Solderability: J-STD-002
- 2.4 Board Flex: AEC Q200-005
- 2.5 Terminal Strength (SMD): AEC Q200-006

### 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:

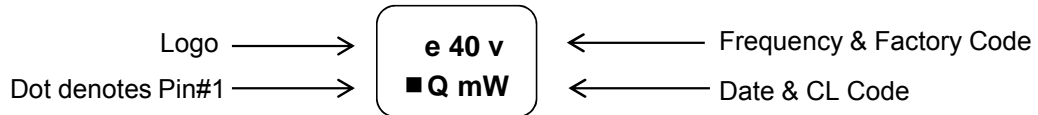
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

# TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL

**FW4000044Q**

VER. B 15-Nov-17

## MARKING



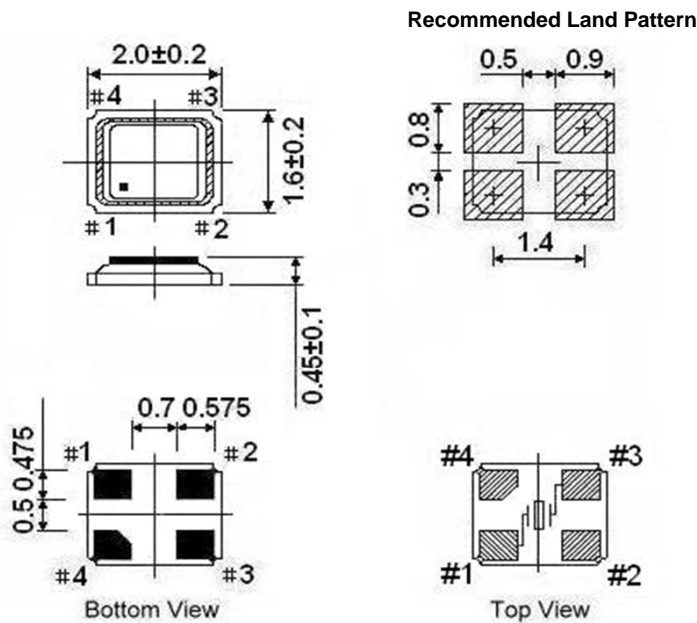
Q  
├───┘  
Automotive

m  
├───┘  
Date Code

W  
├───┘  
CL code

v  
├───┘  
Factory Code

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



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

### Notes:

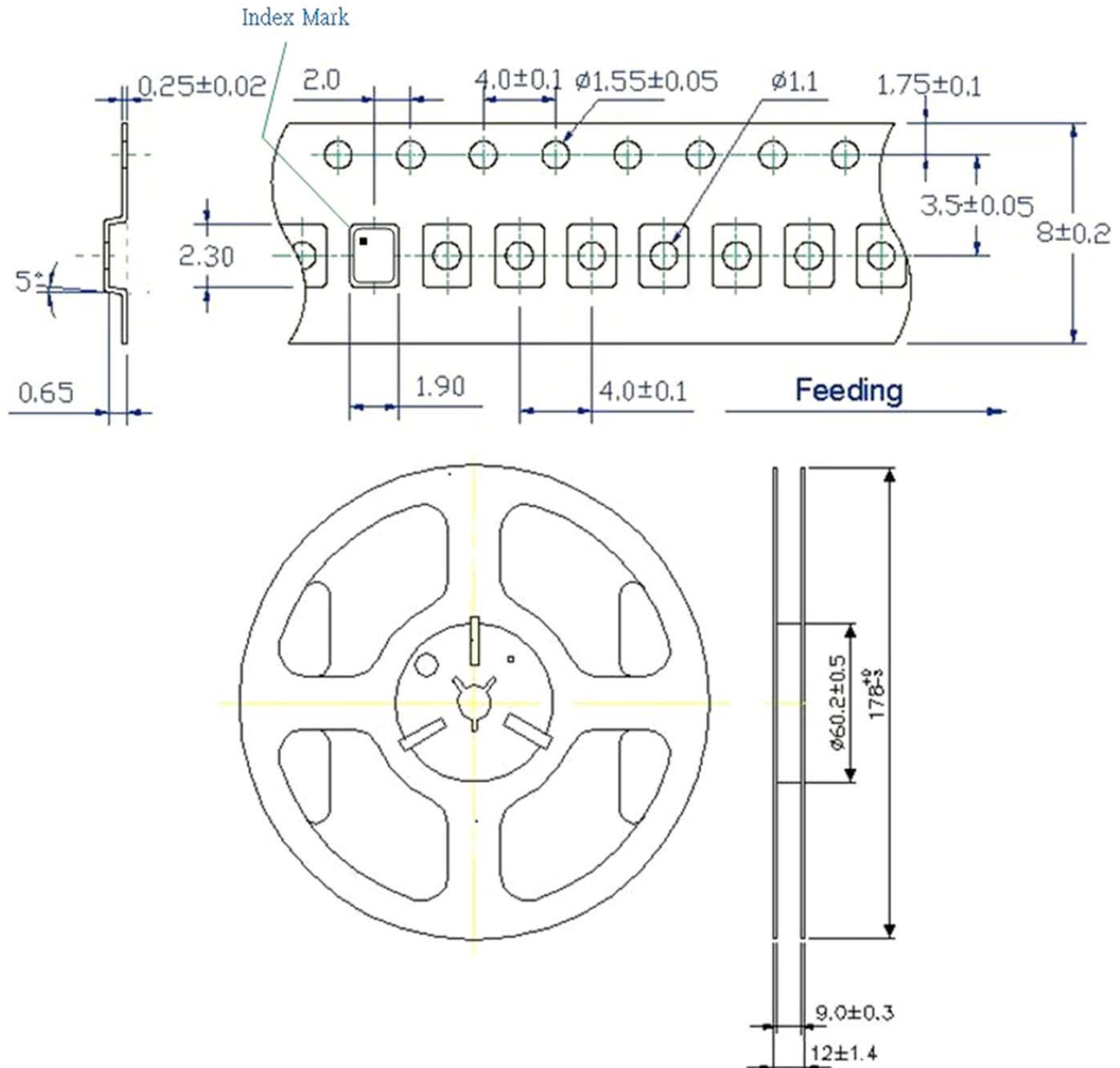
1. Package drawings are for reference only, and the appearances of objects may vary.  
Actual packages are based on the real product.
2. The marking dot denotes Pin#1.
3. The position and shape of the chamfer pin may vary and are based on the real product.

# TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL

**FW4000044Q**

VER. B 15-Nov-17

## Tape & Reel



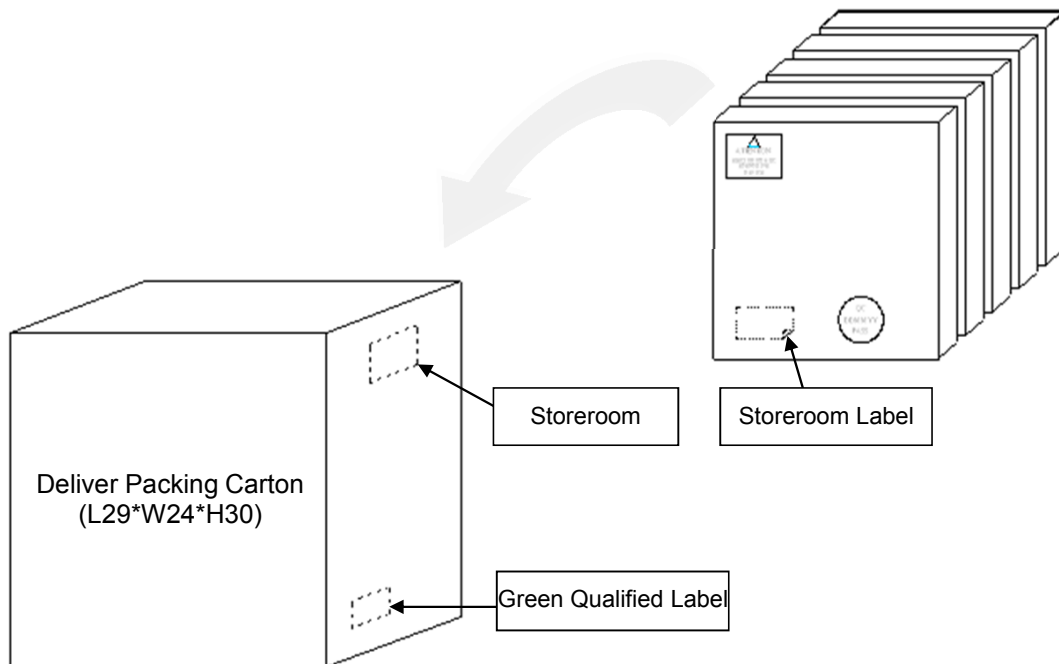
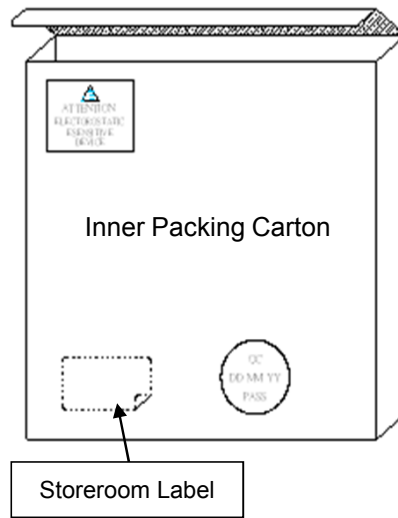
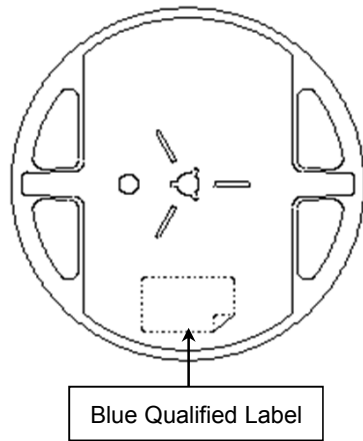
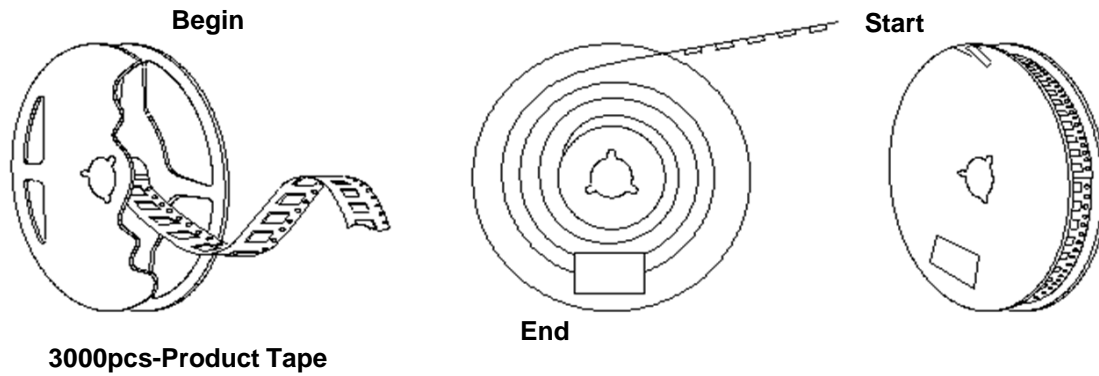
1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

# TYPE FW 2.0x1.6 SEAM SEALED CRYSTAL

## FW4000044Q

VER. B 15-Nov-17

### PACKING



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Crystals](#) category:*

*Click to view products by [Diodes Incorporated](#) manufacturer:*

Other Similar products are found below :

[CS325S24000000ABJT](#) [718-13.2-1](#) [MC405 32.0000K-R3:PURE SN](#) [FC-135R 32.7680KF-A3](#) [7A-40.000MAAE-T](#) [7B-27.000MBBK-T](#)  
[FL2000085](#) [9B-15.360MBBK-B](#) [9C-7.680MBBK-T](#) [AT-41.600MAGQ-T](#) [BTD1062E05A-513](#) [LFXTAL066198Cutt](#) [9C-14.31818MBBK-T](#)  
[FC-12M 32.7680KA-AC3](#) [FC-12M 32.7680KA-X3](#) [SSPT7F-9PF20-R](#) [FX325BS-38.88EEM1201](#) [LFXTAL065253Cutt](#) [LFXTAL066431Cutt](#)  
[XT9S20ANA14M7456](#) [XT9SNLANA16M](#) [646G-24-2](#) [7A-24.576MBBK-T](#) [7B-30.000MBBK-T](#) [WX26-32.768K-6PF](#) [9B-14.31818MBBK-B](#)  
[CD1AM](#) [7B-25.000MAAE-T](#) [7A-14.31818MBBK-T](#) [FC-135R 32.7680KA-E3](#) [6504-202-1501](#) [6526-202-1501](#) [FA-118T 27.1200MB50P-K0](#)  
[ABM12-104-37.400MHZT](#) [ABLS-12.000MHZ-B2Y-T](#) [ABLS-10.000MHZ-D3W-T](#) [BTJ112E01E-513](#) [BTJ722K01C-7067](#) [BTL-20-513](#)  
[TSX-3225 24.0000MF15X-AC](#) [TSX-3225 16.0000MF18X-AC](#) [BTJ120E02C](#) [BTL-12-513](#) [7A-10.000MBBK-T](#) [7A-11.0592MBBK-T](#)  
[ABM12-103-24.000MHZT](#) [CS325S25000000ABJT](#) [ABM3B-25.000MHZ-B2-X-T](#) [FC-135 32.7680KA-A5](#) [FX0800015](#)