



A Product Line of
Diodes Incorporated



SPECIFICATION FOR APPROVAL

CUSTOMER	_____
NOMINAL FREQUENCY	12.000000 MHz
PRODUCT TYPE	TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL
SPEC. NO. (P/N)	FL1200074
CUSTOMER P/N	_____
ISSUE DATE	October 2, 2017
VERSION	F

APPROVED	PREPARED	QA

Diodes Incorporation

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
<http://www.diodes.com>

- *Pb-free
- *RoHS Compliant
- *HF-Halogen Free
- *REACH Compliant

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FL1200074

VER. F 2-Oct-17

ELECTRICAL SPECIFICATIONS

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	12.000000	MHz	
Mode of Oscillation	MO	AT Cut-Fundamental		
Calibration Load Capacitance	CL	20	pF	
Calibration Tolerance	FL	±20	ppm	at 25°C±3°C
Operating Temperature Range	TR	-40 to +85	°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	
Equivalent Series Resistance	ESR	100	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

※ 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).

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VER. F 2-Oct-17

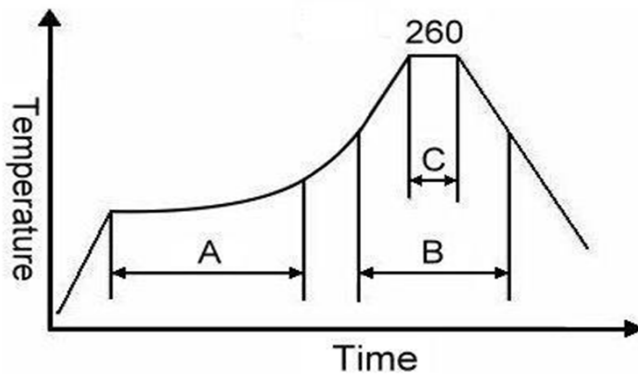
RELIABILITY SPECIFICATIONS

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:

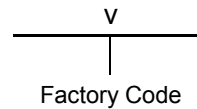
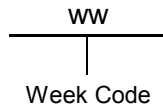
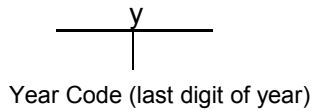
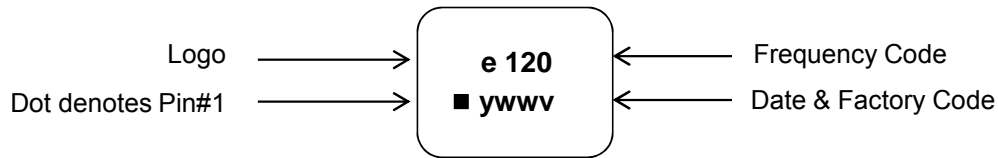
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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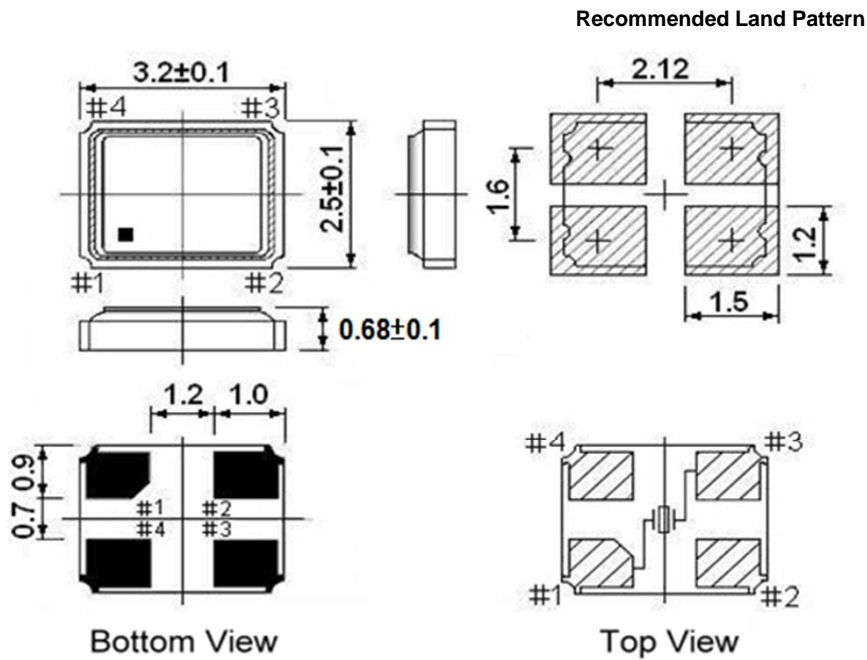
FL1200074

VER. F 2-Oct-17

MARKING



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



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

Notes:

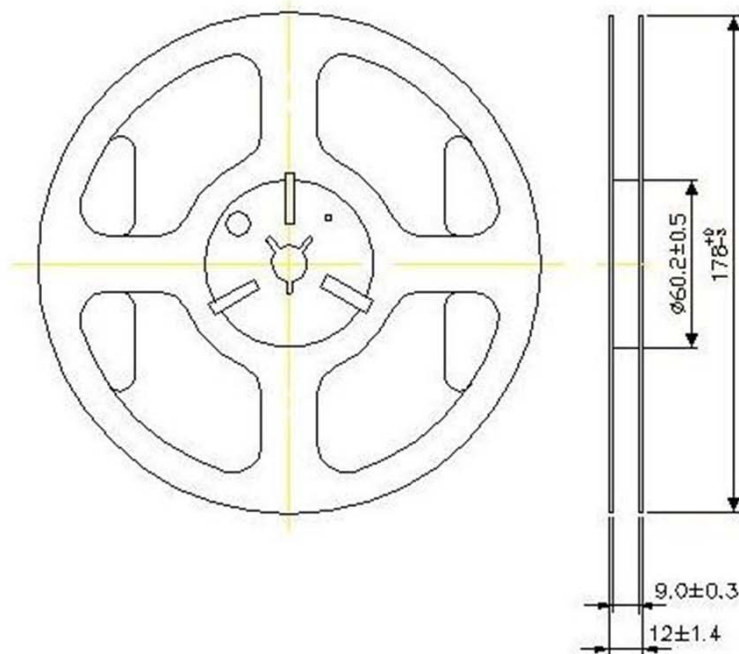
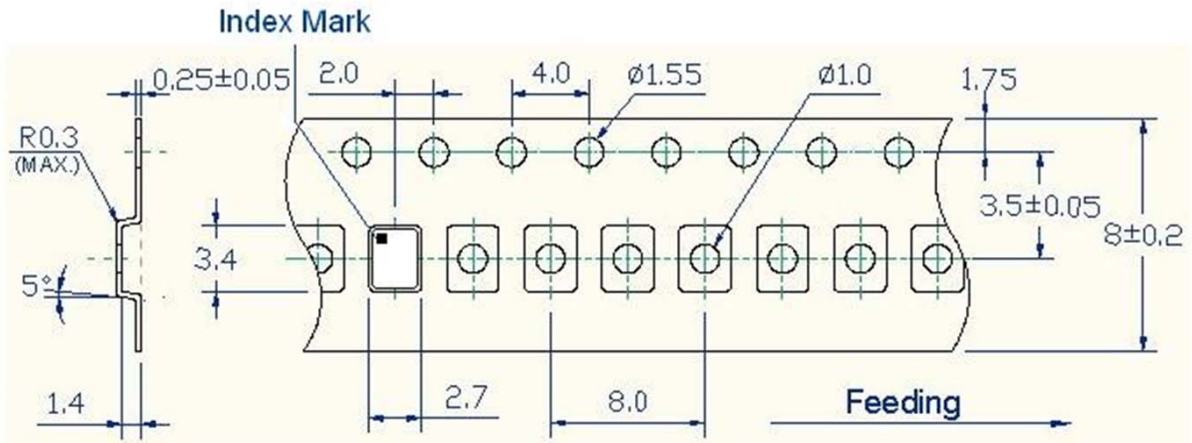
1. Package drawings are for reference only, and the appearances of objects may vary.
 Actual packages are based on the real product.
2. The marking dot denotes Pin#1.
3. The position and shape of the chamfer pin may vary and are based on the real product.

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VER. F 2-Oct-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.

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VER. F 2-Oct-17

PACKING

