



A Product Line of  
Diodes Incorporated



# SPECIFICATION FOR APPROVAL

|                   |  |
|-------------------|--|
| CUSTOMER          |  |
| NOMINAL FREQUENCY | <b>27.000000 MHz</b>                       |
| PRODUCT TYPE      | <b>TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL</b> |
| PART NUMBER       | <b>FL2700056Z</b>                          |
| CUSTOMER P/N      |  |
| ISSUE DATE        | <b>September 4, 2018</b>                   |
| VERSION           | <b>B</b>                                   |

| APPROVED   | PREPARED     | QA        |
|------------|--------------|-----------|
| Brenda Kuo | Claire Cheng | Dony Yang |

## Diodes Incorporated

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\*Pb-free

\*RoHS Compliant

\*HF-Halogen Free

\*REACH Compliant

# TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL

**FL2700056Z**

VER.B 04-SEP-18

## VERSION HISTORY

| Version No. | Version Date  | Description     | Notes |
|-------------|---------------|-----------------|-------|
| A           | Jul. 11, 2011 | Initial Release |       |
| B           | Sep. 4, 2018  | Updated logo    |       |

# TYPE FL 3.2x2.5 SEAM SEALED CRYSTAL

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### ELECTRICAL SPECIFICATIONS

| Item  | Symbol | Specifications     | Units | Notes                              |
|---|--------|--------------------|-------|------------------------------------|
| Nominal Frequency   | Fn     | 27.000000          | MHz   |                                    |
| Mode of Oscillation   | MO     | AT Cut-Fundamental |       |                                    |
| Calibration Load Capacitance  | CL     | 18                 | pF    |                                    |
| Calibration Tolerance   | FL     | ± 30               | 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    | ± 30               | ppm   | Reference to the Frequency at 25°C |
| Operating Drive Level   |        | 10                 | μW    |                                    |
| Maximum Drive Level   |        | 100                | μW    |                                    |
| Equivalent Series Resistance  | ESR    | 50                 | Ω     | Max.                               |
| Shunt Capacitance   | C0     | 5                  | 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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## 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:

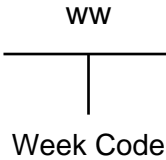
|   | Stage        | Temperature | Time       |
|---|--------------|-------------|------------|
| A | Preheat      | 150~200°C   | 60~120 Sec |
| B | Primary Heat | 217°C       | 60~150 Sec |
| C | Peak         | 260°C       | 10 Sec     |

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## MARKING



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

Recommended Land Pattern



\*\* 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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### 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

