



A Product Line of
Diodes Incorporated



SPECIFICATION FOR APPROVAL

CUSTOMER _____

NOMINAL FREQUENCY _____ 16.000000 MHz _____

PRODUCT TYPE _____ **TYPE F8 8.0x4.5 GLASS SEALED CRYSTAL** _____

SPEC. NO. (P/N) _____ F81600022Q _____

CUSTOMER P/N _____

ISSUE DATE _____ August 14, 2018 _____

VERSION _____ B _____

| APPROVED | PREPARED | QA |
|----------|----------|----|
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Diodes Incorporated

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

TYPE F8 8.0x4.5 GLASS SEALED CRYSTAL

F81600022Q

VER. B 14-Aug-18

VERSION HISTORY

| Version No. | Version Date | Description | Notes |
|-------------|--------------|-----------------|-------|
| A | Sep.21,2016 | Initial Release | |
| B | Aug.14,2018 | Updated logo | |
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ELECTRICAL SPECIFICATIONS

| Item | Symbol | Specifications | Units | Notes |
|--|--------|--------------------|-------|------------------------------------|
| Nominal Frequency | Fn | 16.000000 | 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 | ±30 | ppm | Reference to the Frequency at 25°C |
| Operating Drive Level | | 10 | μW | |
| Maximum Drive Level | | 100 | μW | |
| Equivalent Series Resistance | ESR | 80 | 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 |

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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

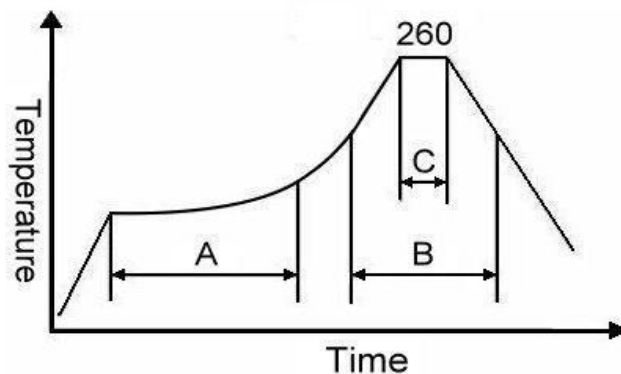
- 2.1 Mechanical Shock: MIL-STD-202 Method 213
- 2.2 Vibration: MIL-STD-202 Method 204
- 2.3 Solderability: J-STD-002
- 2.4 Board Flex: AEC Q200-005
- 2.5 Terminal Strength (SMD): AEC Q200-006

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:

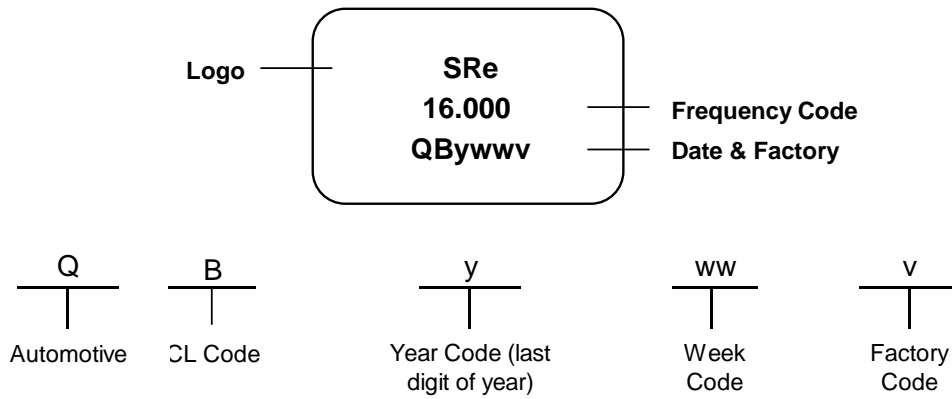
| | Stage | Temperature | Time |
|---|--------------|-------------|------------|
| A | Preheat | 150~200°C | 60~120 Sec |
| B | Primary Heat | 217°C | 60~150 Sec |
| C | Peak | 260°C | 10 Sec |

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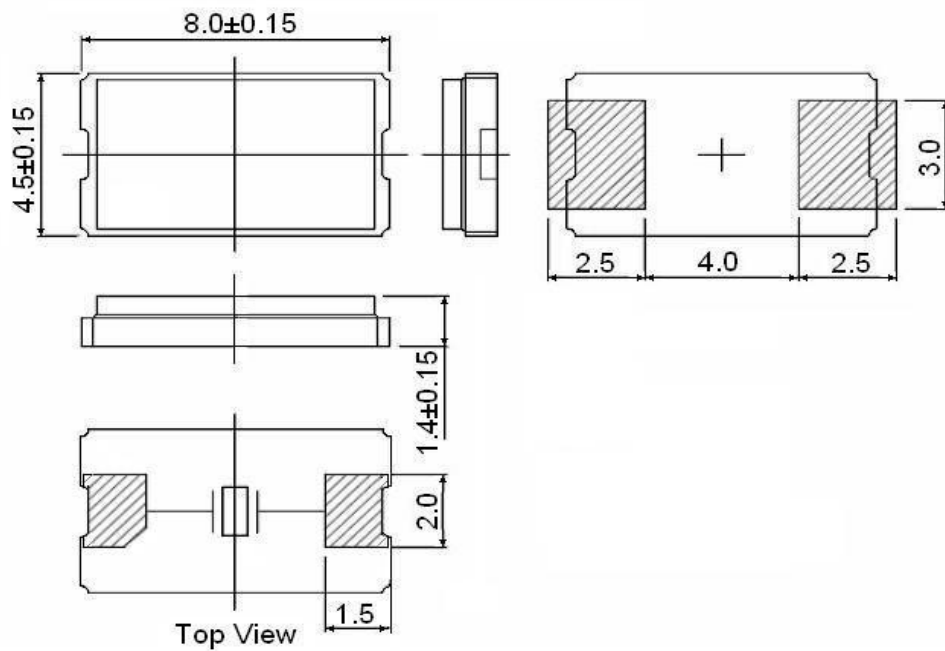
F81600022Q

VER. B 14-Aug-18

MARKING



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

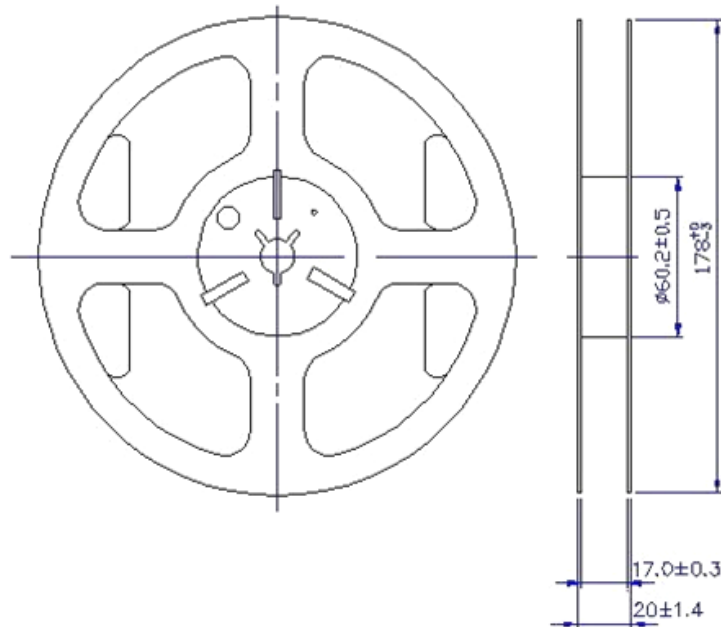
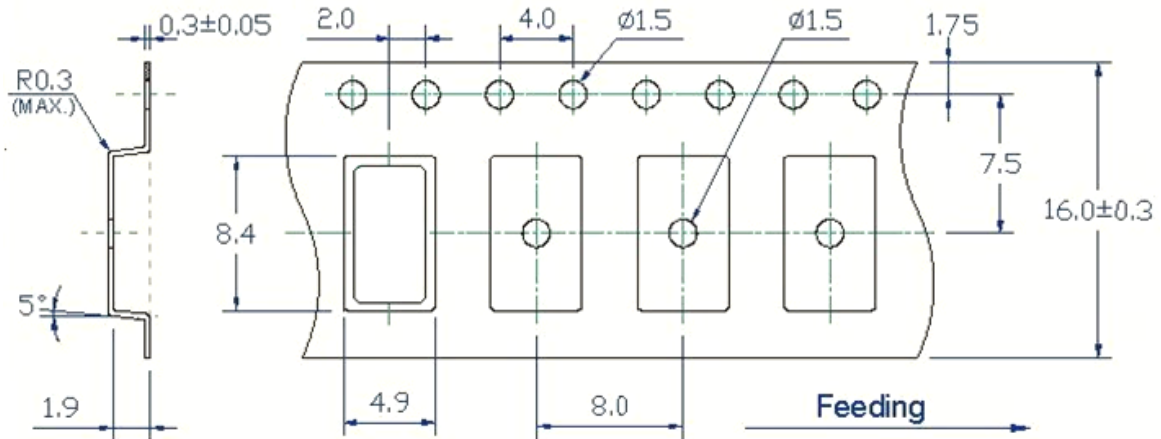


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Tape & Reel



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

