

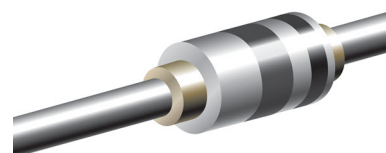
## Description

The MCC5622 high-voltage ultrafast silicon rectifier is ideal for high reliability applications. These rectifiers are hermetically sealed with voidless-glass construction using an internal “Category I” metallurgical bond. Four levels of MIL-PRF-19500 equivalent product assurance are provided for each encapsulated device (JAN, JANTX, JANTXV and JANS) as specified in MIL-PRF-19500 testing specification. Microchip also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time speed requirements including fast and ultrafast device types in both through-hole and surface mount packages.

## Features

- Void-less hermetically sealed glass package
- Triple-layer passivation
- Internal “Category I” metallurgical bonds
- Absolute high voltage/high temperature stability
- Extremely robust construction
- High voltage ultrafast silicon rectifier
- Inherently radiation hard as described in Microchip [MicroNote 500](#)

**Figure 1. 4 Die Stack Package**



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## 1. Maximum Ratings

**Table 1-1.** Maximum Ratings @  $T_A=25\text{ }^{\circ}\text{C}$  unless otherwise specified

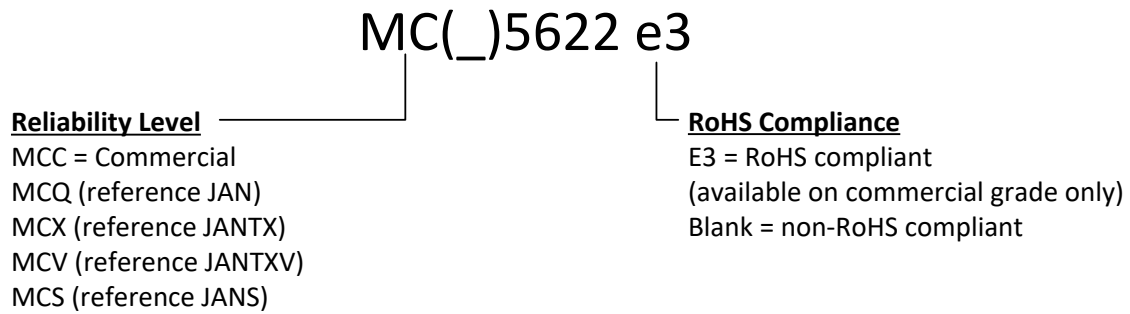
| Parameters/Test Conditions                                                         | Symbol          | Value       | Unit                        |
|------------------------------------------------------------------------------------|-----------------|-------------|-----------------------------|
| Junction Temperature<br>MCC5622                                                    | $T_J$           | -65 to +150 | $^{\circ}\text{C}$          |
| Storage Temperature                                                                | $T_{STG}$       | -65 to +175 | $^{\circ}\text{C}$          |
| Thermal Resistance Junction-<br>to-Lead @ 3/8 inch (10mm)<br>lead length from body | $R_{\theta JL}$ | 38          | $^{\circ}\text{C}/\text{W}$ |
| Working Peak Reverse<br>Voltage: MCC5622                                           | $V_{RWM}$       | 2400        | V                           |
| Solder Temperature @ 10 s                                                          | $T_{SP}$        | 260         | $^{\circ}\text{C}$          |

## 2. Mechanical and Packaging

- CASE: Hermetically sealed void-less hard glass with tungsten slugs.
- TERMINALS: Axial-leads are copper with option of tin/lead (Sn/Pb) finish. RoHs compliant matte-tin is available for commercial grade only.
- MARKING: Body painted and part number, etc.
- POLARITY: Cathode indicated by band.
- TAPE AND REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: 400 milligrams (approx.)
- See Package Dimensions on last page.

### 3. Part Nomenclature

Figure 3-1. Part Nomenclature



## 4. Symbols and Definitions

**Table 4-1.** Symbols and Definitions

| Symbol     | Definition                                                                                                                                                                                                                                                                         |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $I_O$      | Average Rectified Forward Current: The output current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.                                                                                                                          |
| $I_R$      | Maximum Leakage Current: The maximum leakage current that flows at the specified voltage and temperature.                                                                                                                                                                          |
| $V_{(BR)}$ | Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specific current.                                                                                                                                                                                      |
| $V_F$      | Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specific current.                                                                                                                                                                                |
| $V_R$      | Reverse Voltage: The reverse voltage dc value, no alternating component.                                                                                                                                                                                                           |
| $V_{RWM}$  | Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range.                                                                                                                                                                   |
| $t_{rr}$   | Reverse recovery time: The time interval between the instant when the current passes through zero when changing from the forward direction to the reverse direction and after reverse current reaches its peak value $I_{RM(REC)}$ (see JEDEC document "JESD88" for more details). |

## 5. Electrical Characteristics

**Table 5-1.** Electrical Characteristics

| Microchip<br>Part<br>Number | Working<br>Peak<br>Reverse<br>Voltage<br>$V_{RWM}$ | Average Rectified Current<br>$I_O$ @ $T_L$ = (Note 2) |        | Maximum<br>Forward<br>Voltage $V_F$<br>@ 100 mA | Maximum<br>Reverse<br>Current $I_R$ @<br>$V_{RWM}$ | Maximum<br>Reverse<br>Current $I_R$ @<br>$V_{RWM}$ | Maximum<br>Forward<br>Surge $I_{FS}$ @<br>8.3 ms | Maximum<br>Reverse<br>Recovery<br>Time $t_{rr}$ |
|-----------------------------|----------------------------------------------------|-------------------------------------------------------|--------|-------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------|-------------------------------------------------|
|                             |                                                    | 55 °C                                                 | 100 °C |                                                 | 25 °C                                              | 100 °C                                             |                                                  |                                                 |
|                             | Volts                                              | mA                                                    | mA     | Volts                                           | µA                                                 | µA                                                 | Amps                                             | ns                                              |
| MC_5622                     | 2400                                               | 790                                                   | 415    | 4                                               | 1                                                  | 20                                                 | 6                                                | 30                                              |

## 6. Package Dimensions

Figure 6-1. Package Dimensions

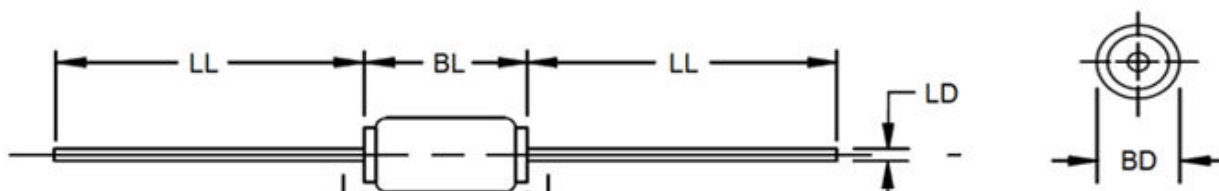


Table 6-1. Dimensions<sup>1,2,3,4</sup>

| Ltr | Dimensions (Nominal) |       |             |       | Notes |
|-----|----------------------|-------|-------------|-------|-------|
|     | Inch                 |       | Millimeters |       |       |
|     | Min                  | Max   | Min         | Max   |       |
| BD  | 0.065                | 0.115 | 1.651       | 2.921 | 3     |
| BL  | 0.165                | 0.230 | 4.191       | 5.842 | 3     |
| LD  | 0.020                | 0.035 | 0.508       | 0.889 | —     |
| LL  | 1.00                 | 1.35  | 25.4        | 34.29 | —     |

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Package contour optional with BD and length BL. Heat slugs, if any shall be included within this cylinder length, but shall not be subject to minimum limit of BD.
4. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi$ x symbology.



## 7. Revision History

| Revision | Date    | Description     |
|----------|---------|-----------------|
| A        | 02/2024 | Initial Version |

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PIS\_TABLE - Variable missing PIS\_EXAMPLE - Variable missing PIS\_NOTES - Variable missing

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