

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MBR2150

General Description

The MBR2150 is a high voltage dual Schottky rectifier suited for switch mode power supplies and other power converters. This device is intended for use in medium voltage operation, and particularly, in high frequency circuits where low switching losses and low noise are required.

The MBR2150 is available in standard DO-214AC and DO-15 packages.

Features

- Low Forward Voltage: 0.67V at 125°C
- High Surge Capacity
- Operating Junction Temperature: 150°C
- Guard-ring for Stress Protection
- Lead Free Packages Available

Main Product Characteristics

| | |
|---------------------------------------|-------|
| $I_{F(AV)}$ | 2A |
| V_{RRM} | 150V |
| $T_J(MAX)$ | 150°C |
| $V_F(MAX)$ ($I_F=2A, T_C=125°C$) | 0.67V |

Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94V-0 @ 0.125in
- Weight (Approximately): 1.9Grams
- Finish: All External Surfaces Corrosion Resistant and Terminal
- Leads are Readily Solderable
- Lead Temperature for Soldering Purpose: 260°C Maximum for 10 Seconds

Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation



Figure 1. Package Types of MBR2150

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Pin Configuration

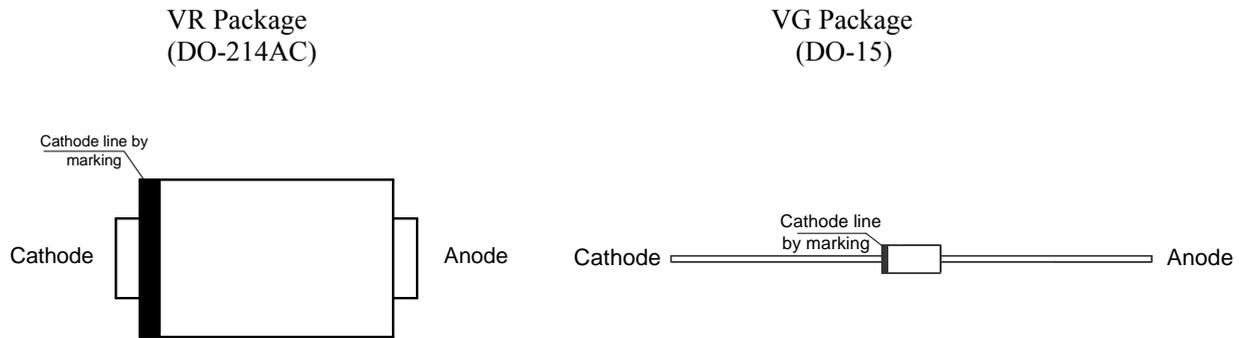
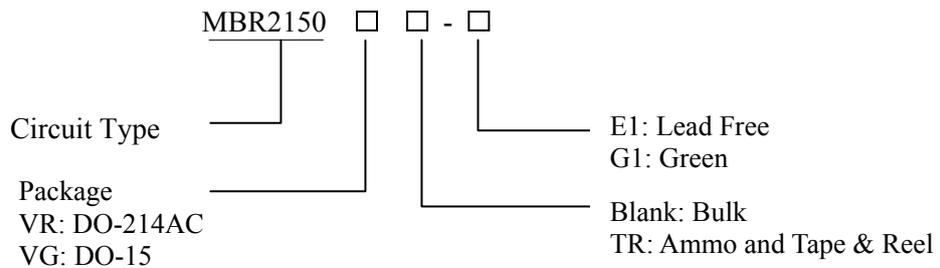


Figure 2. Pin Configuration of MBR2150 (Top View)

Ordering Information



| Package | Part Number | | Marking ID | | Packing Type |
|----------|----------------|----------------|------------|--------|--------------|
| | Lead Free | Green | Lead Free | Green | |
| DO-214AC | MBR2150VRTR-E1 | MBR2150VRTR-G1 | 2150VE | 2150VR | Tape & Reel |
| DO-15 | MBR2150VG-E1 | MBR2150VG-G1 | 2150VG | 2150GG | Bulk |
| | MBR2150VGTR-E1 | MBR2150VGTR-G1 | 2150VG | 2150GG | Ammo |

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

**HIGH VOLTAGE POWER SCHOTTKY RECTIFIER****MBR2150****Absolute Maximum Ratings (Note 1)**

| Parameter | Symbol | Value | Unit |
|--|-------------|------------|------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 150 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| Average Rectified Forward Current (Rated V_R , $T_C=TBD$) | $I_{F(AV)}$ | 2 | A |
| Non Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half Wave, Single Phase, 60Hz) | I_{FSM} | 75 | A |
| Operating Junction Temperature Range (Note 2) | T_J | -65 to 150 | °C |
| Storage Temperature Range | T_{STG} | -65 to 150 | °C |
| Voltage Rate of Change (Rated V_R) | dv/dt | 10000 | V/ μ s |
| ESD (Machine Model=C) | | 400 | V |
| ESD (Human Body Model=3B) | | 8000 | V |

Note 1: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

Note 2: The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/\theta_{JA}$.

Recommended Operating Conditions

| Parameter | Symbol | Condition | Value | Unit | |
|----------------------------|---------------|---------------------|----------|------|------|
| Maximum Thermal Resistance | θ_{JL} | Junction to Lead | DO-214AC | 23 | °C/W |
| | | | DO-15 | | |
| | θ_{JA} | Junction to Ambient | DO-214AC | 90 | |
| | | | DO-15 | 80 | |

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MBR2150

Electrical Characteristics

| Parameter | Symbol | Conditions | Value | Unit |
|---|-------------------|---|-------|------|
| Maximum Instantaneous Forward Voltage Drop (Note 3) | $V_F(\text{MAX})$ | $I_F=2\text{A}, T_C=25^\circ\text{C}$ | 0.85 | V |
| | | $I_F=2\text{A}, T_C=125^\circ\text{C}$ | 0.67 | |
| Maximum Instantaneous Reverse Current (Note 3) | $I_R(\text{MAX})$ | Rated DC Voltage, $T_C=25^\circ\text{C}$ | 0.1 | mA |
| | | Rated DC Voltage, $T_C=125^\circ\text{C}$ | 2.0 | |

Note 3: Pulse Test: Pulse Width=300 μs , Duty Cycle \leq 2.0%.

Typical Performance Characteristics

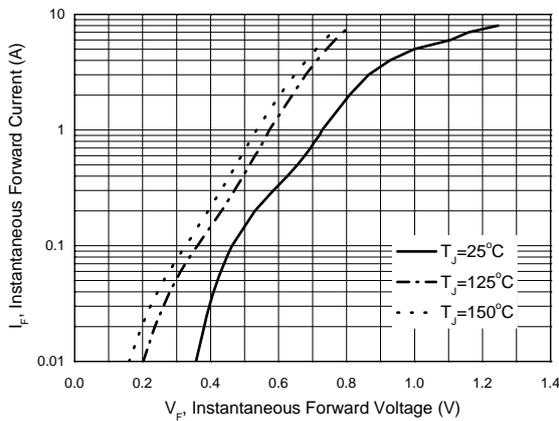


Figure 4. Typical Forward Characteristics

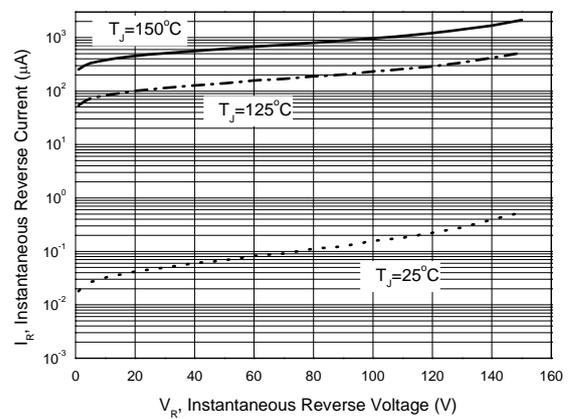
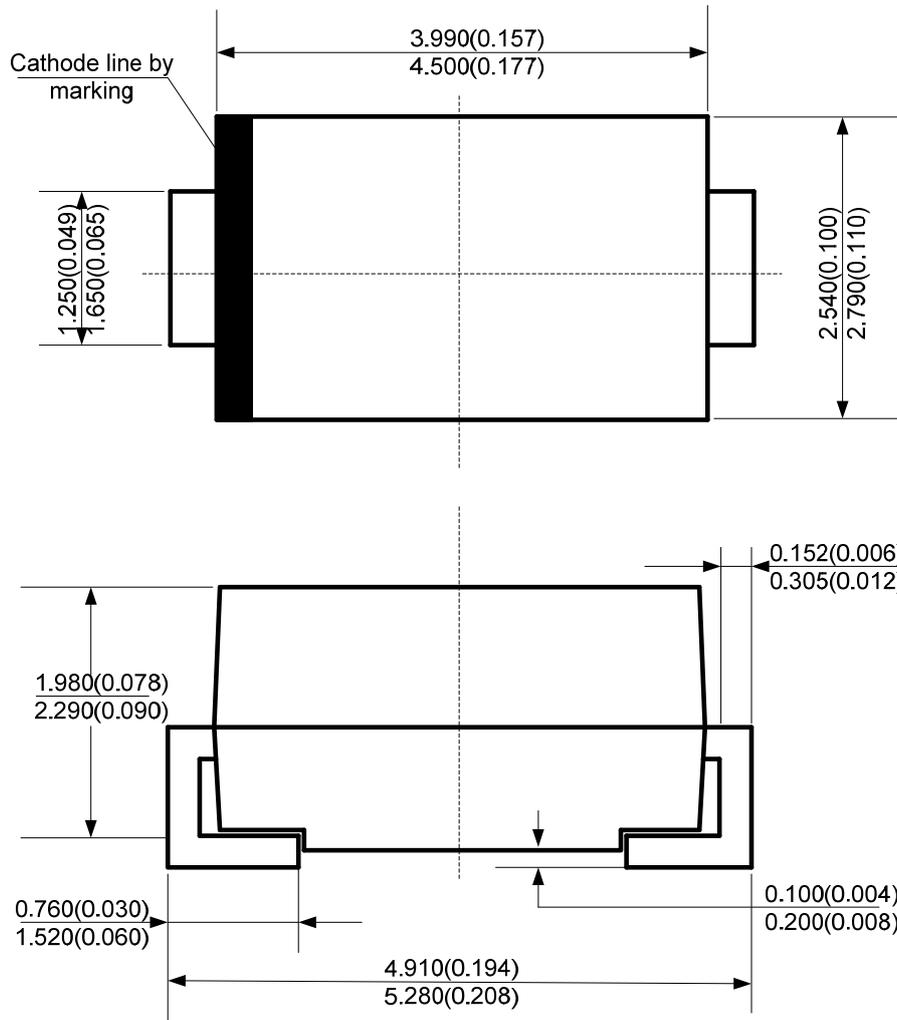


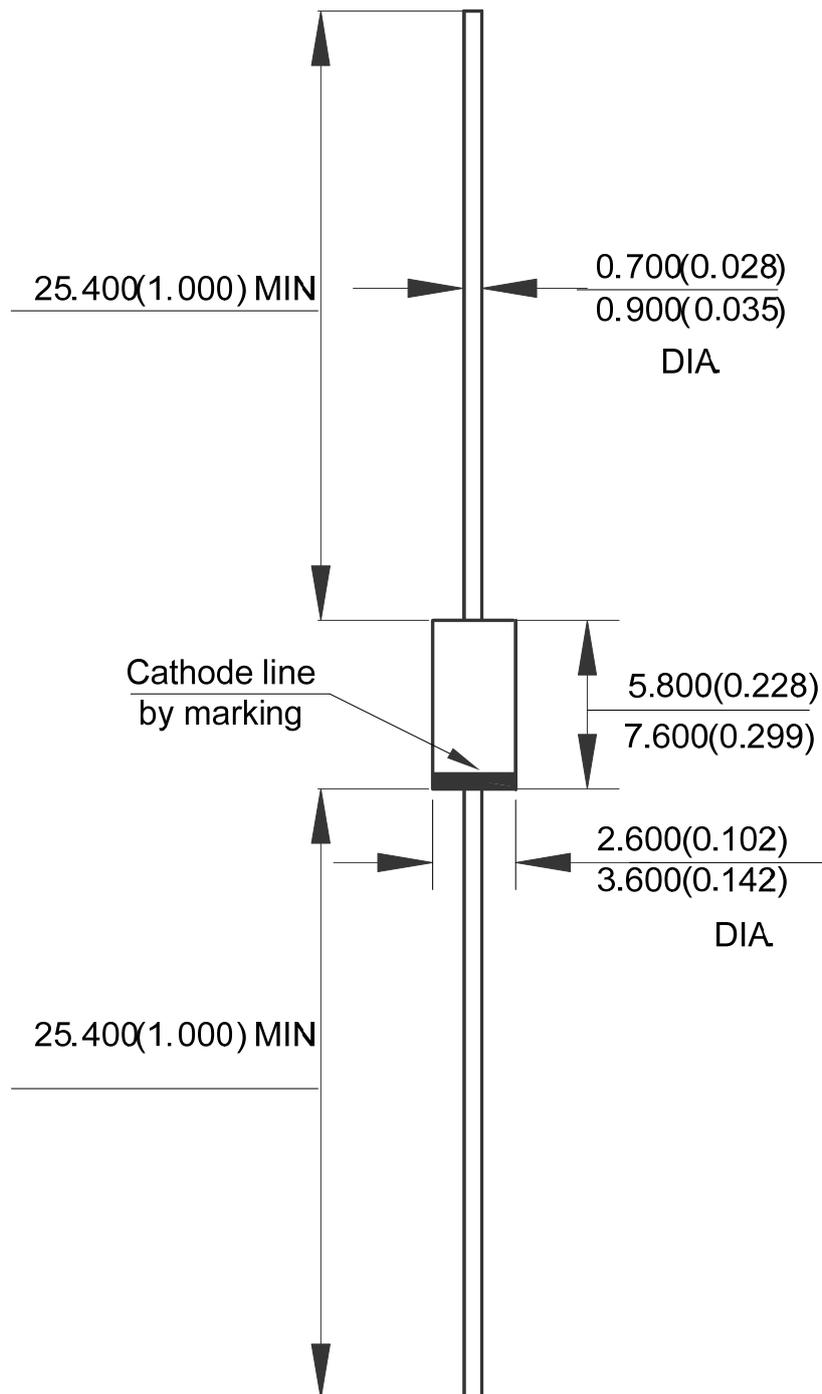
Figure 5. Typical Reverse Characteristics

Mechanical Dimensions

DO-214AC

Unit: mm(inch)



Mechanical Dimensions (Continued)**DO-15****Unit: mm(inch)**



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