

## Product Summary

MBRB20150CT (Per Leg)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ (MAX) (V)<br>@ +25°C | $I_R$ (MAX) (mA)<br>@ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 150           | 10        | 0.90                       | 0.05                        |

## Description and Applications

This Schottky Barrier Rectifier is designed to meet the general requirements of commercial applications. It is ideally suited for use as:

- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode



TO263AB(D2PAK)

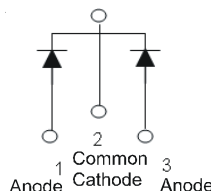
Top View

## Features and Benefits

- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: TO263AB (D2PAK)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Polarity: See Below
- Weight: TO263AB(D2PAK) – 1.6 grams (Approximate)



Package Pin Out

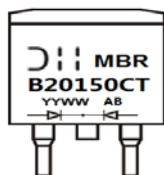
Configuration

## Ordering Information (Note 4)

| Part Number    | Case            | Packaging       |
|----------------|-----------------|-----------------|
| MBRB20150CT    | TO263AB (D2PAK) | 50 pieces/tube  |
| MBRB20150CT-13 | TO263AB (D2PAK) | 800 pieces/Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



MBRB20150CT = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 14 = 2014)  
 WW = Week (01 - 53)

**Maximum Ratings (Per Leg)** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
 For capacitance load, derate current by 20%.

| Characteristic                                                                                      | Symbol                             | Value    | Unit |
|-----------------------------------------------------------------------------------------------------|------------------------------------|----------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage              | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 150      | V    |
| Average Rectified Output Current (Per Leg)<br>(Total)                                               | $I_O$                              | 10<br>20 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$                          | 170      | A    |

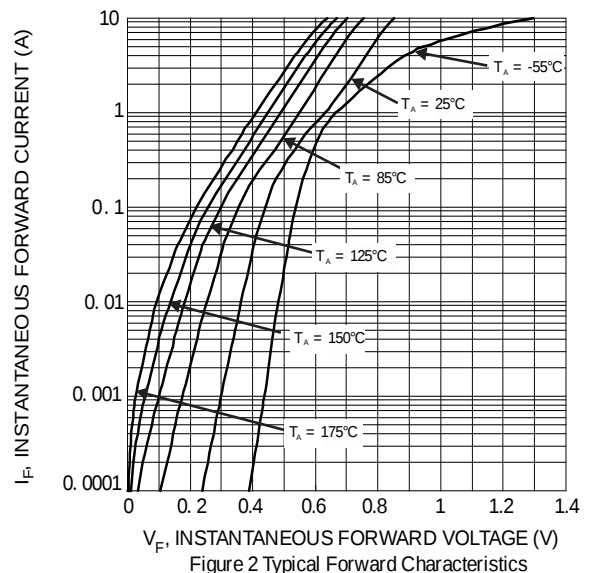
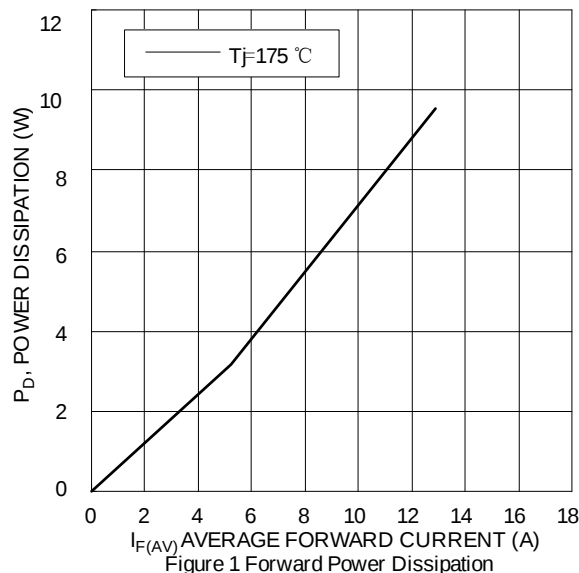
**Thermal Characteristics (Per Leg)**

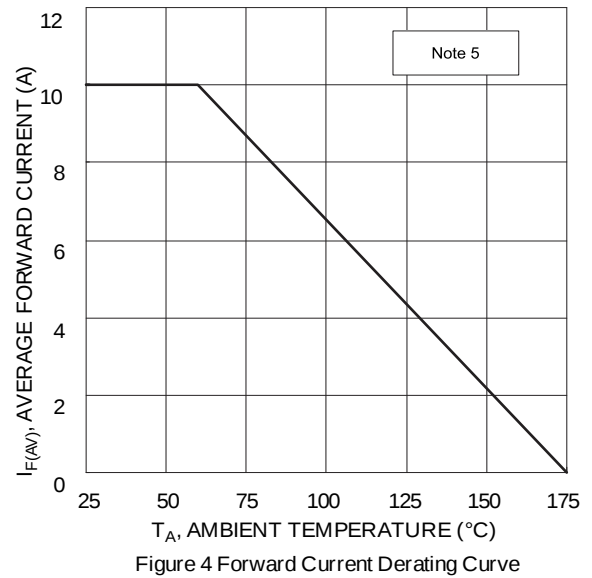
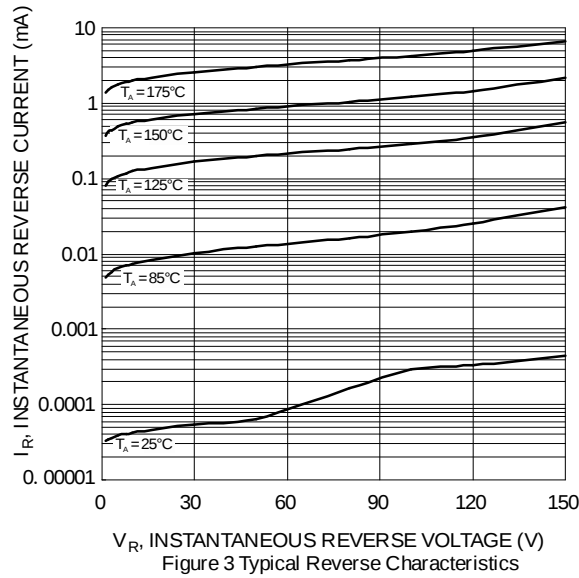
| Characteristic                                           | Symbol          | Value       | Unit               |
|----------------------------------------------------------|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Case (Note 5)    | $R_{\theta JC}$ | 5           | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 20          | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                  | $T_J, T_{STG}$  | -55 to +175 | $^\circ\text{C}$   |

**Electrical Characteristics (Per Leg)** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic           | Symbol | Min | Typ  | Max          | Unit | Test Condition                                                                                |
|--------------------------|--------|-----|------|--------------|------|-----------------------------------------------------------------------------------------------|
| Forward Voltage Drop     | $V_F$  | —   | 0.86 | 0.90<br>0.75 | V    | $I_F = 10\text{A}, T_J = +25^\circ\text{C}$<br>$I_F = 10\text{A}, T_J = +125^\circ\text{C}$   |
| Leakage Current (Note 6) | $I_R$  | —   | —    | 0.05<br>10   | mA   | $V_R = 150\text{V}, T_J = +25^\circ\text{C}$<br>$V_R = 150\text{V}, T_J = +125^\circ\text{C}$ |

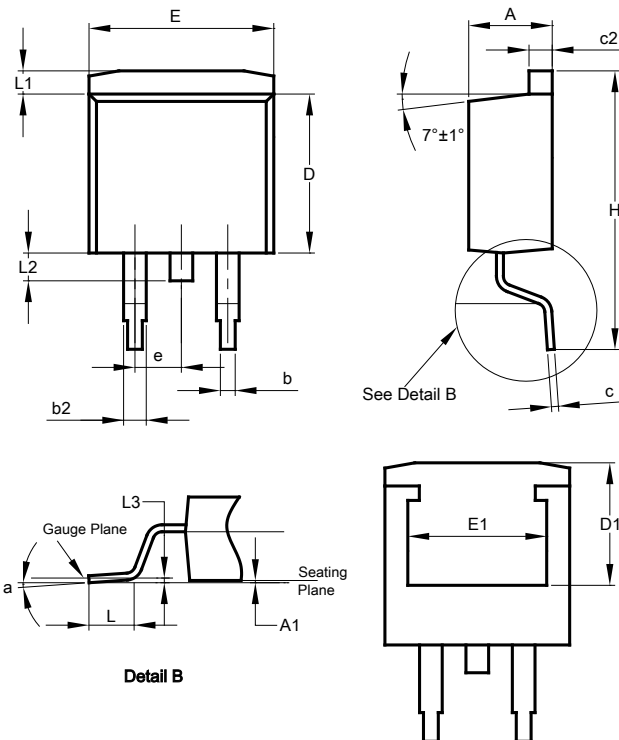
Notes: 5. Test with 2inch Al board.  
 6. Short duration pulse test used to minimize self-heating effect.





## Package Outline Dimensions

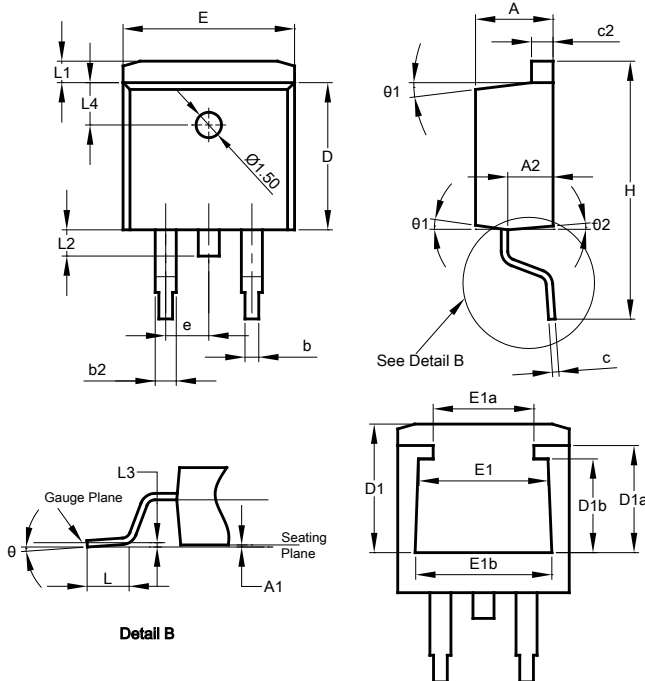
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



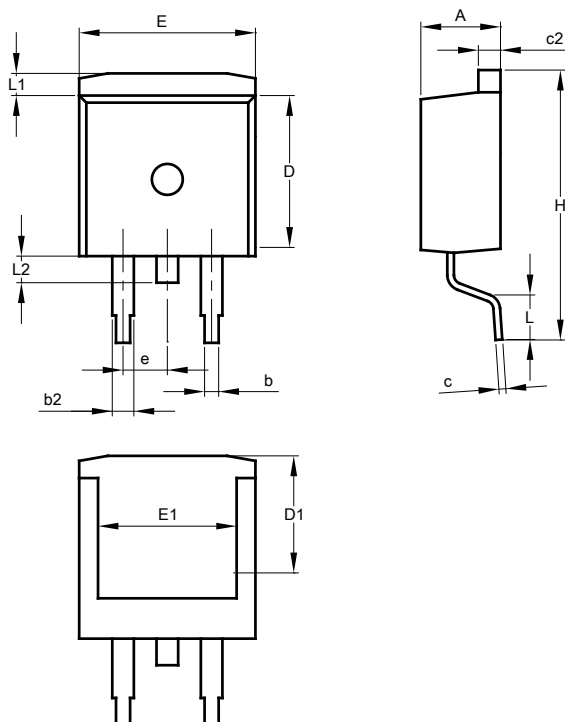
| TO263AB (D2PAK)      |          |       |     |
|----------------------|----------|-------|-----|
| Dim                  | Min      | Max   | Typ |
| A                    | 4.07     | 4.82  | -   |
| A1                   | 0.00     | 0.25  | -   |
| b                    | 0.51     | 0.99  | -   |
| b2                   | 1.15     | 1.77  | -   |
| c                    | 0.356    | 0.73  | -   |
| c2                   | 1.143    | 1.65  | -   |
| D                    | 8.39     | 9.65  | -   |
| D1                   | 6.55     | -     | -   |
| e                    | 2.54 TYP |       |     |
| E                    | 9.66     | 10.66 | -   |
| E1                   | 6.23     | -     | -   |
| H                    | 14.61    | 15.87 | -   |
| L                    | 1.78     | 2.79  | -   |
| L1                   | -        | 1.67  | -   |
| L2                   | -        | 1.77  | -   |
| a                    | 0°       | 8°    | -   |
| All Dimensions in mm |          |       |     |

## Package Outline Dimensions (cont.)

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



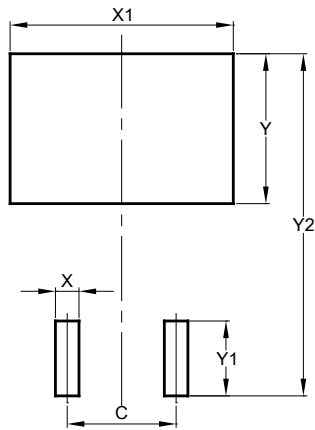
| TO263AB (D2PAK)<br>(Type B) |          |       |       |
|-----------------------------|----------|-------|-------|
| Dim                         | Min      | Max   | Typ   |
| A                           | 4.40     | 4.70  | 4.57  |
| A1                          | 0.00     | 0.20  | 0.10  |
| A2                          | 2.59     | 2.79  | 2.69  |
| b                           | 0.77     | 0.90  | 0.813 |
| b2                          | 1.20     | 1.36  | 1.27  |
| c                           | 0.356    | 0.47  | 0.381 |
| c2                          | 1.22     | 1.32  | 1.27  |
| D                           | 8.60     | 8.80  | 8.70  |
| D1                          | 6.60     | 7.80  | 7.60  |
| D1a                         | 5.33     | 6.53  | 6.33  |
| D1b                         | 4.54     | 5.74  | 5.54  |
| e                           | 2.54 BSC |       |       |
| E                           | 10.00    | 10.20 | 10.10 |
| E1                          | 6.67     | 7.87  | 7.67  |
| E1a                         | 4.94     | 6.14  | 5.94  |
| E1b                         | 7.06     | 8.26  | 8.06  |
| H                           | 14.70    | 15.50 | 15.10 |
| L                           | 2.00     | 2.60  | 2.30  |
| L1                          | 1.17     | 1.40  | 1.27  |
| L2                          | 1.45     | 1.70  | 1.55  |
| L3                          | 0.25 BSC |       |       |
| L4                          | 2.50 REF |       |       |
| θ                           | 0°       | 8°    | 5°    |
| θ1                          | 5°       | 9°    | 7°    |
| θ2                          | 1°       | 5°    | 3°    |
| All Dimensions in mm        |          |       |       |



| TO263AB (D2PAK)<br>Type C |       |       |     |
|---------------------------|-------|-------|-----|
| Dim                       | Min   | Max   | Typ |
| A                         | 4.30  | 4.70  | -   |
| b                         | 0.70  | 0.90  | -   |
| b2                        | 1.15  | 1.35  | -   |
| c                         | 0.40  | 0.60  | -   |
| c2                        | 1.20  | 1.40  | -   |
| D                         | 9.00  | 9.40  | -   |
| D1                        | 7.96  | 8.36  | -   |
| E                         | 9.80  | 10.20 | -   |
| E1                        | 7.85  | 8.05  | -   |
| e                         | 2.34  | 2.74  | -   |
| H                         | 15.00 | 15.87 | -   |
| L                         | 2.24  | 2.84  | -   |
| L1                        | 1.00  | 1.40  | -   |
| L2                        | 1.20  | 1.60  | -   |
| All Dimensions in mm      |       |       |     |

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| C          | 5.08             |
| X          | 1.10             |
| X1         | 10.41            |
| Y          | 3.50             |
| Y1         | 7.01             |
| Y2         | 15.99            |

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