

## Product Summary

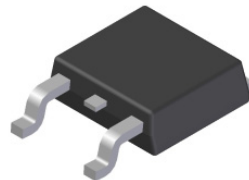
MBRD10150CT (Per Leg)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ (MAX) (V)<br>@ +25°C | $I_R$ (MAX) (mA)<br>@ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 150           | 5         | 0.89                       | 0.05                        |

## Description and Applications

This Schottky Barrier Rectifier has been designed to meet the stringent requirements of commercial applications.

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



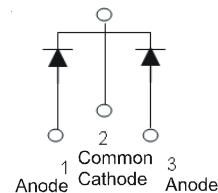
**TO252 (DPAK)  
Top View**

## 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)**

## Mechanical Data

- Case: TO252 (DPAK)
- 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 208②
- Polarity: See Below
- Weight: TO252 (DPAK) – 0.317 grams (Approximate)



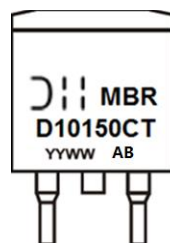
**Package Pin Out  
Configuration**

## Ordering Information (Note 4)

| Part Number    | Case         | Packaging        |
|----------------|--------------|------------------|
| MBRD10150CT-13 | TO252 (DPAK) | 2500 pieces/tube |

- 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



MBRD10150CT = 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)                                               | $I_O$                              | 5<br>10 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$                          | 100     | A    |

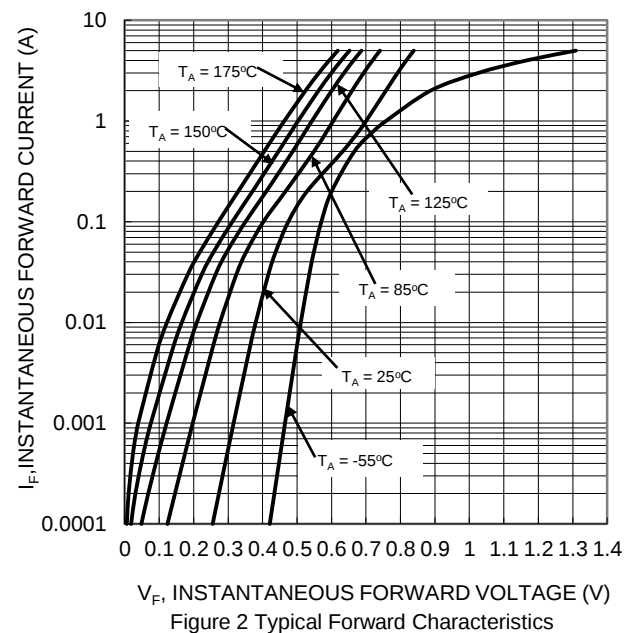
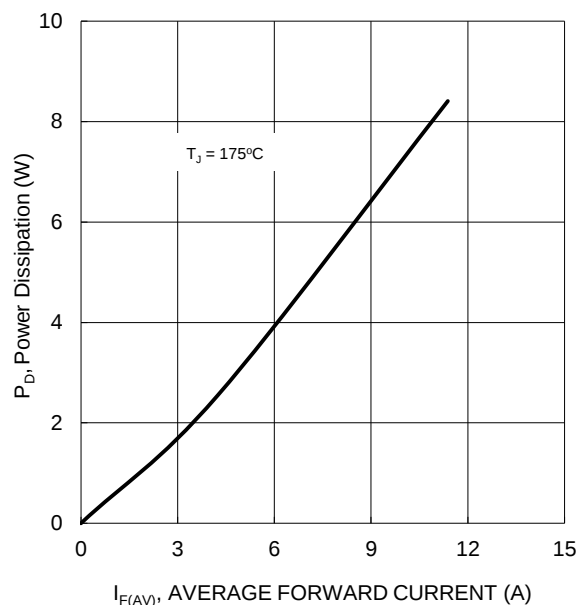
**Thermal Characteristics (Per Leg)**

| Characteristic                                           | Symbol          | Value       | Unit               |
|----------------------------------------------------------|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Case (Note 5)    | $R_{\theta JC}$ | 6           | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 22          | $^\circ\text{C/W}$ |
| 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     | $V_F$  | —   | 0.83 | 0.89<br>0.81 | V    | $I_F = 5\text{A}, T_J = +25^\circ\text{C}$<br>$I_F = 5\text{A}, T_J = +125^\circ\text{C}$     |
| 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.



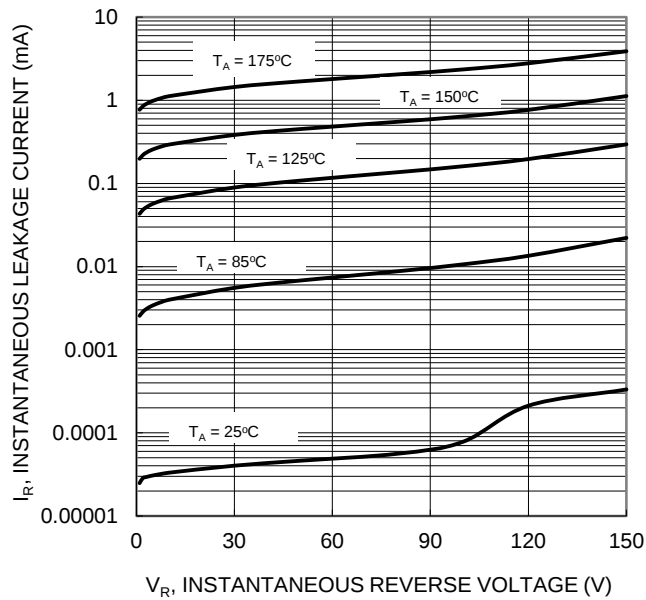


Figure 3 Typical Reverse Characteristics

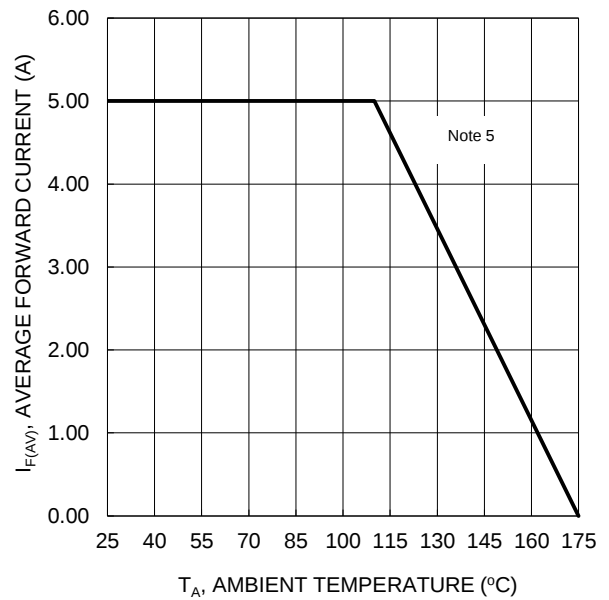
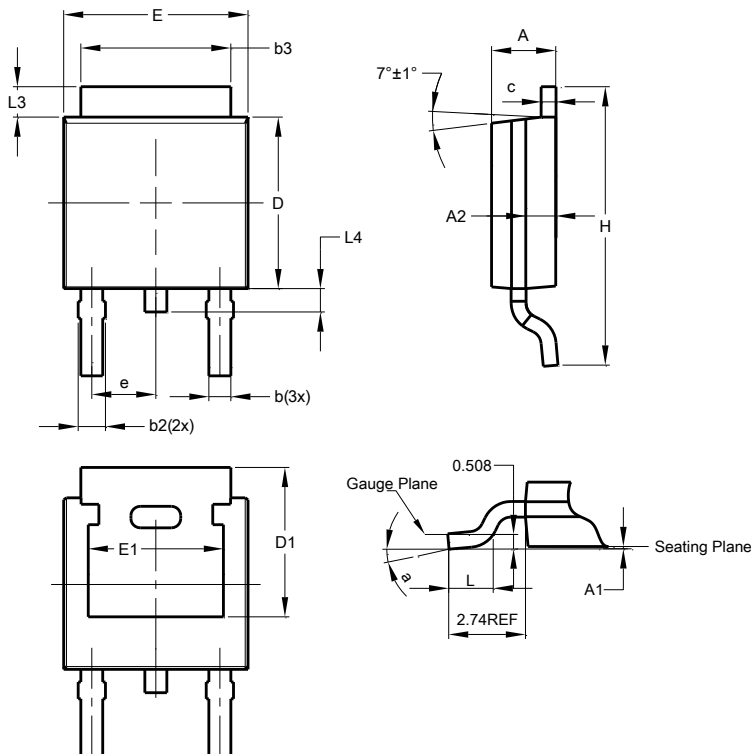


Figure 4 Forward Current Derating Curve

## Package Outline Dimensions

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

### (1) Package Type: TO252 (DPAK)

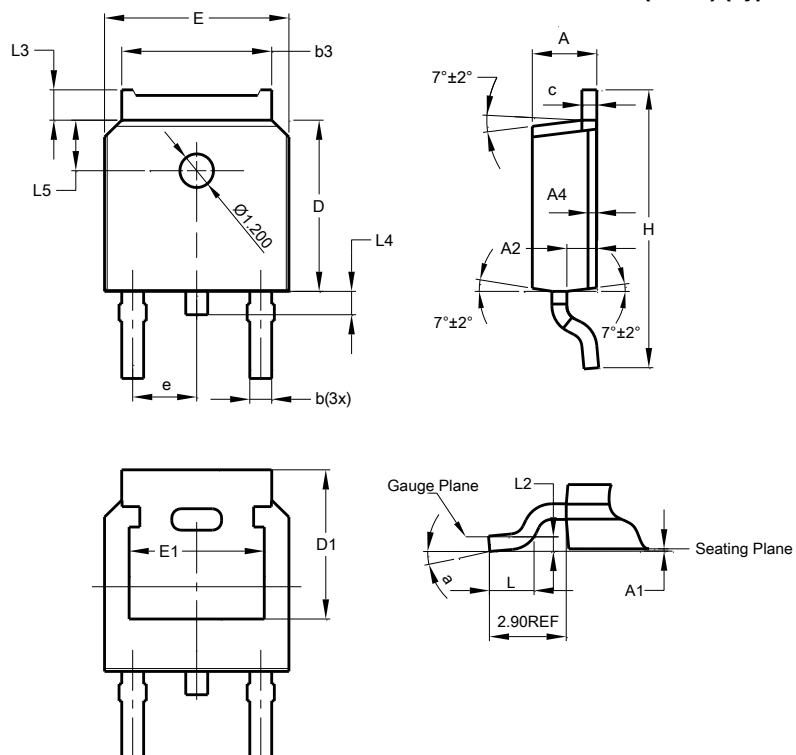


| TO252 (DPAK)         |      |       |       |
|----------------------|------|-------|-------|
| Dim                  | Min  | Max   | Typ   |
| A                    | 2.19 | 2.39  | 2.29  |
| A1                   | 0.00 | 0.13  | 0.08  |
| A2                   | 0.97 | 1.17  | 1.07  |
| b                    | 0.64 | 0.88  | 0.783 |
| b2                   | 0.76 | 1.14  | 0.95  |
| b3                   | 5.21 | 5.46  | 5.33  |
| c                    | 0.45 | 0.58  | 0.531 |
| D                    | 6.00 | 6.20  | 6.10  |
| D1                   | 5.21 | -     | -     |
| e                    | -    | -     | 2.286 |
| E                    | 6.45 | 6.70  | 6.58  |
| E1                   | 4.32 | -     | -     |
| H                    | 9.40 | 10.41 | 9.91  |
| L                    | 1.40 | 1.78  | 1.59  |
| L3                   | 0.88 | 1.27  | 1.08  |
| L4                   | 0.64 | 1.02  | 0.83  |
| a                    | 0°   | 10°   | -     |
| All Dimensions in mm |      |       |       |

## Package Outline Dimensions (Cont.)

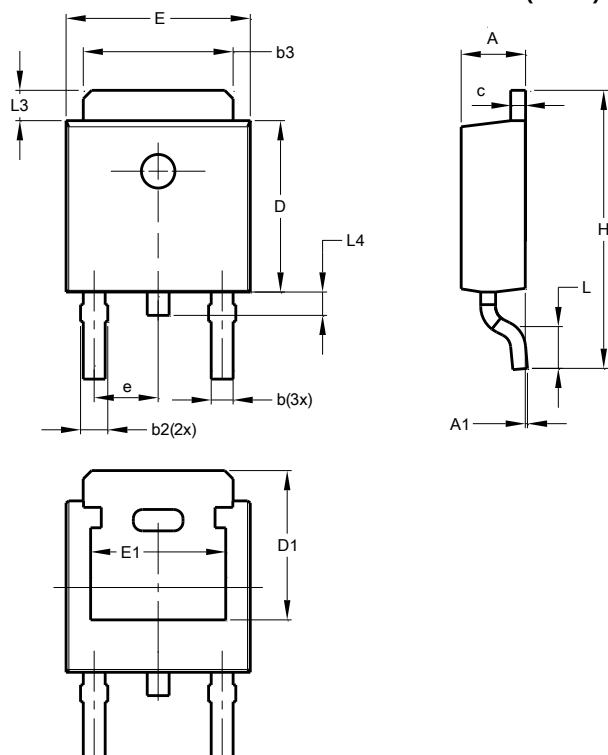
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

**TO252 (DPAK) (Type TH)**



| TO252 (DPAK)<br>(Type TH) |           |       |       |
|---------------------------|-----------|-------|-------|
| Dim                       | Min       | Max   | Typ   |
| A                         | 2.20      | 2.38  | 2.30  |
| A1                        | 0.00      | 0.10  | -     |
| A2                        | 0.97      | 1.17  | 1.07  |
| A4                        | 0.10 REF  |       |       |
| b                         | 0.72      | 0.85  | 0.78  |
| b3                        | 5.23      | 5.45  | 5.33  |
| c                         | 0.47      | 0.58  | 0.53  |
| D                         | 6.00      | 6.20  | 6.10  |
| D1                        | 5.30 REF  |       |       |
| e                         | 2.286 BSC |       |       |
| E                         | 6.50      | 6.70  | 6.60  |
| E1                        | 4.70      | 4.92  | 4.83  |
| H                         | 9.90      | 10.10 | 10.30 |
| L                         | 1.40      | 1.70  | 1.60  |
| L2                        | 0.51 BSC  |       |       |
| L3                        | 0.90      | 1.25  | -     |
| L4                        | 0.60      | 1.00  | 0.80  |
| L5                        | 1.70      | 1.90  | 1.80  |
| a                         | 0°        | 8°    | -     |
| All Dimensions in mm      |           |       |       |

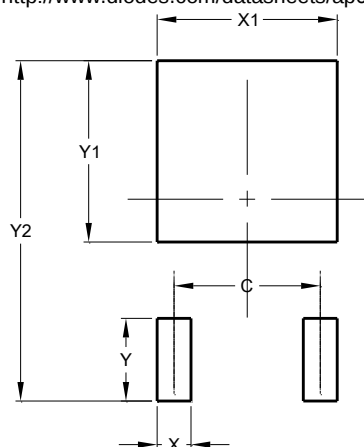
**TO252 (DPAK) (Type BR)**



| TO252 (DPAK)<br>(Type BR) |      |      |     |
|---------------------------|------|------|-----|
| Dim                       | Min  | Max  | Typ |
| A                         | 2.20 | 2.40 | -   |
| A1                        | 0.00 | 0.10 | -   |
| b                         | 0.50 | 0.70 | -   |
| b3                        | 5.20 | 5.40 | -   |
| c                         | 0.45 | 0.55 | -   |
| D                         | 5.95 | 6.25 | -   |
| D1                        | 5.10 | 5.50 | -   |
| E                         | 6.45 | 6.70 | -   |
| E1                        | 4.71 | 4.91 | -   |
| e                         | 2.24 | 2.34 | -   |
| H                         | 9.45 | 9.95 | -   |
| L                         | 1.25 | 1.75 | -   |
| L3                        | 0.95 | 1.25 | -   |
| L4                        | 0.60 | 0.90 | -   |
| All Dimensions in mm      |      |      |     |

## Suggested Pad layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.572         |
| X          | 1.060         |
| X1         | 5.632         |
| Y          | 2.600         |
| Y1         | 5.700         |
| Y2         | 10.700        |

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