

10A SCHOTTKY BARRIER RECTIFIER
Product Summary

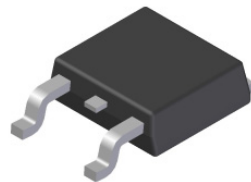
MBRD10100CT (Per Leg)

| V_{RRM} (V) | I_O (A) | V_F (MAX) (V) @ +25°C | I_R (MAX) (mA) @ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 100 | 5 | 0.84 | 0.1 |

Description and Applications

This SCHOTTKY BARRIER RECTIFIER is designed to meet the stringent requirements of commercial applications. It is ideally suited for use as a:

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



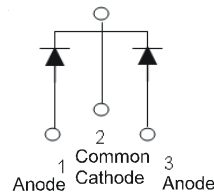
TO252
Bottom View

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 208 e3
- Polarity: See Below
- Weight: TO252– 0.317 grams (Approximate)

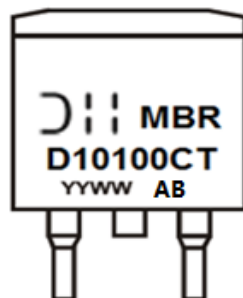


Package Pin Out
Configuration

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|----------------|--------------|------------------|
| MBRD10100CT-13 | TO252 (DPAK) | 2500 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 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


MBRD10100CT = 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 | V_{RRM} | 100 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_{RM} | | |
| Average Rectified Output Current (Per Leg) (Total) | I_O | 5 10 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 110 | A |

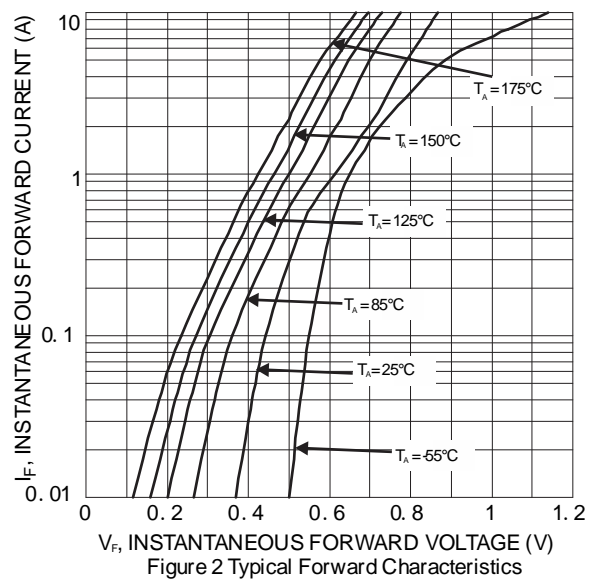
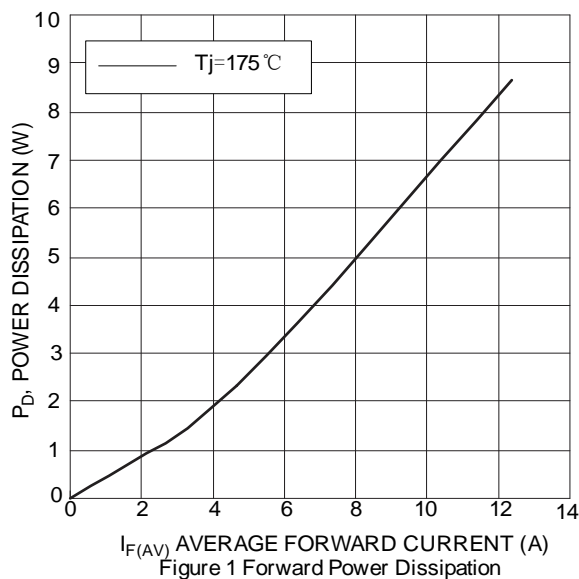
Thermal Characteristics (Per Leg)

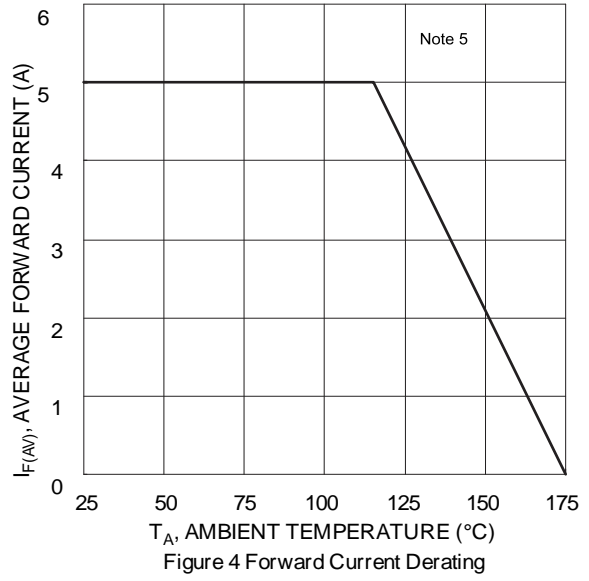
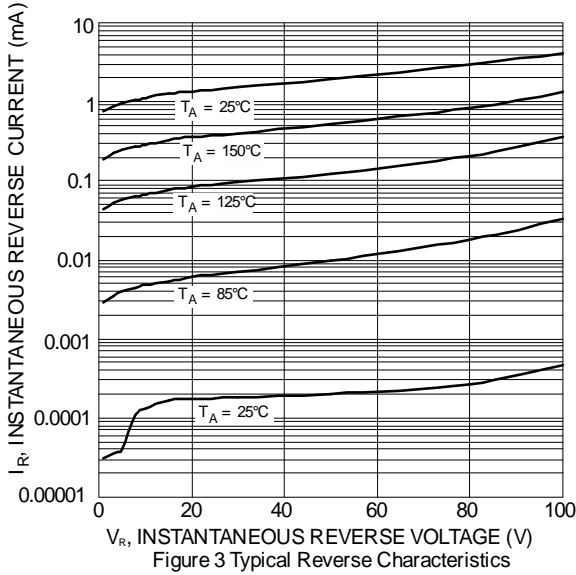
| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Case (Note 5) | $R_{\theta JC}$ | 6 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Ambient (Note 5) | $R_{\theta JA}$ | 22 | $^\circ\text{C/W}$ |
| 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 | — | 0.79 | 0.84 | V | $I_F = 5\text{A}, T_J = +25^\circ\text{C}$ |
| | | — | — | 0.72 | | $I_F = 5\text{A}, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6) | I_R | — | — | 0.1 | mA | $V_R = 100\text{V}, T_J = +25^\circ\text{C}$ |
| | | — | — | 10 | | $V_R = 100\text{V}, T_J = +125^\circ\text{C}$ |

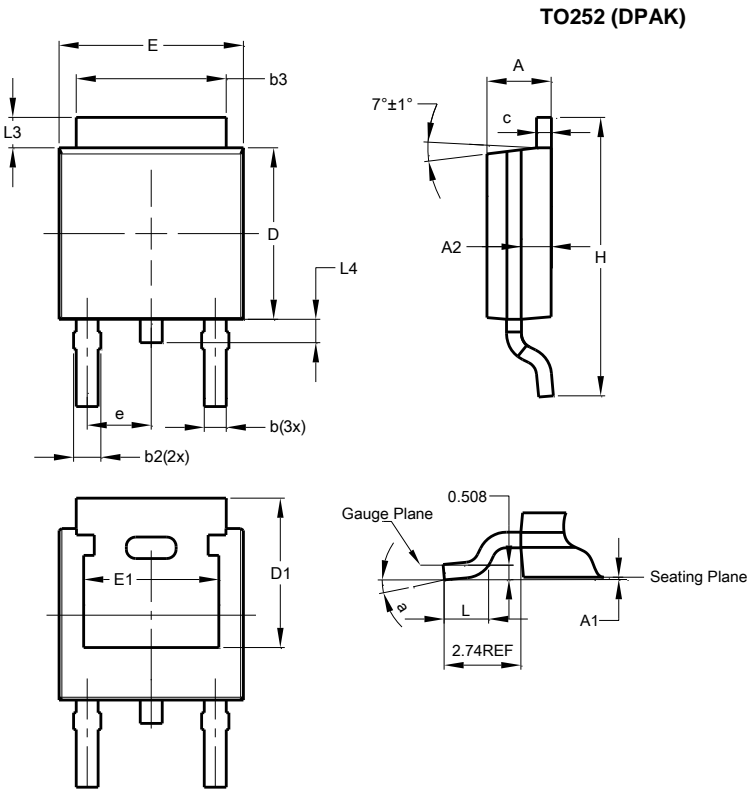
Notes: 5. Test with 2in. Al board.
6. Short duration pulse test used to minimize self-heating effect.





Package Outline Dimensions

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

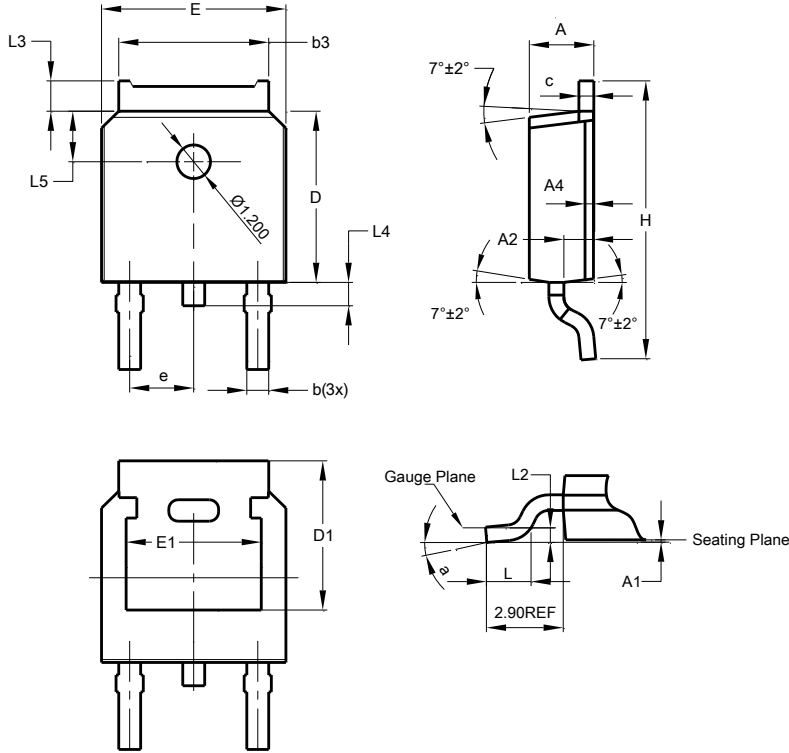


| TO252 (DPAK) | | | |
|----------------------|------|-------|-------|
| Dim | Min | Max | Typ |
| A | 2.19 | 2.39 | 2.29 |
| A1 | 0.00 | 0.13 | 0.08 |
| A2 | 0.97 | 1.17 | 1.07 |
| b | 0.64 | 0.88 | 0.783 |
| b2 | 0.76 | 1.14 | 0.95 |
| b3 | 5.21 | 5.46 | 5.33 |
| c | 0.45 | 0.58 | 0.531 |
| D | 6.00 | 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.)

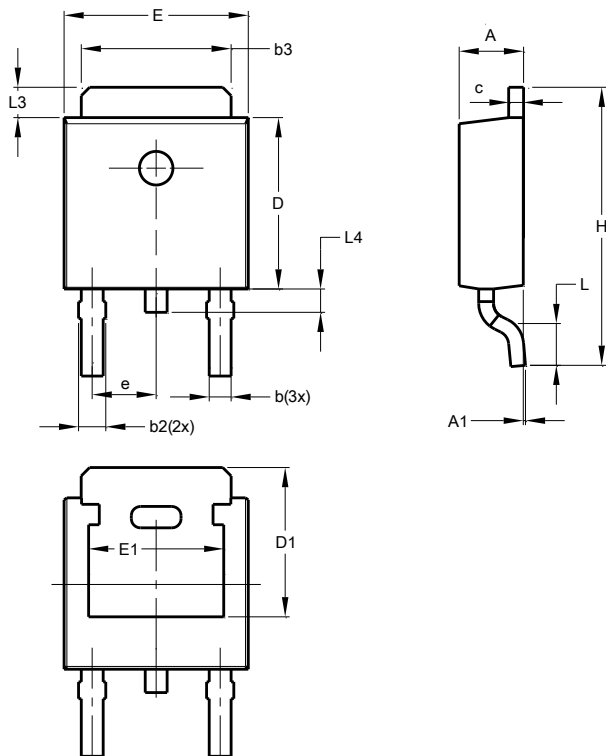
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

TO252 (DPAK) (Type TH)



| TO252 (DPAK) (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 | | | |

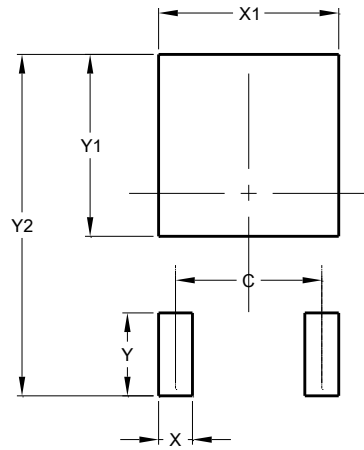
TO252 (DPAK) (Type BR)



| TO252 (DPAK) (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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