# MBR10200CT / MBRF10200CT

**10A SCHOTTKY BARRIER RECTIFIER**

## Product Summary

MBR10200CT / MBRF10200CT (Per Leg)

| $V_{RRM}$ (V) | $I_O$ (A) | $V_{F\ (MAX)}$ (V) @ +25°C | $I_{R\ (MAX)}$ (mA) @ +25°C |
|---|---|---|---|
| 200 | 5 | 0.91 | 0.1 |

## 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**

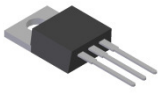
## Description and Applications

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

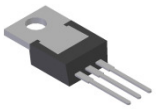
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

## Mechanical Data

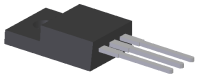
- Case: TO220AB, ITO-220AB
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Below
- Weight: TO-220AB – 1.95 grams (Approximate)
  ITO-220AB – 1.69 grams (Approximate)



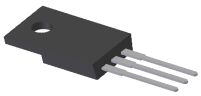
TO-220AB
Top View



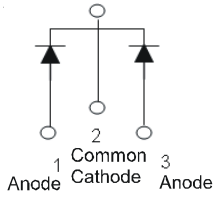
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



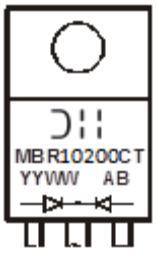

Package Pin Out
Configuration

## Ordering Information (Notes 4)

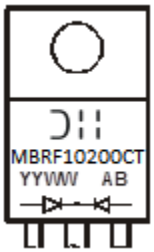
| Part Number | Case | Packaging |
|---|---|---|
| MBR10200CT-LJ | TO220AB (Type C) | 50 pieces/tube |
| MBRF10200CT-LJ | ITO-220AB (TO220F-3) | 50 pieces/tube |

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 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




MBR10200CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 13 = 2013)
WW = Week (01 - 53)




MBRF10200CT = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 13 = 2013)
WW = Week (01 - 53)

## Maximum Ratings (Per Leg) (@$T_A$ = +25°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>$V_{RM}$ | 200 | 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 | $I_{FSM}$ | 110 | A |

## Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance, Junction to Case (Note 5)<br>Package = TO-220AB<br>Package = ITO-220AB | $R_{\theta JC}$ | <br>4<br>7 | °C/W |
| Typical Thermal Resistance, Junction to Ambient (Note 5)<br>Package = TO-220AB<br>Package = ITO-220AB | $R_{\theta JA}$ | <br>15<br>25 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +175 | °C |

## Electrical Characteristics (Per Leg) (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | —<br>— | 0.85<br>— | 0.91<br>0.75 | V | $I_F$ = 5A, $T_J$ = +25°C<br>$I_F$ = 5A, $T_J$ = +125°C |
| Leakage Current (Note 6) | $I_R$ | —<br>— | —<br>— | 0.1<br>10 | mA | $V_R$ = 200V, $T_J$ = +25°C<br>$V_R$ = 200V, $T_J$ = +125°C |

Notes: 5. Device mounted on heat sink (45mm x 20mm x 12mm), with minimum recommended pad layout per http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.

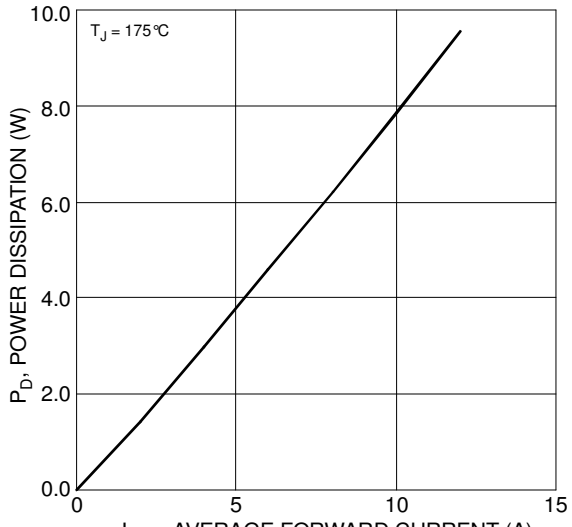


Figure 1 Forward Power Dissipation

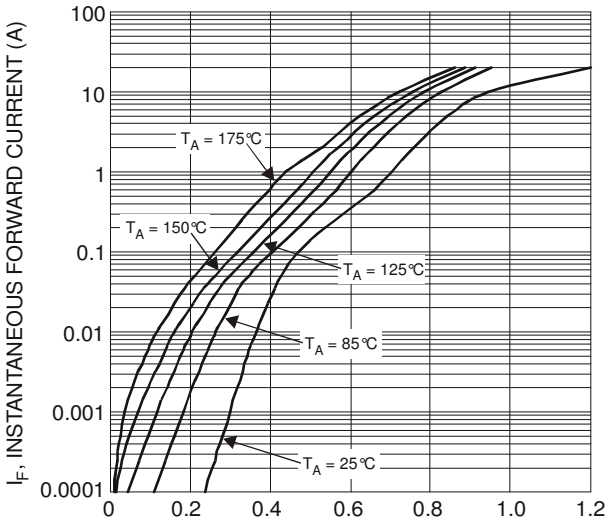


Figure 2 Typical Forward Characteristics

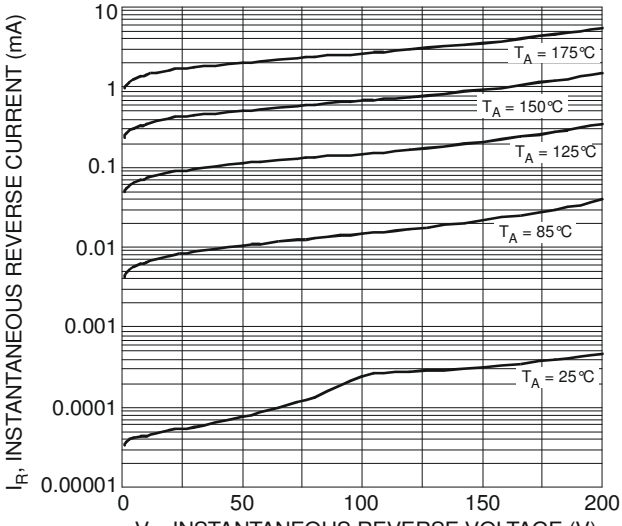


Figure 3 Typical Reverse Characteristics

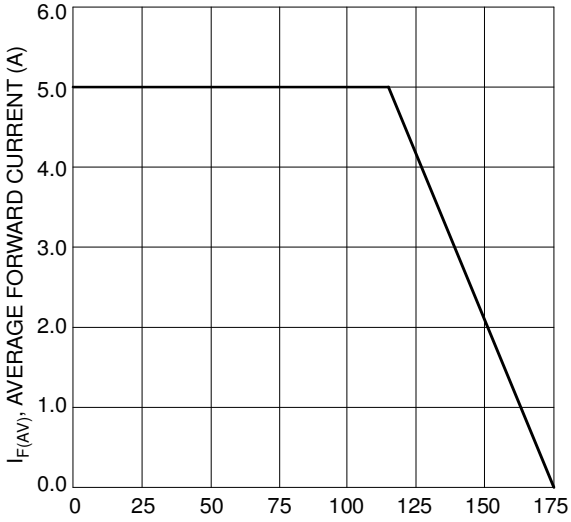
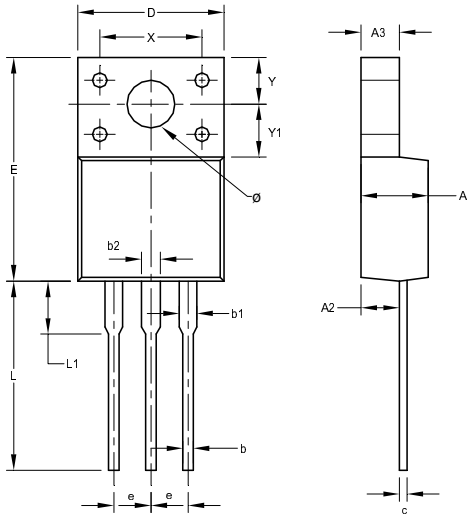


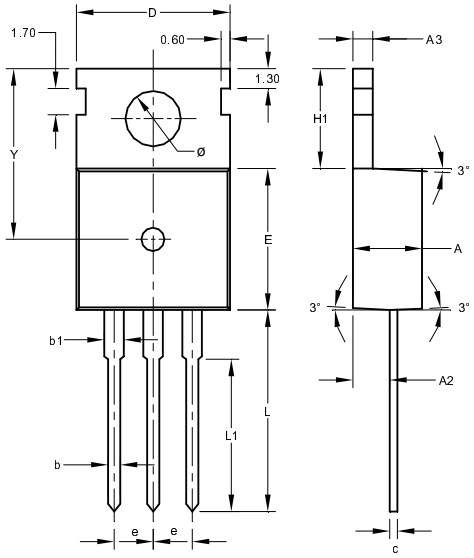
Figure 4 Forward Current Derating Curve

## Package Outline Dimensions

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




| ITO220AB (TO220F-3) | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 4.300 | 4.900 | - |
| **A2** | 2.520 | 2.920 | - |
| **A3** | 2.350 | 2.900 | - |
| **b** | 0.550 | 0.900 | - |
| **b1** | 1.000 | 1.400 | - |
| **b2** | 1.100 | 1.500 | - |
| **c** | 0.450 | 0.600 | - |
| **D** | 9.70 | 10.30 | - |
| **E** | 14.70 | 16.00 | - |
| **e** | - | - | 2.540 |
| **L** | 12.50 | 13.50 | - |
| **L1** | 2.790 | 4.500 | - |
| **X** | 6.90 | 7.10 | - |
| **Y** | 3.000 | 3.400 | - |
| **Y1** | 3.370 | 3.900 | - |
| **ø** | 3.000 | 3.550 | - |
| **All Dimensions in mm** | | | |




| TO220AB (Type C) | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 4.40 | 4.60 | 4.500 |
| **A2** | 2.20 | 2.50 | 2.400 |
| **A3** | 1.20 | 1.40 | 1.300 |
| **b** | 0.700 | 0.900 | - |
| **b1** | 1.170 | 1.390 | 1.270 |
| **c** | 0.400 | 0.600 | - |
| **D** | 9.800 | 10.200 | - |
| **E** | 9.000 | 9.400 | - |
| **e** | - | - | 2.54 |
| **H1** | 6.300 | 6.700 | - |
| **L** | 12.600 | 13.600 | - |
| **L1** | 9.600 | 10.600 | - |
| **Y** | - | - | 11.100 |
| **Ø** | 3.560 | 3.640 | - |
| **All Dimensions in mm** | | | |

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