

Product Summary

MBR20100CT / MBRF20100CT (Per Leg)

| V_{RRM} (V) | I_o (A) | V_F (MAX) (V) @ +25°C | I_R (MAX) (mA) @ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 100 | 10 | 0.84 | 0.05 |

Description and Applications

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

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

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: TO-220AB, 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
- Polarity: See Below
- Weight: TO-220AB – 1.95 grams (approximate)
ITO-220AB – 1.69 grams (approximate)



TO-220AB
Top View



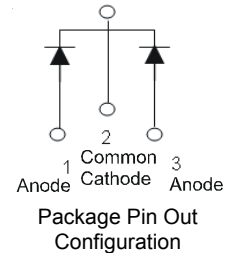
TO-220AB
Bottom View



ITO-220AB
Top View



ITO-220AB
Bottom View



Ordering Information (Notes 4)

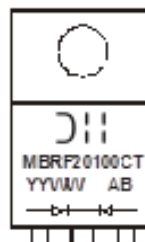
| Part Number | Case | Packaging |
|----------------|-----------------------|----------------|
| MBR20100CT | TO-220AB | 50 pieces/tube |
| MBRF20100CT-JT | ITO-220AB (Alternate) | 50 pieces/tube |

- 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



MBR20100CT = 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)



MBRF20100CT = 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 | V _{RRM} | 100 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current (Per Leg) (Total) | I _O | 10 20 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 150 | A |

Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Case (Note 5) Package = TO-220AB Package = ITO-220AB | R _{θJC} | 2 5 | °C/W |
| Typical Thermal Resistance, Junction to Ambient (Note 5) Package = TO-220AB Package = ITO-220AB | R _{θJA} | 13 20 | °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 | — | 0.8 | 0.84 0.72 | V | I _F = 10A, T _A = +25°C I _F = 10A, T _A = +125°C |
| Leakage Current (Note 6) | I _R | — | — | 0.05 10 | mA | V _R = 100V, T _A = +25°C V _R = 100V, T _A = +125°C |

Notes: 5. Device mounted on Device with additional 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

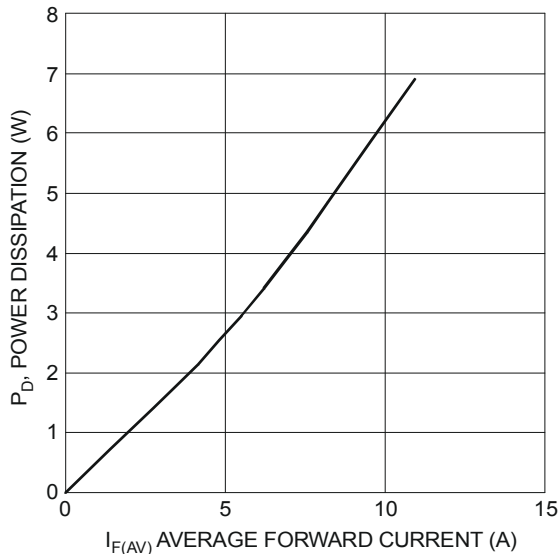


Figure 1 Forward Power Dissipation

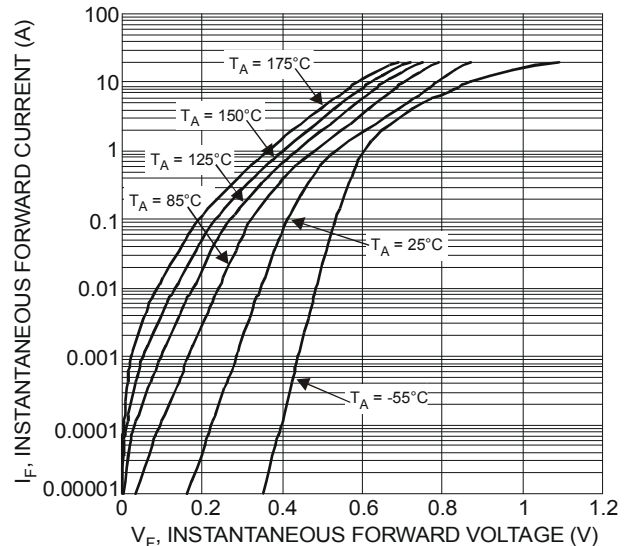


Figure 2 Typical Forward Characteristics

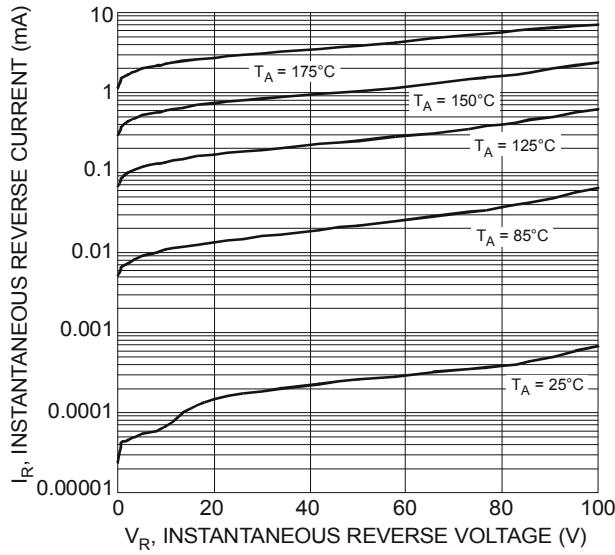


Figure 3 Typical Reverse Characteristics

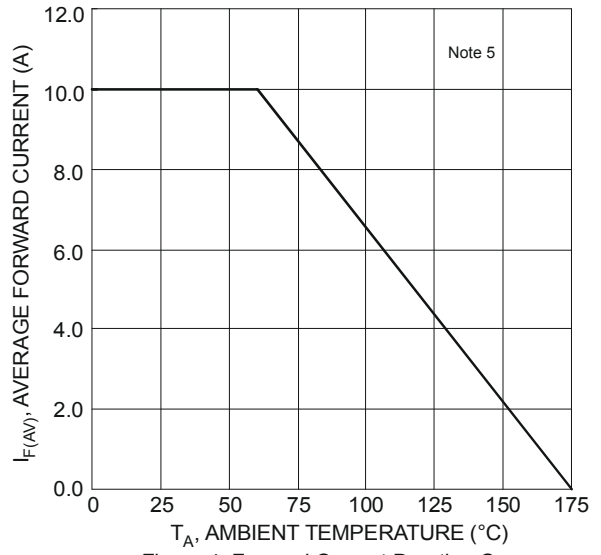
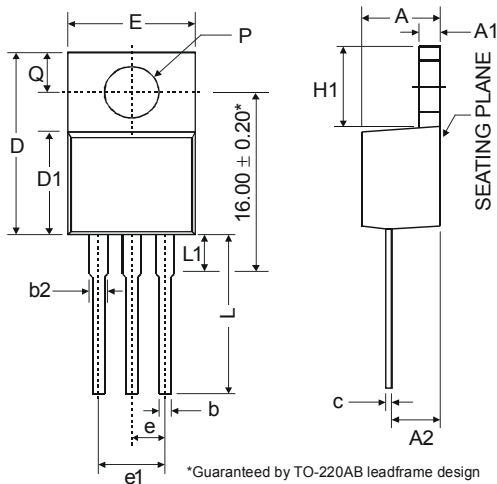


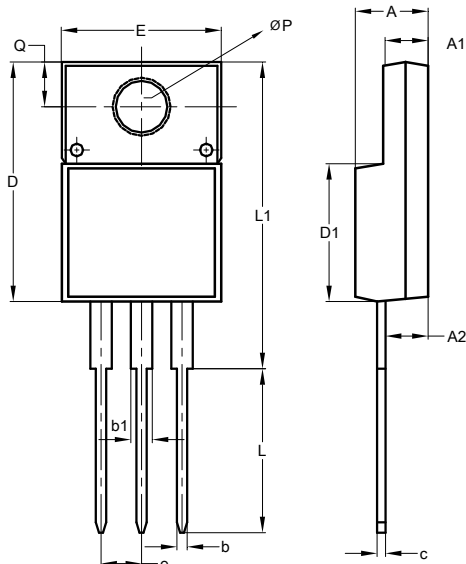
Figure 4 Forward Current Derating Curve

Package Outline Dimensions

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



| TO220AB | | | |
|-----------------------------|-------|------|-------|
| Dim | Min | Typ | Max |
| A | 3.56 | - | 4.82 |
| A1 | 0.51 | - | 1.39 |
| A2 | 2.04 | - | 2.92 |
| b | 0.39 | 0.81 | 1.01 |
| b2 | 1.15 | 1.24 | 1.77 |
| c | 0.356 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.39 | - | 9.01 |
| e | 2.54 | | |
| e1 | 5.08 | | |
| E | 9.66 | - | 10.66 |
| H1 | 5.85 | - | 6.85 |
| L | 12.70 | - | 14.73 |
| L1 | - | - | 6.35 |
| P | 3.54 | - | 4.08 |
| Q | 2.54 | - | 3.42 |
| All Dimensions in mm | | | |



| ITO220AB Alternate | | |
|-----------------------------|-------|-------|
| Dim | Min | Max |
| A | 4.36 | 4.77 |
| A1 | 2.54 | 3.10 |
| A2 | 2.54 | 2.80 |
| b | 0.55 | 0.75 |
| b1 | 1.20 | 1.50 |
| c | 0.38 | 0.68 |
| D | 14.50 | 15.50 |
| D1 | 8.38 | 8.89 |
| e | 2.41 | 2.67 |
| E | 9.72 | 10.27 |
| L | 9.87 | 10.67 |
| L1 | 15.8 | 17.00 |
| P | 3.08 | 3.39 |
| Q | 2.60 | 3.00 |
| All Dimensions in mm | | |

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