**Obsolete, Discontinued**

# MBR1635/ MBR1640

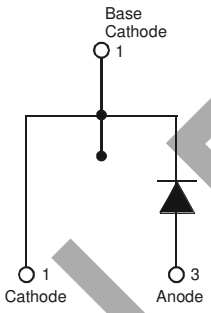
## 16A SCHOTTKY BARRIER RECTIFIER

## Features

- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**

## Mechanical Data

- Case: TO220AC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish – Tin. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Marking: Type Number
- Weight: 2.24 grams (Approximate)




Package Pin Out Configuration

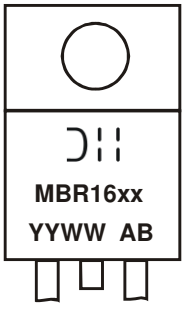
## Ordering Information (Note 3)

| Part Number | Case | Packaging |
|---|---|---|
| MBR16xx* | TO220AC | 50/Tube |

* xx = Device type, e.g. MBR1640

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. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## Marking Information




MBR16xx = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two digits of year (ex: 10 = 2010)
WW = Week (01 - 53)

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

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

| Characteristic | Symbol | MBR 1635 | MBR 1640 | Unit |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 35 | 40 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 24.5 | 28 | V |
| Average Rectified Output Current (Note 4) @ $T_C$ = +125°C | $I_O$ | 16 | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 150 | | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance Junction to Case (Note 4) | $R_{\theta JC}$ | 1.5 | °C/W |
| Voltage Rate of Change (Rated $V_R$) | dV/dt | 1,000 | V/µs |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -65 to +150 | °C |

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

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Forward Voltage Drop @ $I_F$ =16A, $T_C$ = +25°C<br>@ $I_F$ =16A, $T_C$ =+125°C | $V_{FM}$ | 0.63<br>0.57 | V |
| Peak Reverse Current @$T_C$ = +25°C<br>at Rated DC Blocking Voltage @ $T_C$ = +125°C | $I_{RM}$ | 0.2<br>40 | mA |
| Typical Total Capacitance (Note 5) | $C_T$ | 450 | pF |

Notes: 4. Thermal resistance junction to case mounted on heatsink.
5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

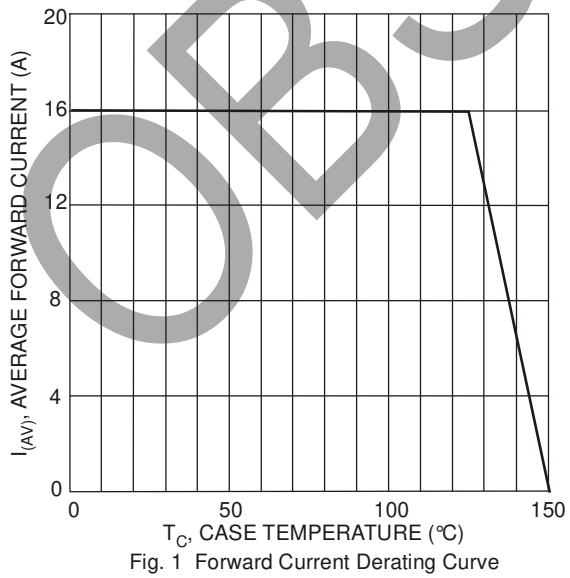


Fig. 1 Forward Current Derating Curve

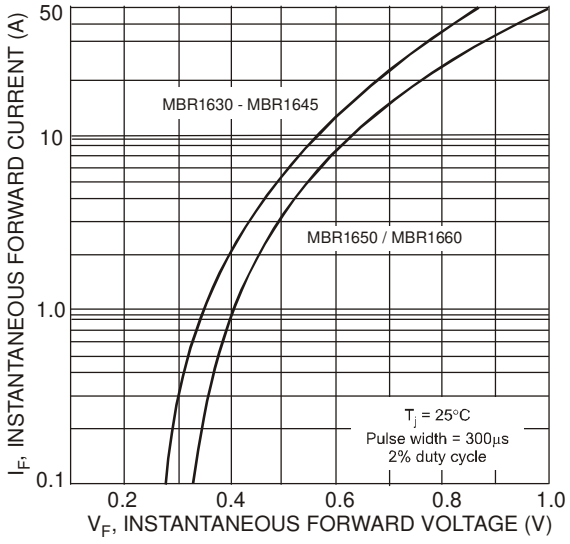


Fig. 2 Typical Forward Voltage Characteristics

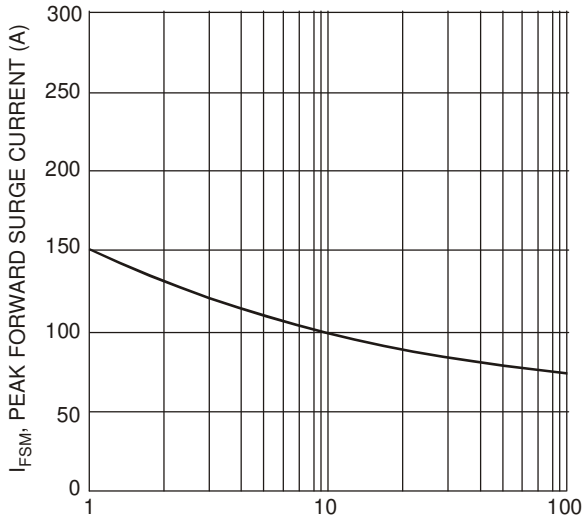



Fig. 3 Max Non-Repetitive Surge Current

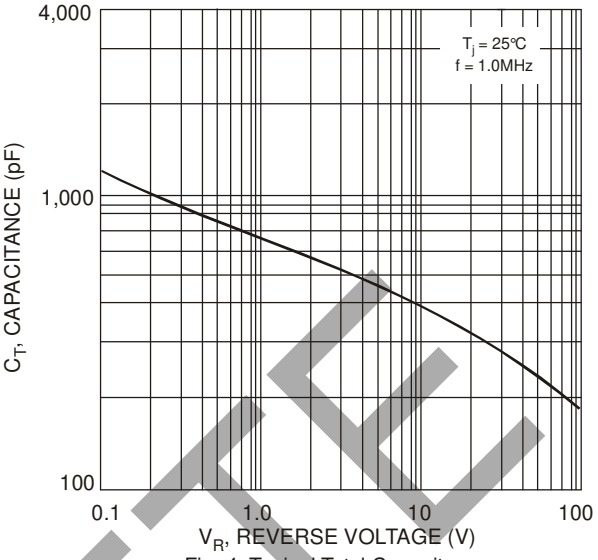



Fig. 4 Typical Total Capacitance

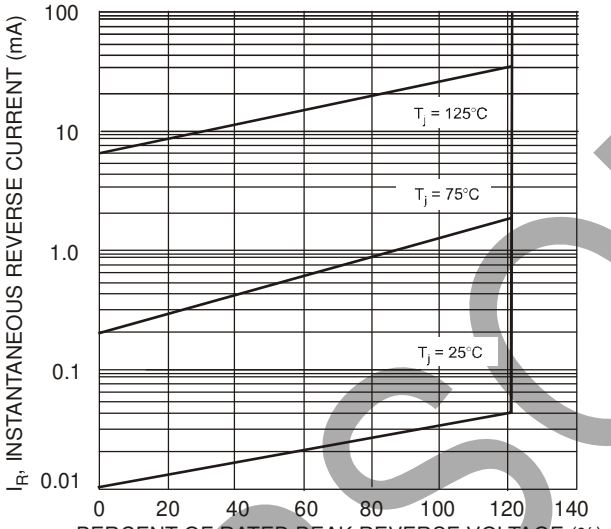
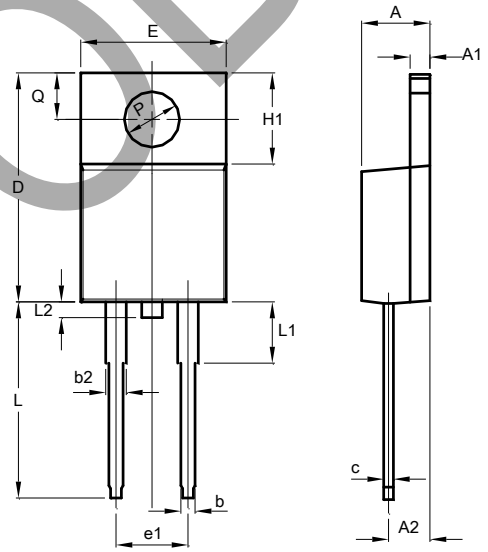



Fig. 5 Typical Reverse Characteristics

## Package Outline Dimensions

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




| TO220AC | | | |
|---|---|---|---|
| **Dim** | **Min** | **Typ** | **Max** |
| **A** | 4.40 | - | 4.82 |
| **A1** | 1.1 | - | 1.40 |
| **A2** | 2.05 | - | 2.92 |
| **b** | 0.72 | - | 1.00 |
| **b2** | 1.16 | - | 1.45 |
| **c** | 0.36 | - | 0.68 |
| **D** | 14.70 | - | 15.87 |
| **e1** | 5.08 | | |
| **E** | 9.80 | - | 10.26 |
| **H1** | 5.80 | - | 6.40 |
| **L** | 12.70 | - | 13.96 |
| **L1** | 3.56 | - | 4.50 |
| **P** | 3.70 | - | 3.90 |
| **Q** | 2.54 | - | 3.30 |
| **All Dimensions in mm** | | | |

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