

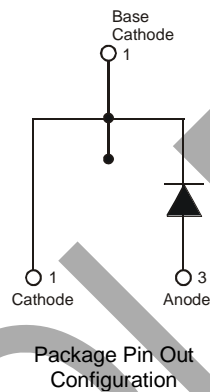


### Features

- 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 <sup>(e3)</sup>
- Polarity: See Diagram
- Marking: Type Number
- Weight: 2.24 grams (Approximate)



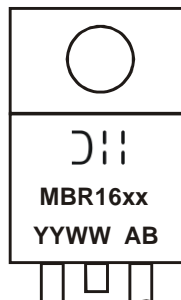
### Ordering Information (Note 3)

| 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](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)

**OBSOLETE – PART DISCONTINUED**

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 35       | 40       | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>                                    | 24.5     | 28       | V    |
| Average Rectified Output Current<br>(Note 4) @ T <sub>C</sub> = +125°C                              | I <sub>O</sub>   | 16       |          | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 150      |          | A    |

**Thermal Characteristics**

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case (Note 4) | R <sub>θJC</sub>                  | 1.5         | °C/W |
| Voltage Rate of Change (Rated V <sub>R</sub> )       | dV/dt                             | 1,000       | V/μs |
| Operating and Storage Temperature Range              | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic   | Symbol          | Value        | Unit |
|--|-----------------|--------------|------|
| Forward Voltage Drop @ I <sub>F</sub> = 16A, T <sub>C</sub> = +25°C<br>@ I <sub>F</sub> = 16A, T <sub>C</sub> = +125°C | V <sub>FM</sub> | 0.63<br>0.57 | V    |
| Peak Reverse Current @ T <sub>C</sub> = +25°C<br>at Rated DC Blocking Voltage @ T <sub>C</sub> = +125°C                | I <sub>RM</sub> | 0.2<br>40    | mA   |
| Typical Total Capacitance (Note 5)   | C <sub>T</sub>  | 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.

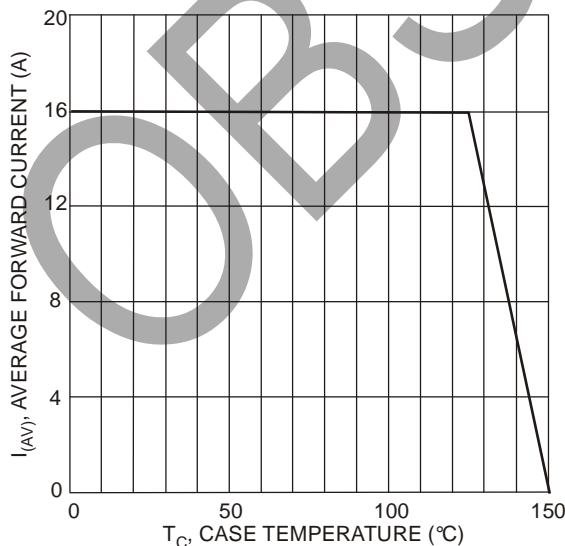


Fig. 1 Forward Current Derating Curve

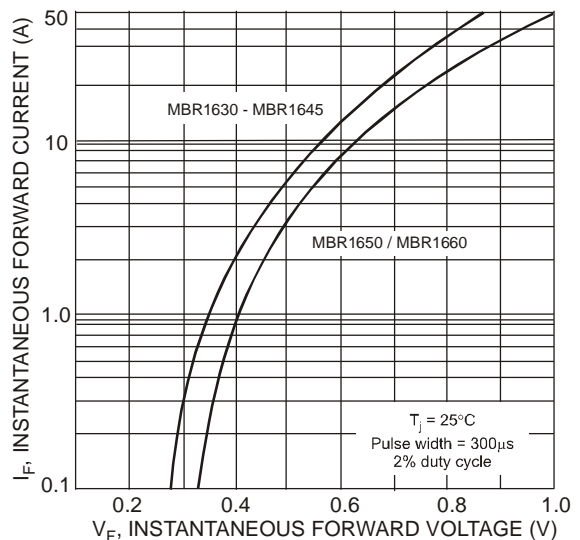


Fig. 2 Typical Forward Voltage Characteristics

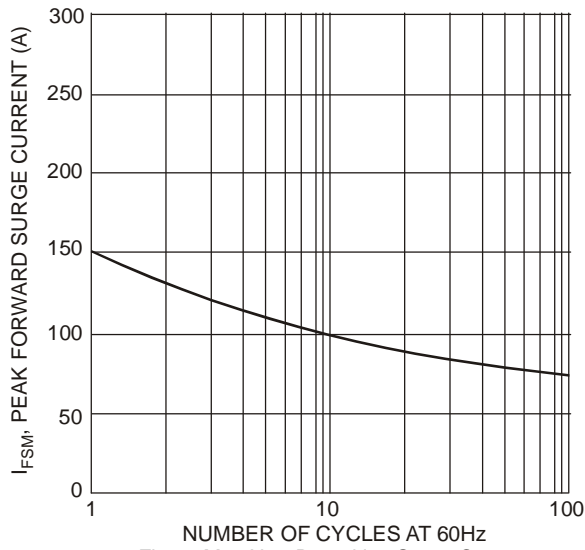


Fig. 3 Max Non-Repetitive Surge Current

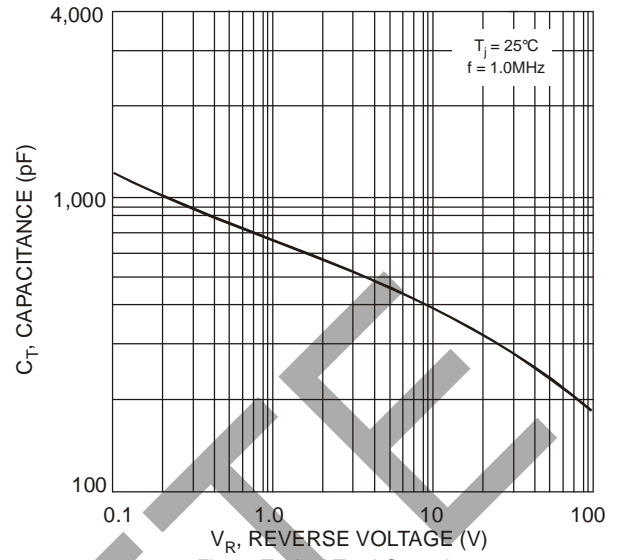


Fig. 4 Typical Total Capacitance

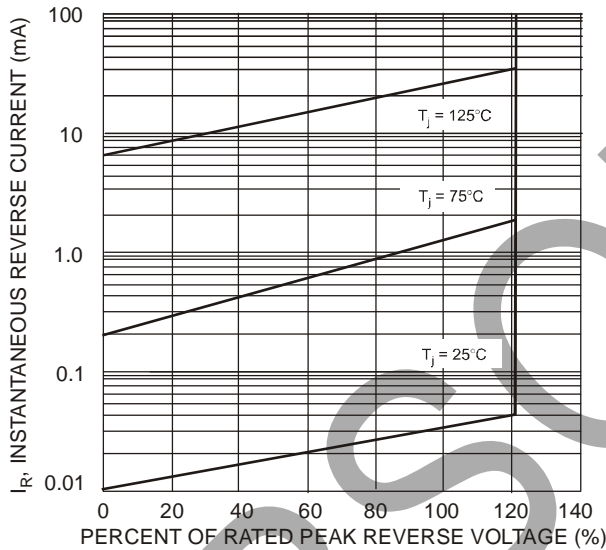
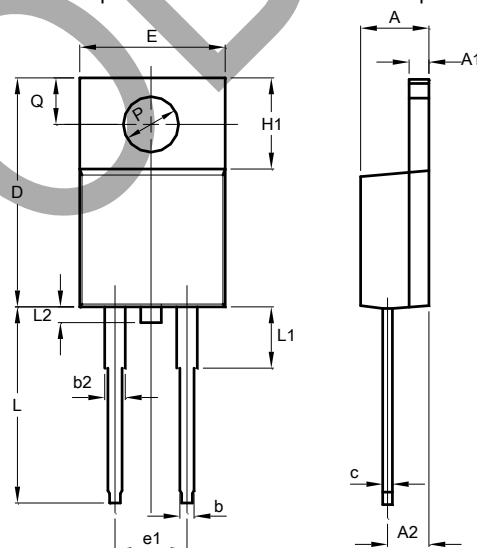


Fig. 5 Typical Reverse Characteristics

**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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