



OBsolete – PART DISCONTINUED

### Features

- 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: TO-3P
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish – Tin. Plated Leads Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: As Marked on Body
- Marking: Type Number
- Weight: 5.6 grams (Approximate)

### Ordering Information (Note 3)

| Part Number | Case  | Packaging |
|-------------|-------|-----------|
| MBR3030PT   | TO-3P | 30/Tube   |
| MBR3035PT   | TO-3P | 30/Tube   |
| MBR3040PT   | TO-3P | 30/Tube   |
| MBR3045PT   | TO-3P | 30/Tube   |
| MBR3050PT   | TO-3P | 30/Tube   |
| MBR3060PT   | TO-3P | 30/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](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, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

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

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

| Characteristic  | Symbol              | MBR 3030PT  | MBR 3035PT                | MBR 3040PT | MBR 3045PT | MBR 3050PT                   | MBR 3060PT | Unit |
|---|---------------------|-------------|---------------------------|------------|------------|------------------------------|------------|------|
| Peak Repetitive Reverse Voltage   | V <sub>RRM</sub>    |             |                           |            |            |                              |            | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub>    | 30          | 35                        | 40         | 45         | 50                           | 60         | V    |
| DC Blocking Voltage   | V <sub>R</sub>      |             |                           |            |            |                              |            | V    |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub> | 21          | 24.5                      | 28         | 31.5       | 35                           | 42         | V    |
| Average Rectified Output Current<br>Total Device (See Fig. 7)                                       | I <sub>O</sub>      | 30          |                           |            |            |                              |            | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 200         |                           |            |            |                              |            | A    |
| Forward Voltage Drop<br>per element (Note 6)  | V <sub>FM</sub>     |             | —<br>0.60<br>0.76<br>0.72 |            |            | 0.75<br>0.65<br>0.80<br>0.75 |            | V    |
| Peak Reverse Current<br>at Rated DC Blocking Voltage, per element                                   | I <sub>RM</sub>     |             | 1.0<br>60                 |            |            | 5.0<br>100                   |            | mA   |
| Typical Total Capacitance<br>(Note 5)   | C <sub>T</sub>      | 500         |                           |            |            |                              |            | pF   |
| Typical Thermal Resistance Junction to Case<br>(Note 4)   | R <sub>θJc</sub>    | 1.4         |                           |            |            |                              |            | °C/W |
| Voltage Rate of Change (Rated V <sub>R</sub> )  | dV/dt               | 10,000      |                           |            |            |                              |            | V/μs |
| Operating Temperature Range   | T <sub>J</sub>      | -65 to +150 |                           |            |            |                              |            | °C   |
| Storage Temperature Range   | T <sub>STG</sub>    | -65 to +175 |                           |            |            |                              |            | °C   |

- Notes:
4. Thermal resistance junction to case mounted on heatsink.
  5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  6. Pulse width ≤300 μs, duty cycle ≤2%.
  7. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied. See *EU Directive Annex Notes 5 and 7*.



**MBR3030PT – MBR3060PT**

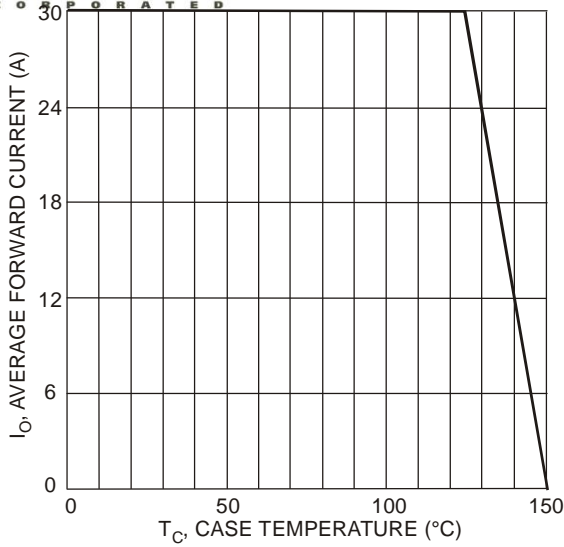


Fig. 1 Forward Current Derating Curve, total device

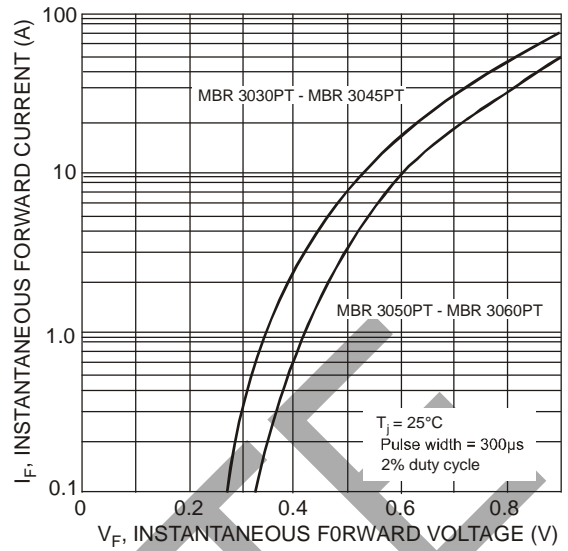


Fig. 2 Typical Forward Characteristics, per element

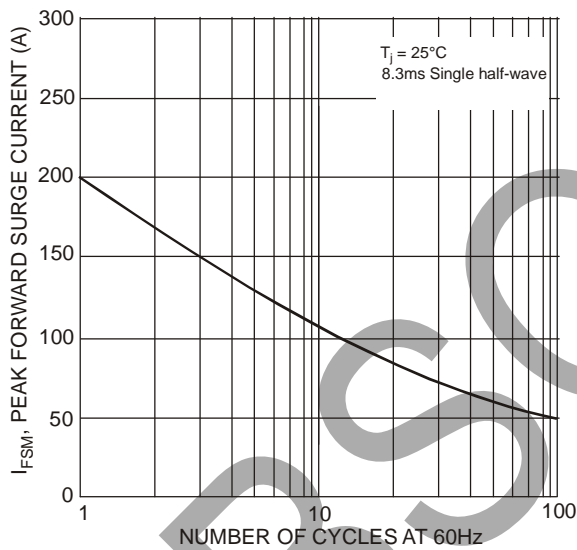


Fig. 3 Max Non-Repetitive Surge Current

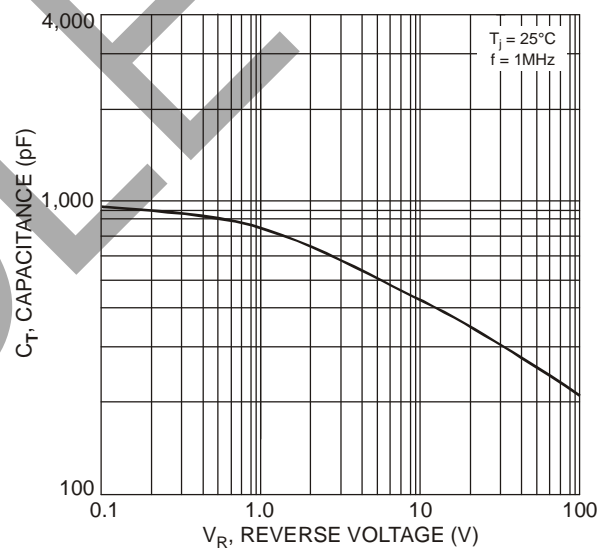
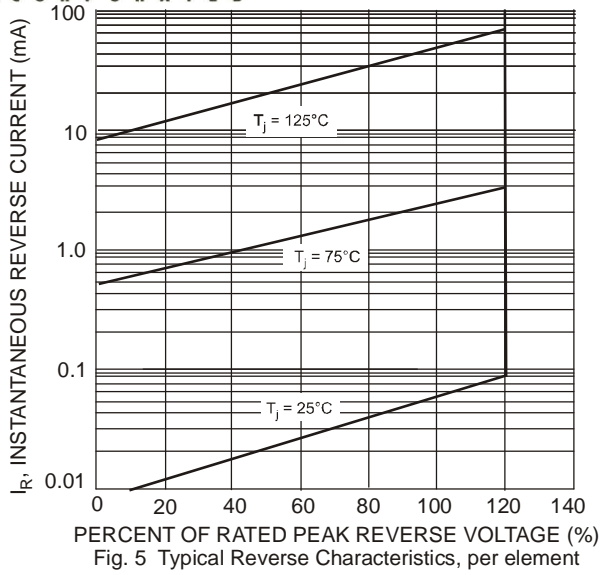


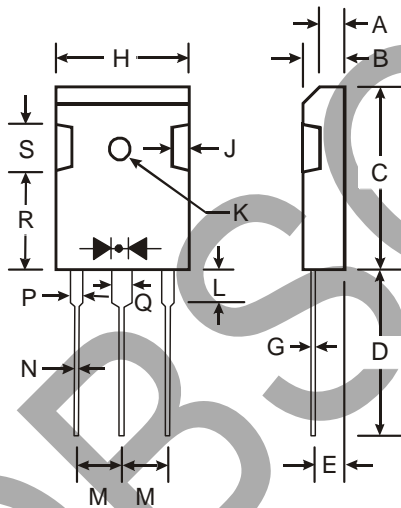
Fig. 4 Typical Total Capacitance

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**Package Outline Dimensions**

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



| TO-3P                |                   |                    |
|----------------------|-------------------|--------------------|
| Dim                  | Min               | Max                |
| A                    | 1.88              | 2.08               |
| B                    | 4.68              | 5.36               |
| C                    | 20.63             | 22.38              |
| D                    | 18.5              | 21.5               |
| E                    | 2.10              | 2.40               |
| G                    | 0.51              | 0.76               |
| H                    | 15.38             | 16.25              |
| J                    | 1.90              | 2.70               |
| K                    | 2.9 $\varnothing$ | 3.65 $\varnothing$ |
| L                    | 3.78              | 4.50               |
| M                    | 5.20              | 5.70               |
| N                    | 0.89              | 1.53               |
| P                    | 1.82              | 2.46               |
| Q                    | 2.92              | 3.23               |
| R                    | 11.70             | 12.84              |
| S                    | -                 | 6.10               |
| All Dimensions in mm |                   |                    |

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