



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:
- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 - 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.
 - For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

Maximum Ratings and Electrical Characteristics (@T_A = +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 3050PT | Unit |
|----------------------------------------------------------------------------------------------------------------------|---------------------|-------------|------------|------------|------------|------------|------------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | | | | | | | |
| Working Peak Reverse Voltage | V _{RWM} | 30 | 35 | 40 | 45 | 50 | 60 | V |
| DC Blocking Voltage | V _R | | | | | | | |
| RMS Reverse Voltage | V _{R(RMS)} | 21 | 24.5 | 28 | 31.5 | 35 | 42 | V |
| Average Rectified Output Current @ T _C = 125°C Total Device (See Fig. 7) | I _O | 30 | | | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 200 | | | | | | A |
| Forward Voltage Drop @ I _F = 20A, T _C = +25°C per element (Note 6) | V _{FM} | — | | | | 0.75 | | V |
| @ I _F = 20A, T _C = +125°C | | 0.60 | | | | 0.65 | | |
| @ I _F = 30A, T _C = +25°C | | 0.76 | | | | 0.80 | | |
| @ I _F = 30A, T _C = +125°C | | 0.72 | | | | 0.75 | | |
| Peak Reverse Current @ T _C = +25°C at Rated DC Blocking Voltage, per element @ T _C = +125°C | I _{RM} | 1.0 60 | | | | 5.0 100 | | mA |
| Typical Total Capacitance (Note 5) | C _T | 500 | | | | | | pF |
| Typical Thermal Resistance Junction to Case (Note 4) | R _{θJC} | 1.4 | | | | | | °C/W |
| Voltage Rate of Change (Rated V _R) | dV/dt | 10,000 | | | | | | V/μs |
| Operating Temperature Range | T _J | -65 to +150 | | | | | | °C |
| Storage Temperature Range | T _{STG} | -65 to +175 | | | | | | °C |

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

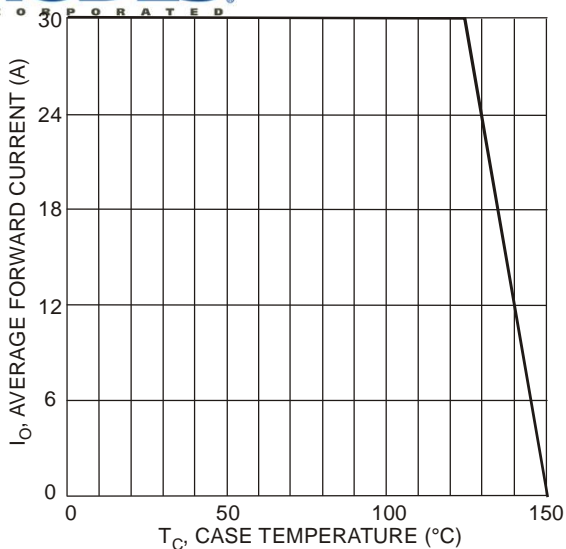


Fig. 1 Forward Current Derating Curve, total device

MBR3030PT – MBR3060PT

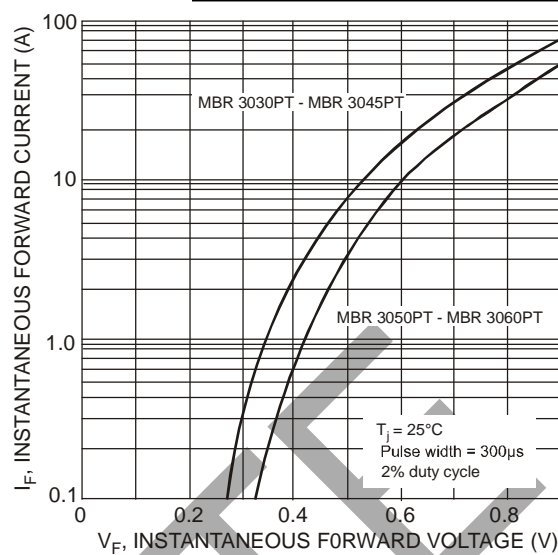


Fig. 2 Typical Forward Characteristics, per element

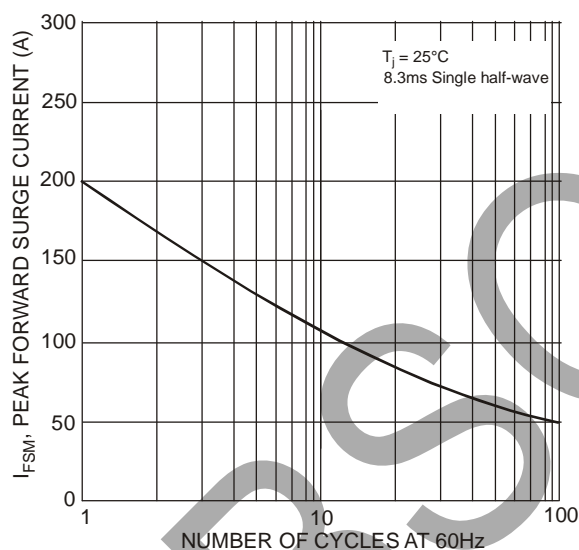


Fig. 3 Max Non-Repetitive Surge Current

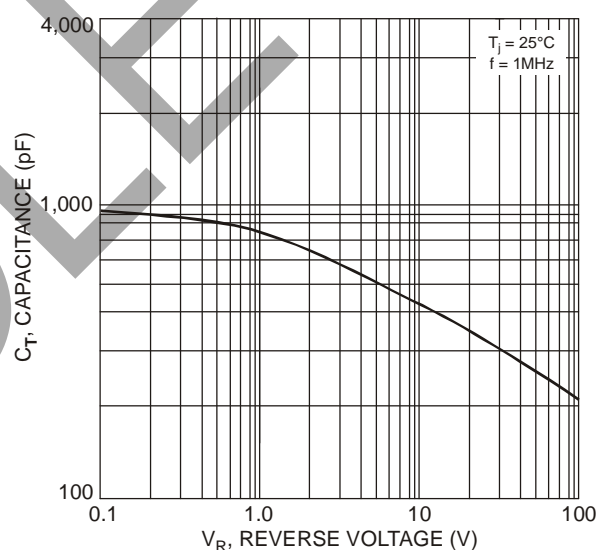
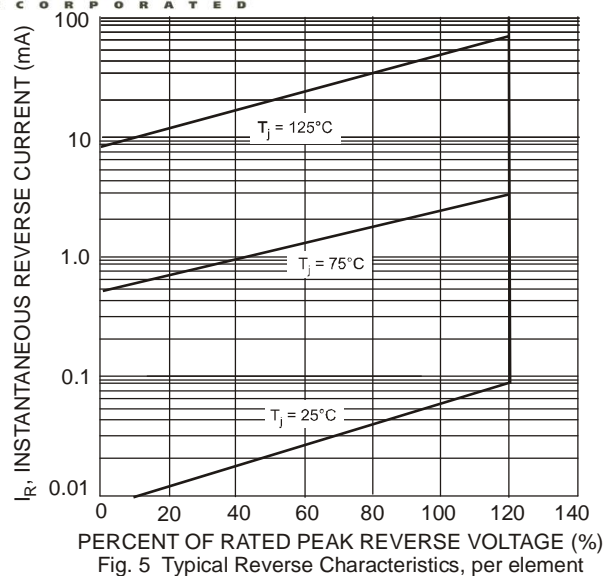
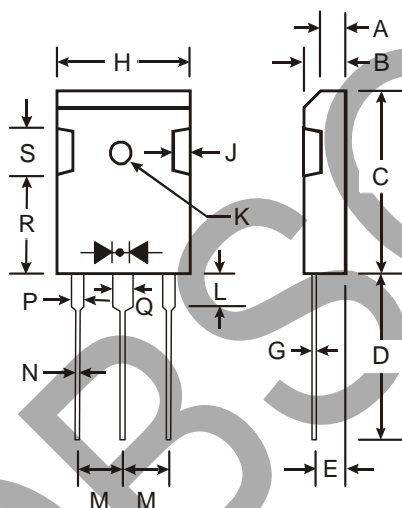


Fig. 4 Typical Total Capacitance



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 | 2.90 | 3.65 |
| 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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