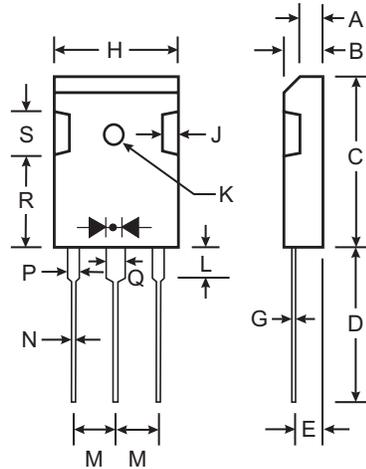


Features

- 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 (Note 4)**

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 — Bright Tin. Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: As Marked on Body
- Ordering Information: See Last Page
- Marking: Type Number
- Weight: 5.6 grams (approximate)



| 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 | 2.1 | 2.4 |
| 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 | 5.2 | 5.7 |
| 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 | | |

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 3060PT | Unit |
|--|--|---------------------------|------------|------------|------------|------------------------------|------------|------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V _{RRM} V _{RWM} V _R | 30 | 35 | 40 | 45 | 50 | 60 | V |
| RMS Reverse Voltage | V _{R(RMS)} | 21 | 24.5 | 28 | 31.5 | 35 | 42 | V |
| Average Rectified Output Current Total Device (See Fig. 1) @ T _C = 125°C | I _O | 30 | | | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method) | I _{FSM} | 200 | | | | | | A |
| Forward Voltage Drop per element (Note 3) @ I _F = 20A, T _C = 25°C @ I _F = 20A, T _C = 125°C @ I _F = 30A, T _C = 25°C @ I _F = 30A, T _C = 125°C | V _{FM} | — 0.60 0.76 0.72 | | | | 0.75 0.65 0.80 0.75 | | V |
| Peak Reverse Current at Rated DC Blocking Voltage, per element @ T _C = 25°C @ T _C = 125°C | I _{RM} | 1.0 60 | | | | 5.0 100 | | mA |
| Typical Total Capacitance (Note 2) | C _T | 500 | | | | | | pF |
| Typical Thermal Resistance Junction to Case (Note 1) | 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:
1. Thermal resistance junction to case mounted on heatsink.
 2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
 3. Pulse width ≤300 μs, duty cycle ≤2%.
 4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

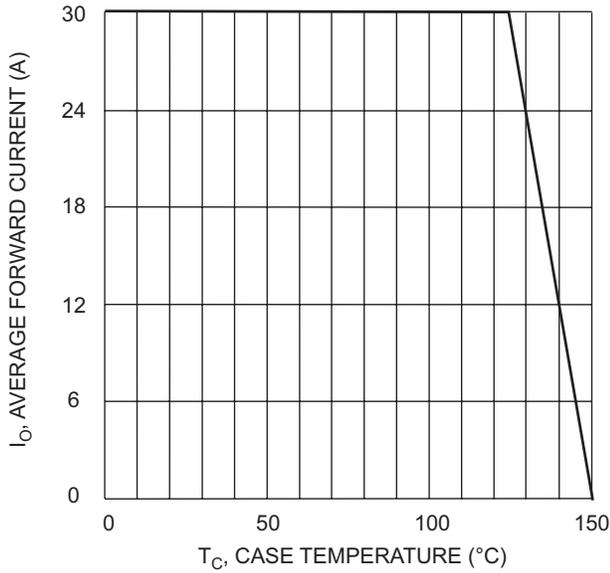


Fig. 1 Forward Current Derating Curve, total device

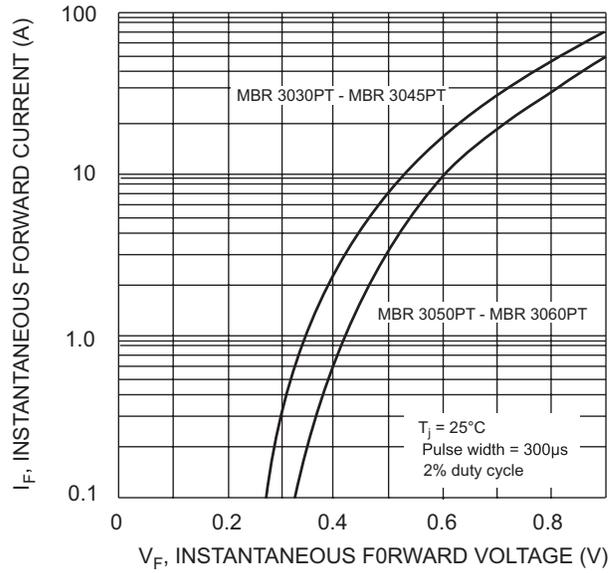


Fig. 2 Typical Forward Characteristics, per element

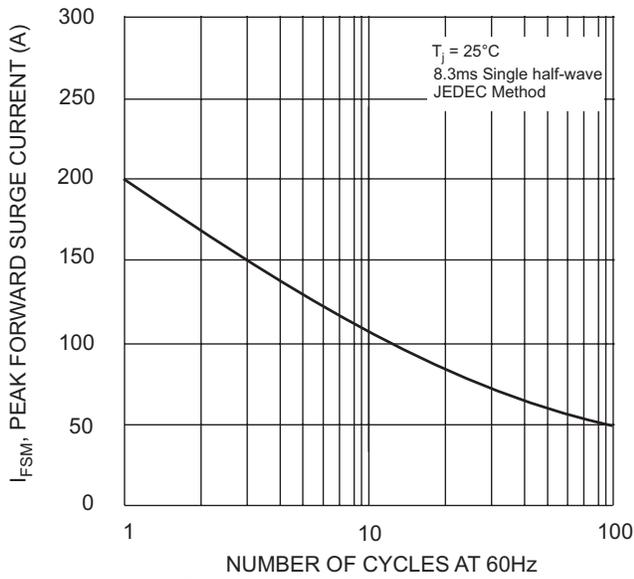


Fig. 3 Max Non-Repetitive Surge Current

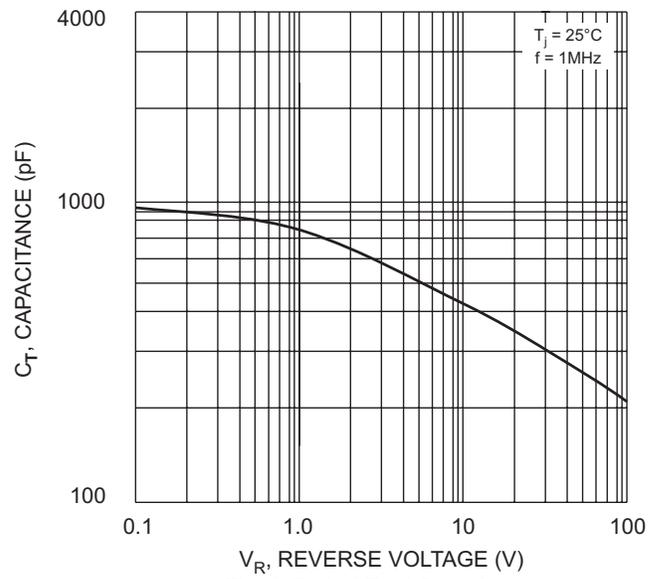


Fig. 4 Typical Total Capacitance

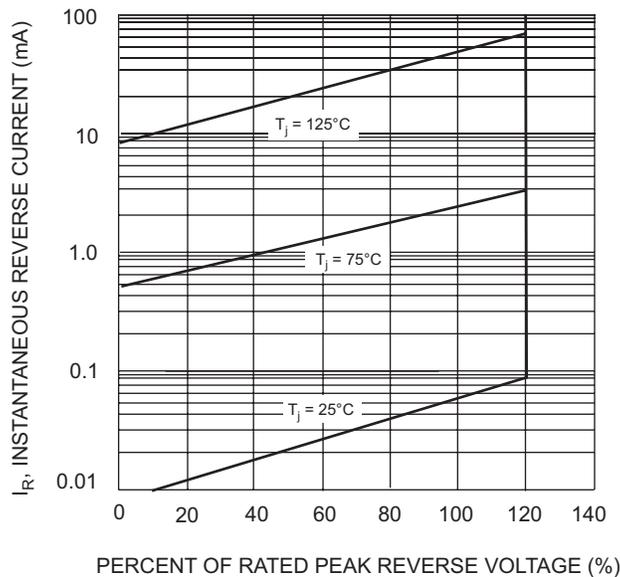


Fig. 5 Typical Reverse Characteristics, per element

Ordering Information (Note 5)

| Device | Packaging | Shipping |
|---------------|------------------|-----------------|
| 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: 5. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap2008.pdf>.

Mouser Electronics

Authorized Distributor

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