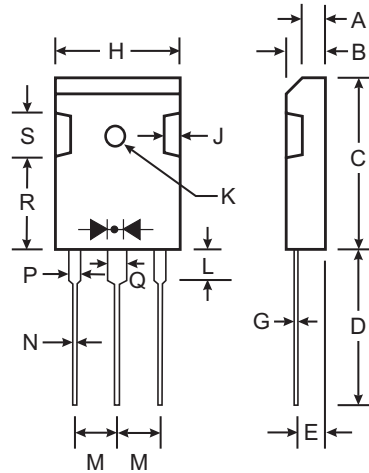


### Features

- 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	2.9Ø	3.65Ø
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<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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	30	35	40	45	50	60	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	24.5	28	31.5	35	42	V
Average Rectified Output Current Total Device (See Fig. 1) @ T <sub>C</sub> = 125°C	I <sub>O</sub>	30						A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	200						A
Forward Voltage Drop per element (Note 3) @ I <sub>F</sub> = 20A, T <sub>C</sub> = 25°C @ I <sub>F</sub> = 20A, T <sub>C</sub> = 125°C @ I <sub>F</sub> = 30A, T <sub>C</sub> = 25°C @ I <sub>F</sub> = 30A, T <sub>C</sub> = 125°C	V <sub>FM</sub>	— 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 <sub>C</sub> = 25°C @ T <sub>C</sub> = 125°C	I <sub>RM</sub>	1.0 60				5.0 100		mA
Typical Total Capacitance (Note 2)	C <sub>T</sub>	500						pF
Typical Thermal Resistance Junction to Case (Note 1)	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:
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.

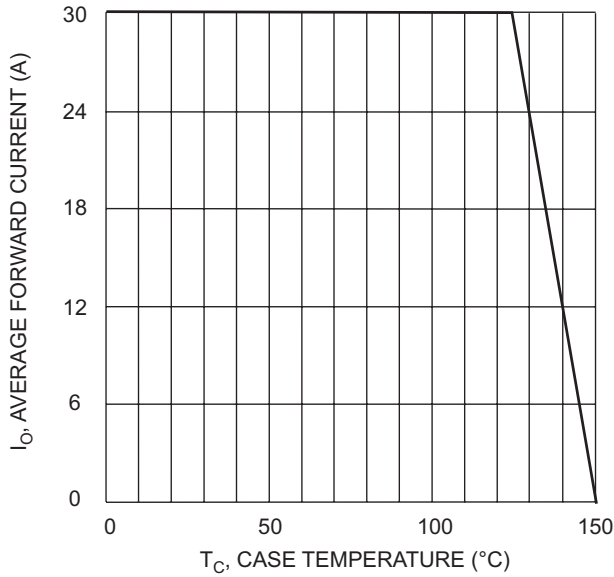


Fig. 1 Forward Current Derating Curve, total device

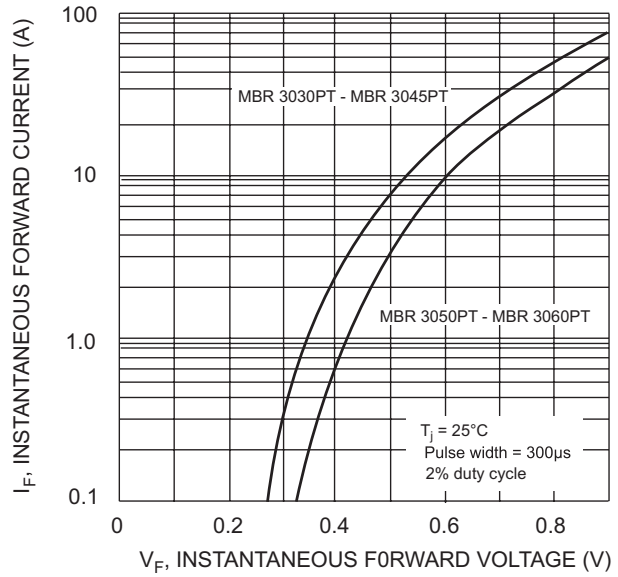


Fig. 2 Typical Forward Characteristics, per element

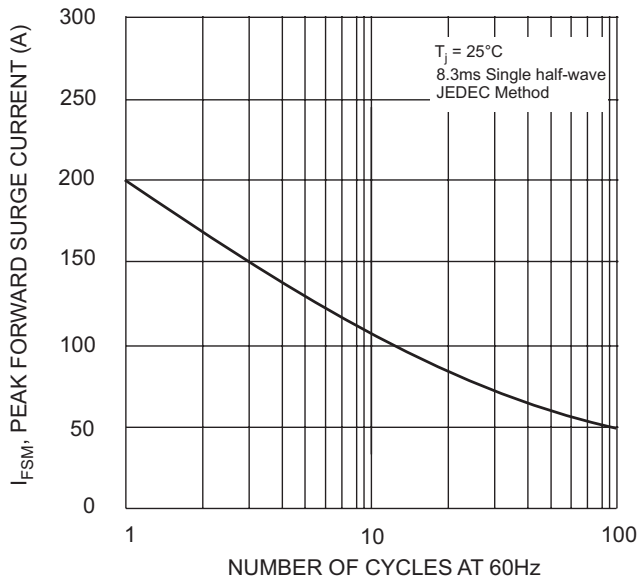


Fig. 3 Max Non-Repetitive Surge Current

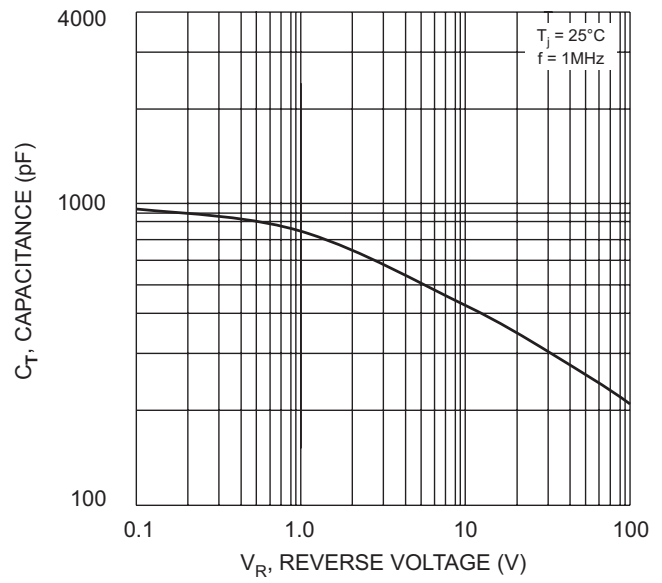


Fig. 4 Typical Total Capacitance

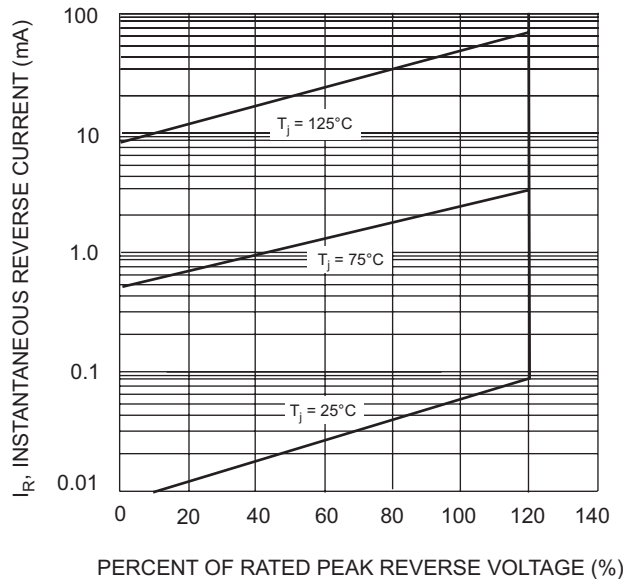


Fig. 5 Typical Reverse Characteristics, per element

**Ordering Information** (Note 5)

<b>Device</b>	<b>Packaging</b>	<b>Shipping</b>
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>.