



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 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_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:
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.

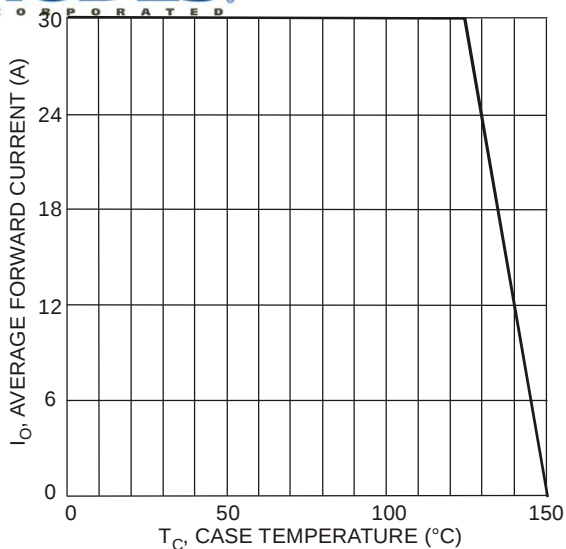


Fig. 1 Forward Current Derating Curve, total device

MBR3030PT – MBR3060PT

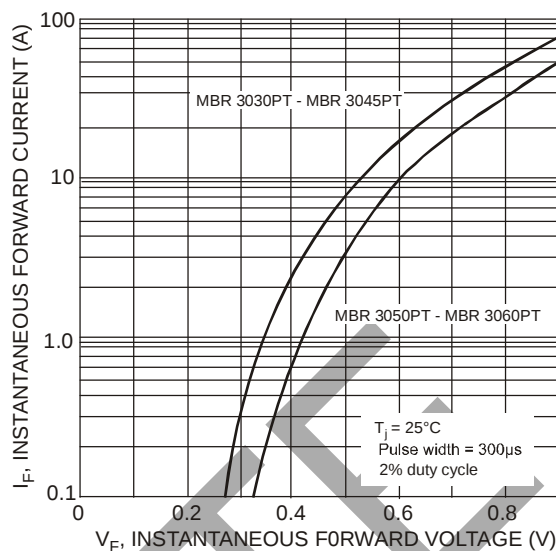


Fig. 2 Typical Forward Characteristics, per element

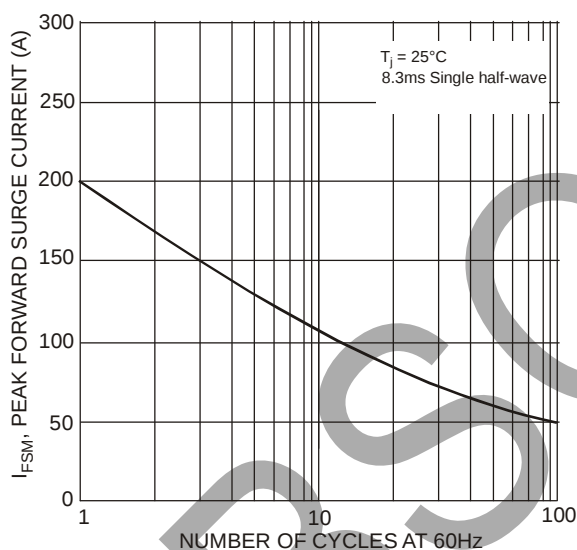


Fig. 3 Max Non-Repetitive Surge Current

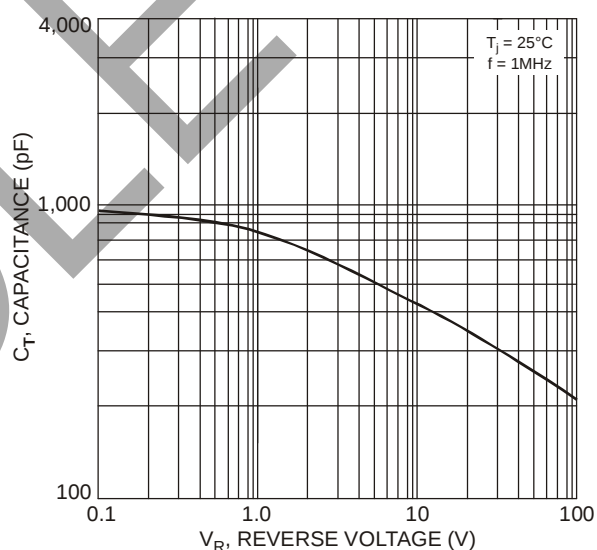
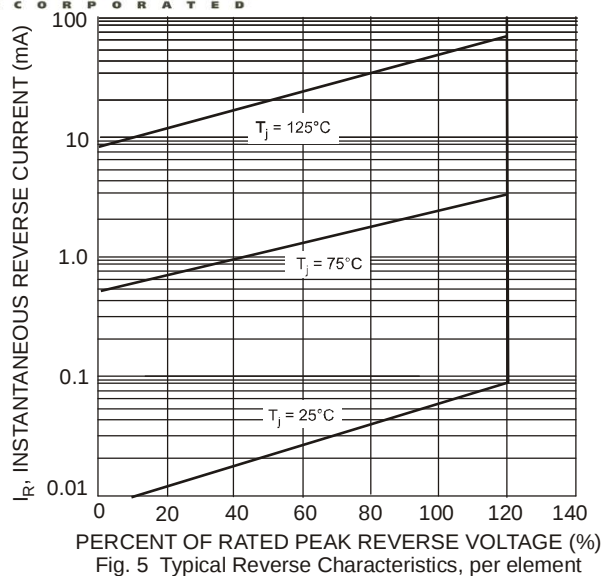
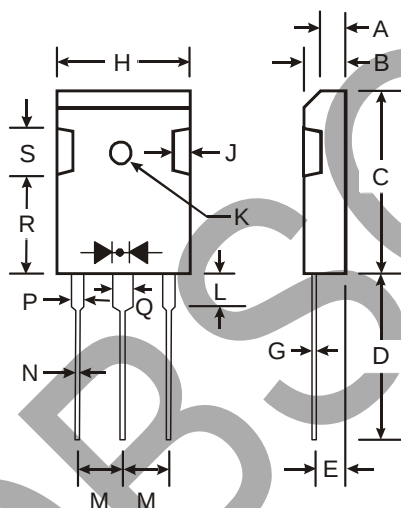


Fig. 4 Typical Total Capacitance



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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