



## 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>.

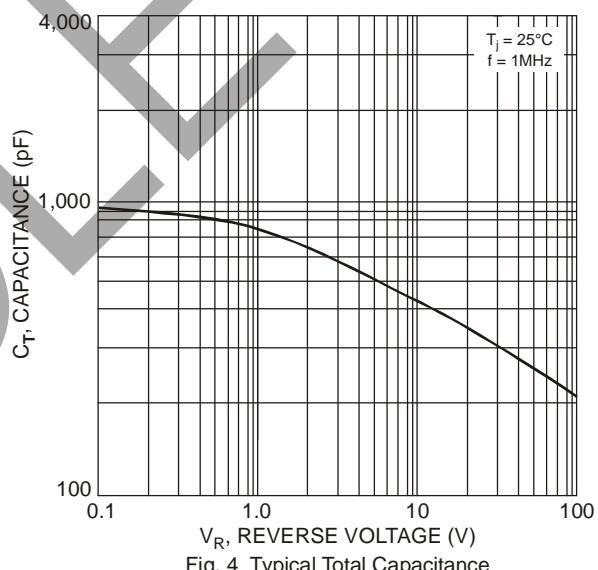
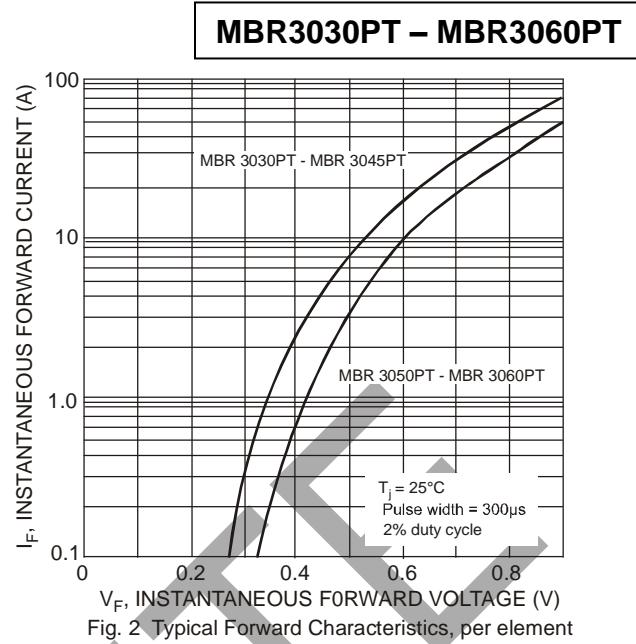
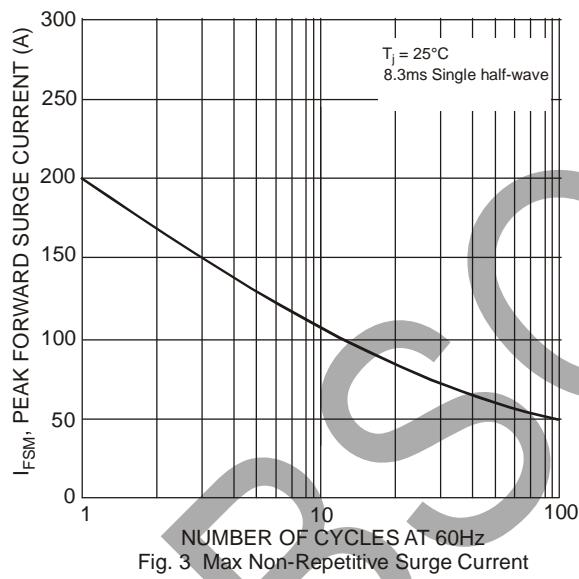
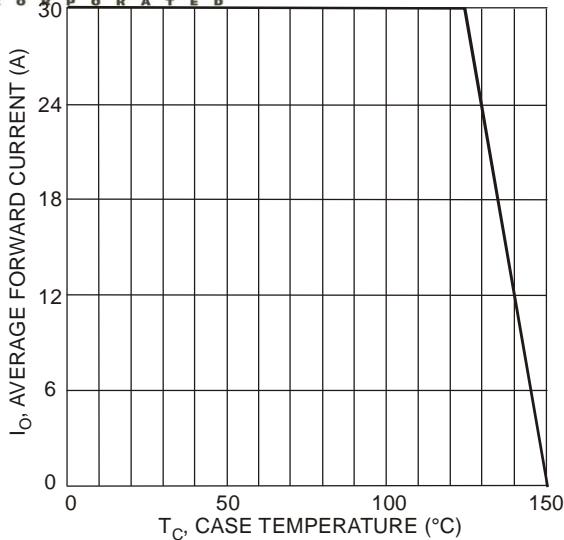
## Maximum Ratings and Electrical Characteristics

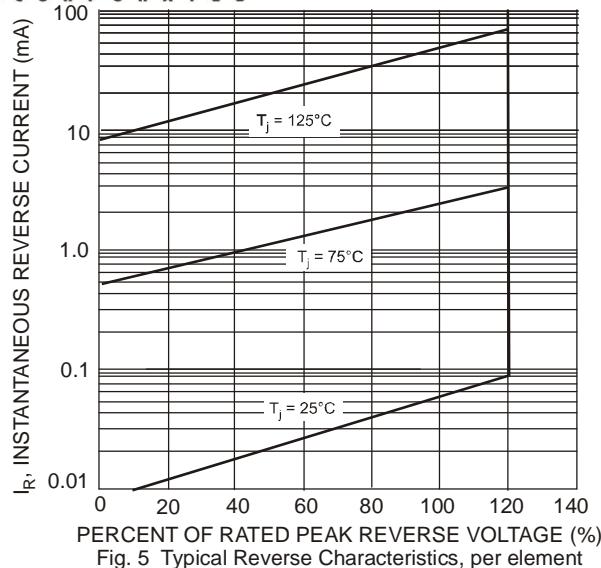
(@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

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 @ $T_c = 125^\circ\text{C}$	$I_o$			30				A
Total Device (See Fig. 7)								
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$			200				A
Forward Voltage Drop @ $I_F = 20\text{A}$ , $T_c = +25^\circ\text{C}$ per element (Note 6) @ $I_F = 20\text{A}$ , $T_c = +125^\circ\text{C}$	$V_{FM}$		0.60		0.75	0.65		V
@ $I_F = 30\text{A}$ , $T_c = +25^\circ\text{C}$ @ $I_F = 30\text{A}$ , $T_c = +125^\circ\text{C}$			0.76		0.80	0.75		
0.72								
Peak Reverse Current @ $T_c = +25^\circ\text{C}$ at Rated DC Blocking Voltage, per element @ $T_c = +125^\circ\text{C}$	$I_{RM}$		1.0		5.0	100		mA
			60					
Typical Total Capacitance (Note 5)	$C_T$			500				pF
Typical Thermal Resistance Junction to Case (Note 4)	$R_{thJC}$			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

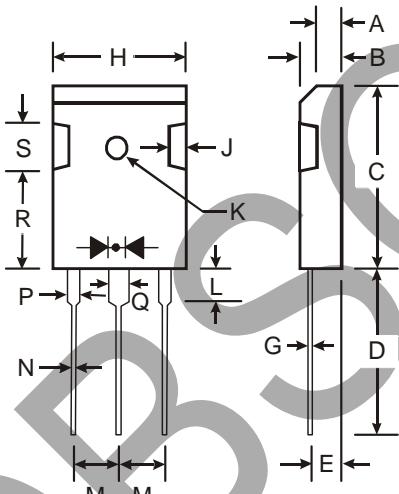
Notes: 4. Thermal resistance junction to case mounted on heatsink.  
 5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.  
 6. Pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ .  
 7. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied. See EU Directive Annex Notes 5 and 7.





## 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	2.9Ø	3.65Ø
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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