



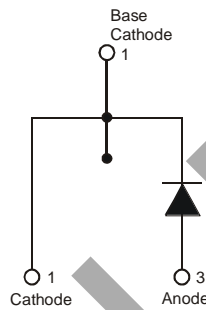
OBSOLETE – PART DISCONTINUED

### 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 Application
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**

### Mechanical Data

- Case: TO-220AC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish – Tin. Solderable per MIL-STD-202, Method 208 <sup>e3</sup>
- Polarity: See Diagram
- Marking: Type Number
- Weight: 2.24 grams (approximate)



Package Pin Out Configuration

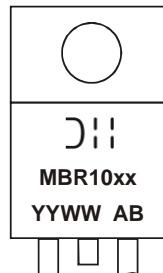
### Ordering Information (Note 3)

Part Number	Case	Packaging
MBR10xx*	TO-220AC	50/Tube

\* xx = Device type, e.g. MBR1045

- 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, go to our website at <http://www.diodes.com/products/packages.html>.

### Marking Information



MBR10xx = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 13 = 2013)  
 WW = Week (01 - 53)

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

Single phase, half wave, 60 Hz, resistive or inductive load  
 For capacitive load, derate current by 20%.

Characteristic	Symbol	MBR 1030	MBR 1035	MBR 1045	MBR 1050	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	30	35	45	50	V
Working Peak Reverse Voltage	$V_{RWM}$					
DC Blocking Voltage (Note 7)	$V_R$					
RMS Reverse Voltage	$V_{R(RMS)}$	21	24.5	31.5	35	V
Average Rectified Output Current (Note 4)	$I_O$	10				A
		@ $T_C = +125^\circ\text{C}$				
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	150				A

**Thermal Characteristics**

Characteristic	Symbol	MBR 1030	MBR 1035	MBR 1045	MBR 1050	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	2.5				$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150				$^\circ\text{C}$

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

Characteristic	Symbol	MBR 1030	MBR 1035	MBR 1045	MBR 1050	Unit
Forward Voltage Drop @ $I_F = 10\text{A}, T_C = +25^\circ\text{C}$ @ $I_F = 10\text{A}, T_C = +125^\circ\text{C}$	$V_{FM}$		0.84 0.57		0.95 0.70	V
Peak Reverse Current at Rated DC Blocking Voltage (Note 7)	$I_{RM}$		0.1 15		0.1 25	mA
						@ $T_C = +25^\circ\text{C}$ @ $T_C = +125^\circ\text{C}$
Typical Total Capacitance (Note 5)	$C_T$	400				pF

- Notes:
- Thermal resistance junction to case mounted on heatsink.
  - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  - RoHS revision 13.2.2003. High temperature solder exemptions applied, see EU Directive Annex Note 7.
  - Short duration pulse test used to minimize self-heating effect.

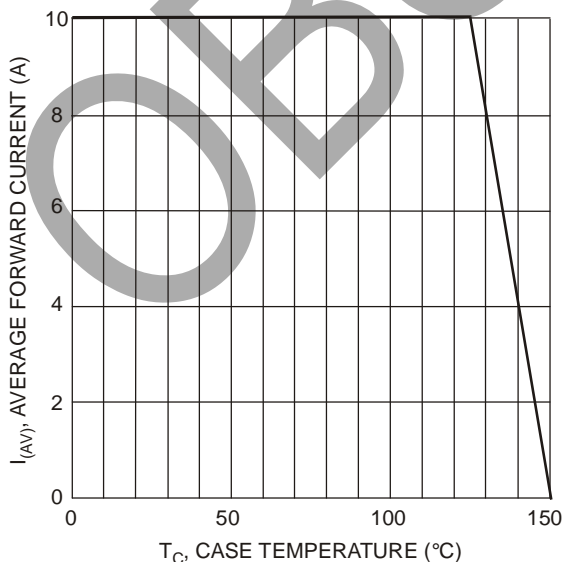


Figure 1 Forward Current Derating Curve

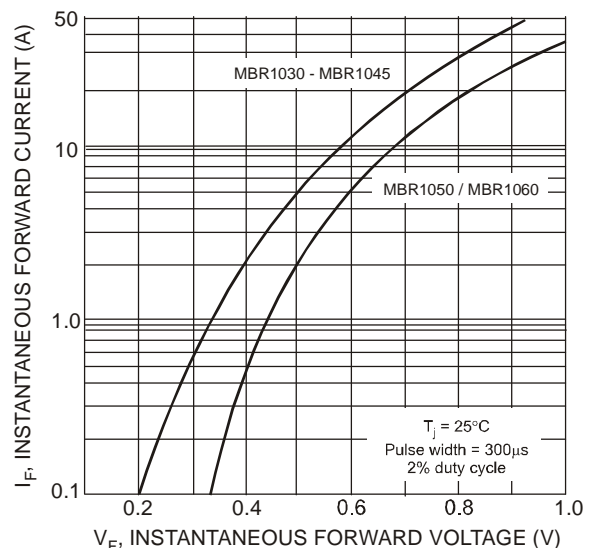


Figure 2 Typical Forward Characteristics

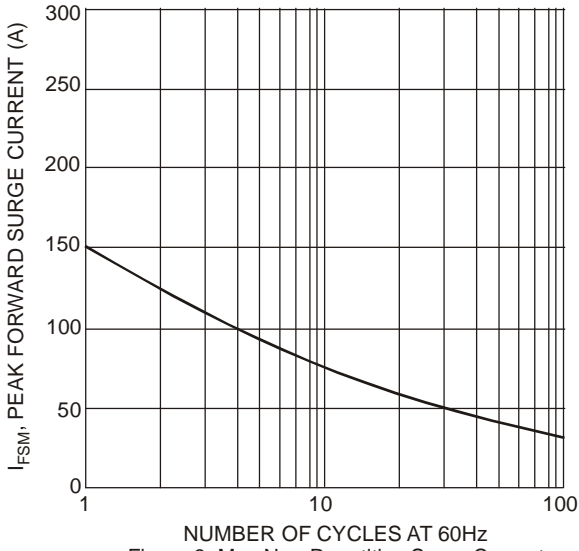


Figure 3 Max Non-Repetitive Surge Current

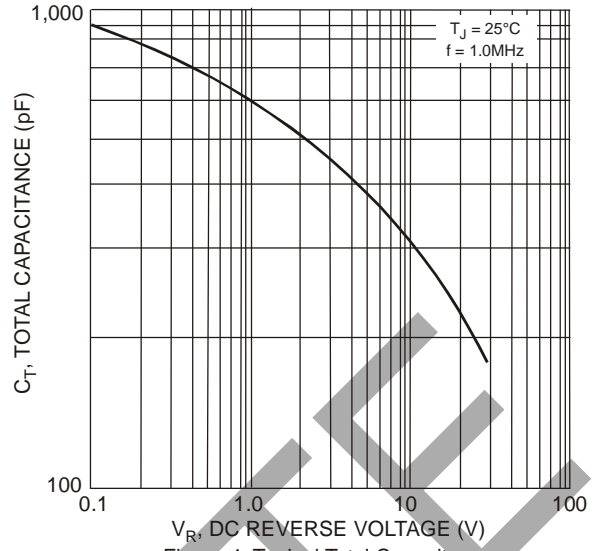


Figure 4 Typical Total Capacitance

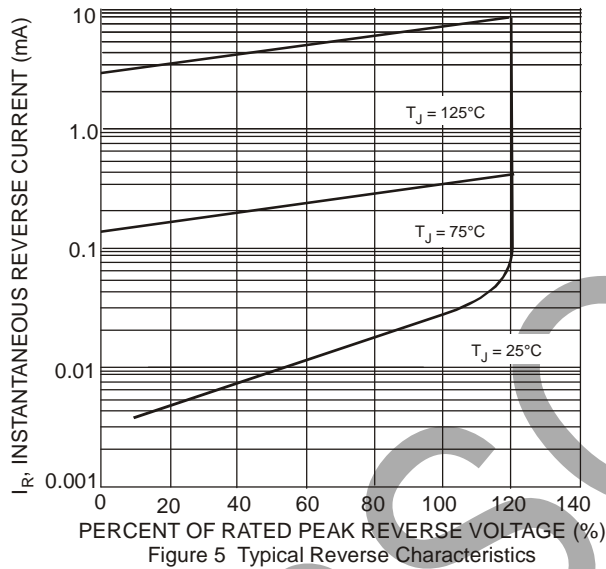
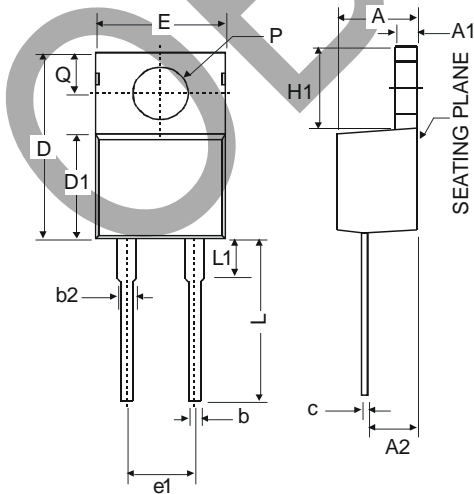


Figure 5 Typical Reverse Characteristics

**Package Outline Dimensions**

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



TO220AC			
Dim	Min	Typ	Max
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
b2	1.15	1.24	1.77
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42
All Dimensions in mm			

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