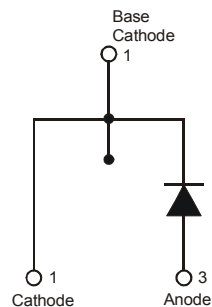


## Features

- 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 (B3)
- Polarity: See Diagram
- Marking: Type Number
- Weight: 2.24 grams (approximate)



Package Pin Out  
Configuration

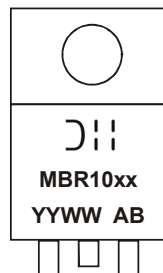
## Ordering Information (Note 3)

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<sub>A</sub> = +25°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 <sub>RRM</sub>					
Working Peak Reverse Voltage	V <sub>RWM</sub>	30	35	45	50	V
DC Blocking Voltage (Note 7)	V <sub>R</sub>					
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	24.5	31.5	35	V
Average Rectified Output Current (Note 4)	I <sub>O</sub>	10				A
@T <sub>C</sub> = +125°C						
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	150				A

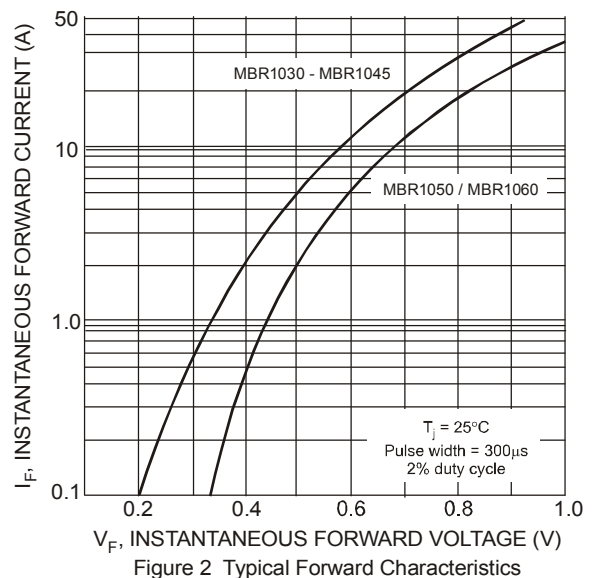
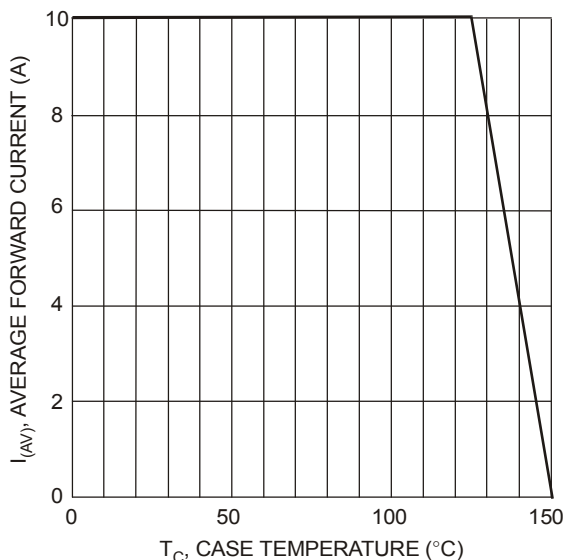
**Thermal Characteristics**

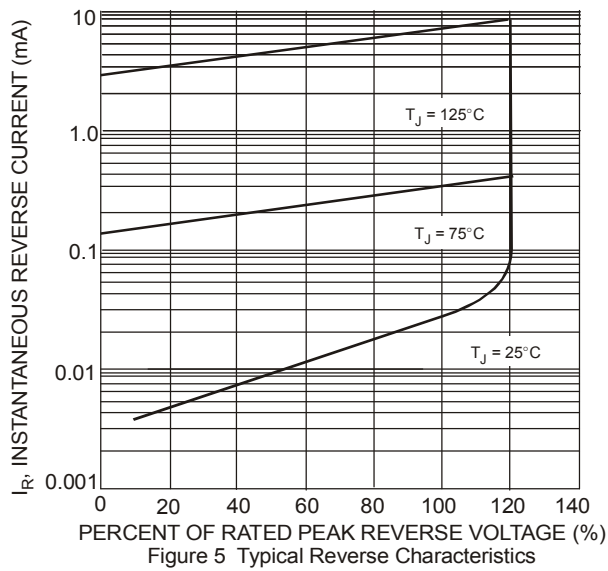
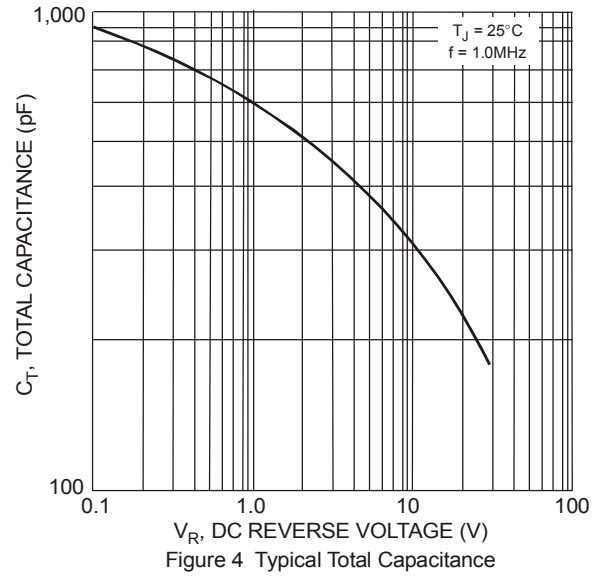
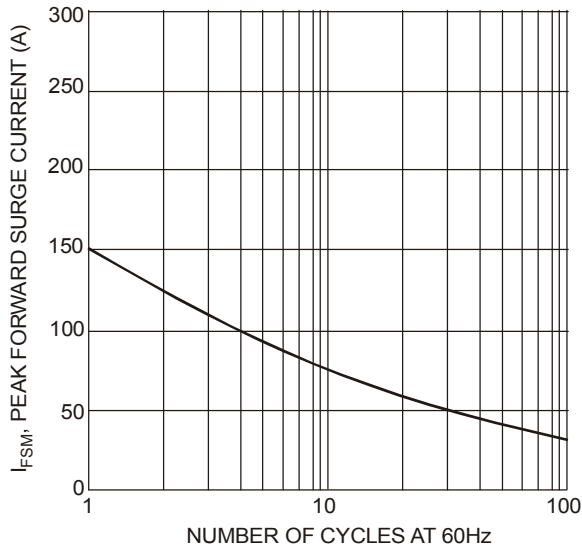
Characteristic	Symbol	MBR 1030	MBR 1035	MBR 1045	MBR 1050	Unit
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	2.5				°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150				°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	MBR 1030	MBR 1035	MBR 1045	MBR 1050	Unit
Forward Voltage Drop @ I <sub>F</sub> = 10A, T <sub>C</sub> = +25°C @ I <sub>F</sub> = 10A, T <sub>C</sub> = +125°C	V <sub>FM</sub>		0.84 0.57		0.95 0.70	V
Peak Reverse Current at Rated DC Blocking Voltage (Note 7)	I <sub>RM</sub>		0.1 15		0.1 25	mA
@T <sub>C</sub> = +25°C @T <sub>C</sub> = +125°C						
Typical Total Capacitance (Note 5)	C <sub>T</sub>	400				pF

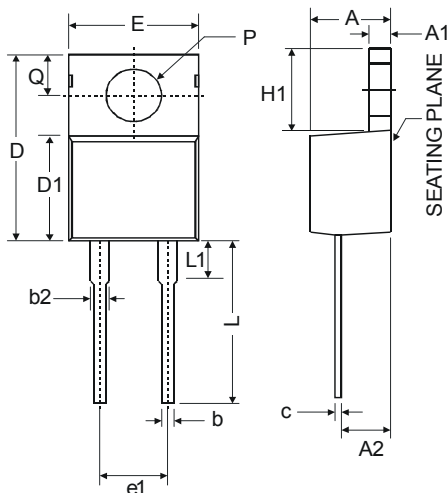
- Notes:
4. Thermal resistance junction to case mounted on heatsink.
  5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  6. RoHS revision 13.2.2003. High temperature solder exemptions applied, see EU Directive Annex Note 7.
  7. Short duration pulse test used to minimize self-heating effect.





## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for 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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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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