MBR1030 – MBR1050

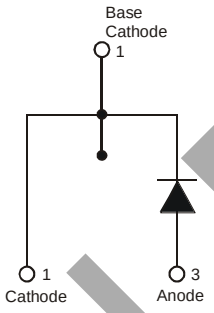
10A SCHOTTKY BARRIER RECTIFIER

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 e3
- 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 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°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 Working Peak Reverse Voltage DC Blocking Voltage (Note 7)	V_{RRM} V_{RWM} V_R	30	35	45	50	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	24.5	31.5	35	V
Average Rectified Output Current (Note 4) @T_C = +125°C	I_O	10				A
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				°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150				°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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

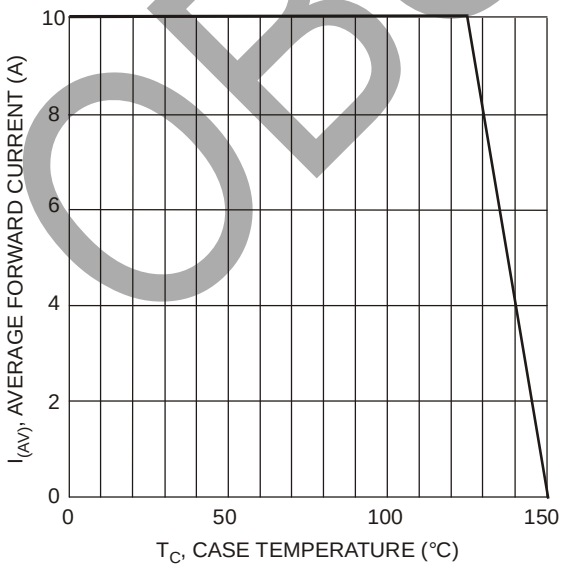


Figure 1 Forward Current Derating Curve

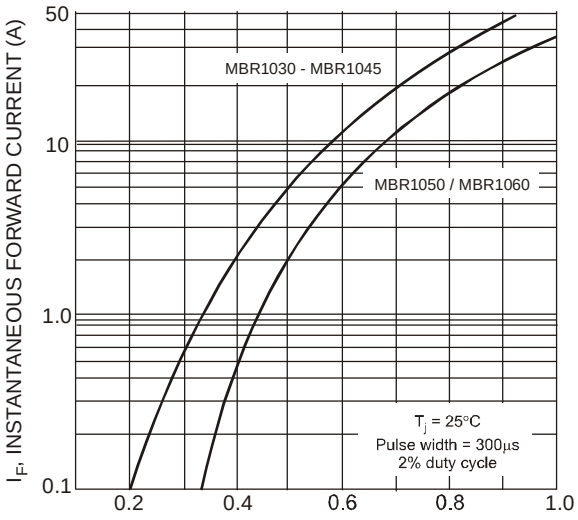


Figure 2 Typical Forward Characteristics

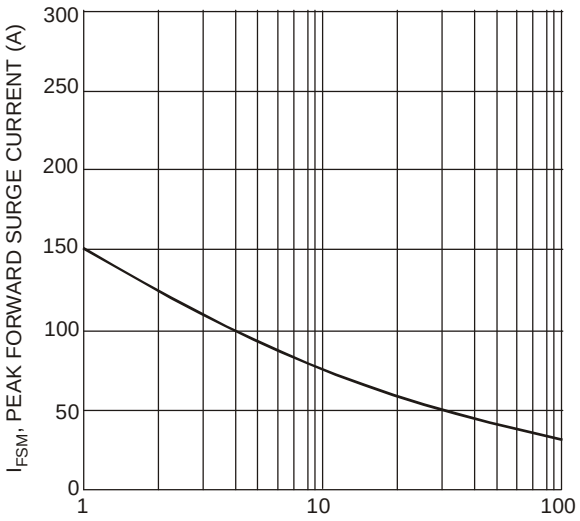


Figure 3 Max Non-Repetitive Surge Current

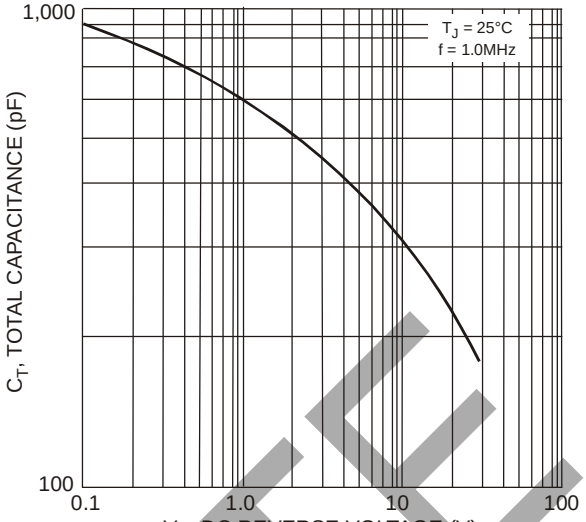


Figure 4 Typical Total Capacitance

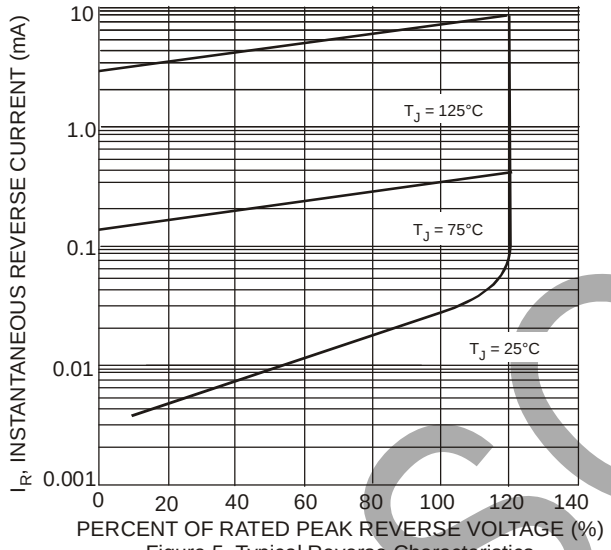
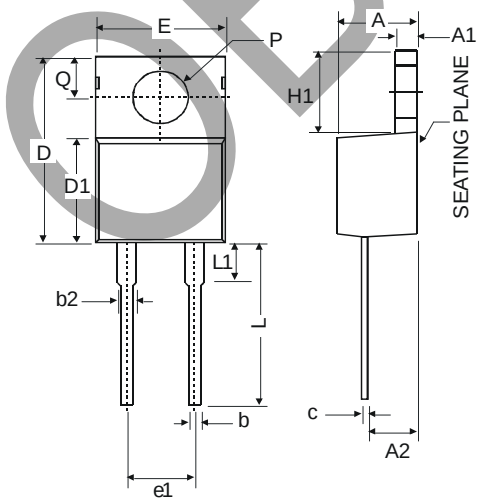


Figure 5 Typical Reverse Characteristics

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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