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June 2008

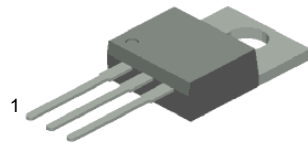
# MBRP3045N Schottky Barrier Rectifier

## Applications

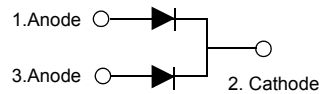
- Switched mode power supply
- Freewheeling diodes

## Features

- Low forward voltage drop
- High frequency properties and switching speed
- Guard ring for over-voltage protection



TO220



## Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{RRM}$	Maximum Repetitive Reverse Voltage	45	V
$V_R$	Maximum DC Reverse Voltage	45	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$	30	A
$I_{FSM}$	Non-repetitive Peak Surge Current (per diode) 60Hz Single Half-Sine Wave	200	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	-65 to +150	$^\circ\text{C}$

## Thermal Characteristics

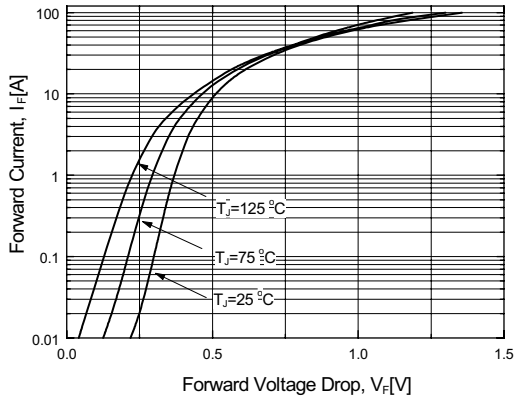
Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case (per diode)	2.2	$^\circ\text{C/W}$

## Electrical Characteristics (per diode)

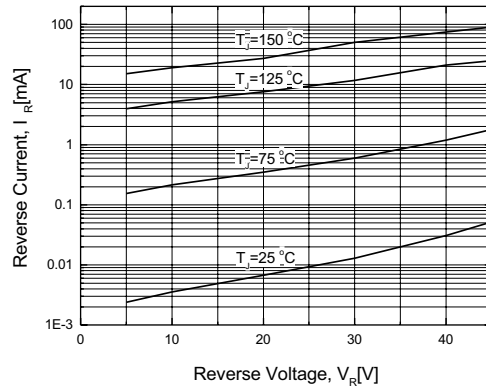
Symbol	Parameter	Value	Units	
$V_{FM}^*$	Maximum Instantaneous Forward Voltage $I_F = 15\text{A}$ $I_F = 15\text{A}$ $I_F = 30\text{A}$ $I_F = 30\text{A}$	$T_C = 25^\circ\text{C}$	0.65	V
		$T_C = 125^\circ\text{C}$	0.57	
		$T_C = 25^\circ\text{C}$	0.80	
		$T_C = 125^\circ\text{C}$	0.65	
$I_{RM}^*$	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$	1	mA
		$T_C = 125^\circ\text{C}$	80	

\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

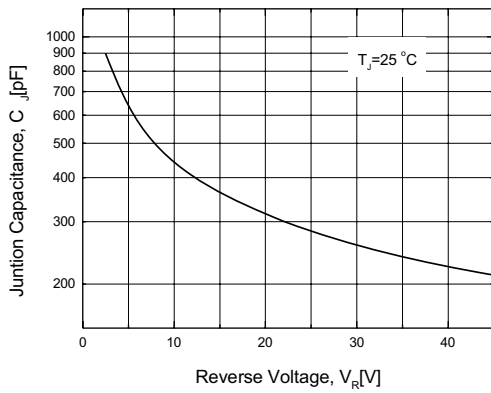
## Typical Performance Characteristics



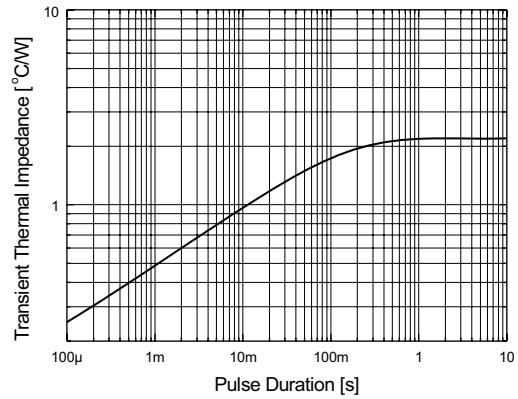
**Figure 1. Typical Forward Voltage Characteristics (per diode)**



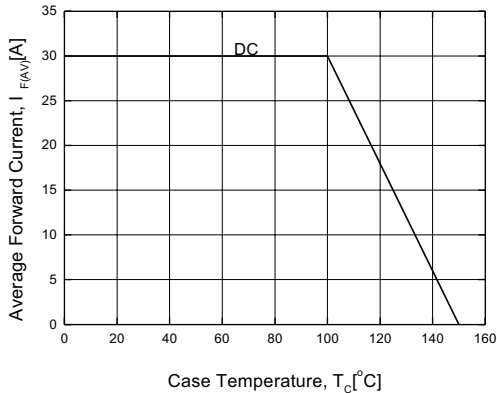
**Figure 2. Typical Reverse Current vs. Reverse Voltage (per diode)**



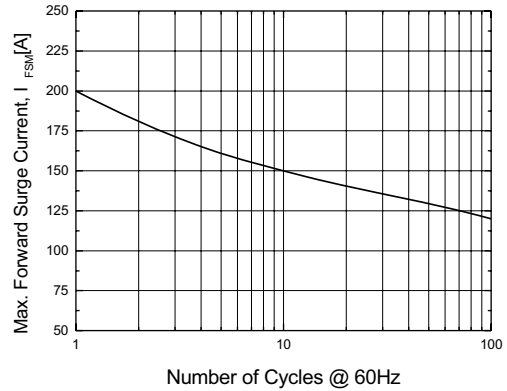
**Figure 3. Typical Junction Capacitance (per diode)**



**Figure 4. Thermal Impedance Characteristics (per diode)**



**Figure 5. Forward Current Derating Curve**

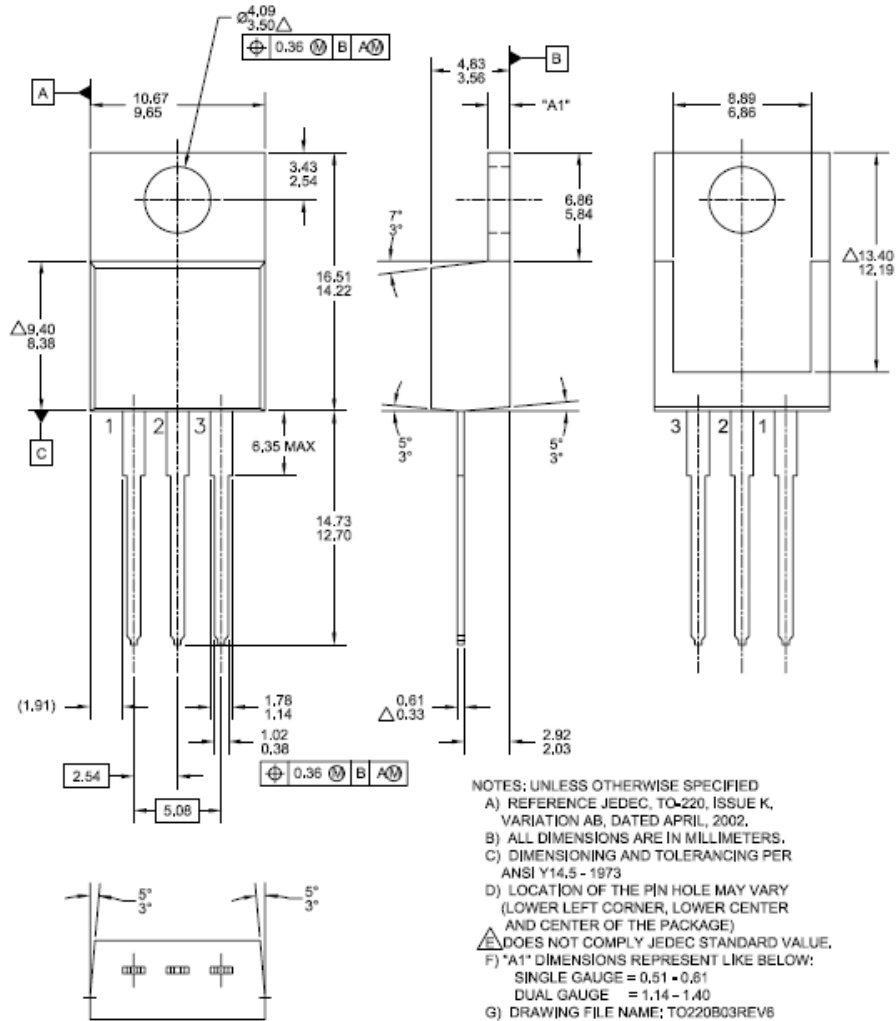


**Figure 6. Non-Repetitive Surge Current (per diode)**

# Package Dimensions

## TO-220

Dimensions are in mm




- NOTES: UNLESS OTHERWISE SPECIFIED
- A) REFERENCE JEDEC, TO-220, ISSUE K, VARIATION AB, DATED APRIL, 2002.
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5 - 1973
  - D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
  - E)  $\Delta$  DOES NOT COMPLY JEDEC STANDARD VALUE.
  - F) \*A1\* DIMENSIONS REPRESENT LIKE BELOW:  
 SINGLE GAUGE = 0.51 - 0.61  
 DUAL GAUGE = 1.14 - 1.40
  - G) DRAWING FILE NAME: TO220B03REV6

Dimensions in Millimeters





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