

# MBR6045PT

## SWITCHMODE™ Power Rectifier

The SWITCHMODE power rectifier employs the use of the Schottky Barrier principle with a Platinum barrier metal. This state-of-the-art device has the following features:

- Dual Diode Construction – Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 45 Volt Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection and High dv/dt Capability (> 10 V/ns)
- 150°C Operating Junction Temperature

### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 Units Per Plastic Tube
- Marking: MBR6045PT

### MAXIMUM RATINGS

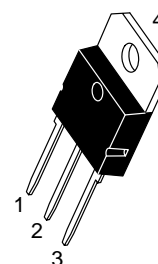
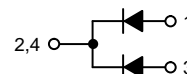
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	45	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 125^\circ\text{C}$ ) Per Diode Per Device	$I_{F(AV)}$	30 60	A
Peak Repetitive Forward Current, (Rated $V_R$ , Square Wave, 20 kHz @ $T_C = 90^\circ\text{C}$ ) Per Diode	$I_{FRM}$	60	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	500	A
Peak Repetitive Reverse Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	2.0	A
Storage Temperature Range	$T_{stg}$	-65 to +175	°C
Operating Junction Temperature	$T_J$	-65 to +150	°C
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	°C
Voltage Rate of Change	dv/dt	10,000	V/ $\mu\text{s}$



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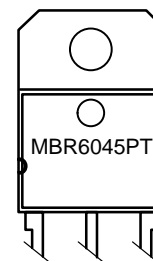
<http://onsemi.com>

## SCHOTTKY BARRIER RECTIFIER 60 AMPERES 45 VOLTS



SOT-93  
CASE 340D  
STYLE 2

### MARKING DIAGRAM



MBR6045PT = Device Code

### ORDERING INFORMATION

Device	Package	Shipping
MBR6045PT	SOT-93	30 Units/Rail

# MBR6045PT

## THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Thermal Resistance – Junction to Case	$R_{\theta JC}$	1.0	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS

Instantaneous Forward Voltage (Note 1.) @ $I_F = 30$ Amps, $T_C = 25^{\circ}C$ @ $I_F = 30$ Amps, $T_C = 125^{\circ}C$ @ $I_F = 60$ Amps, $T_C = 25^{\circ}C$	$V_F$	0.62 0.55 0.75	Volts
Instantaneous Reverse Current (Note 1.) @ Rated DC Voltage, $T_C = 25^{\circ}C$ @ Rated DC Voltage, $T_C = 100^{\circ}C$	$I_R$	1.0 50	mA

1. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$

## TYPICAL ELECTRICAL CHARACTERISTICS

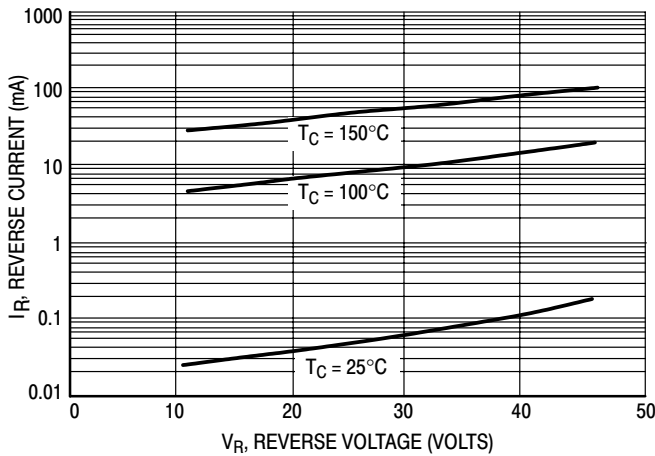


Figure 1. Typical Reverse Current

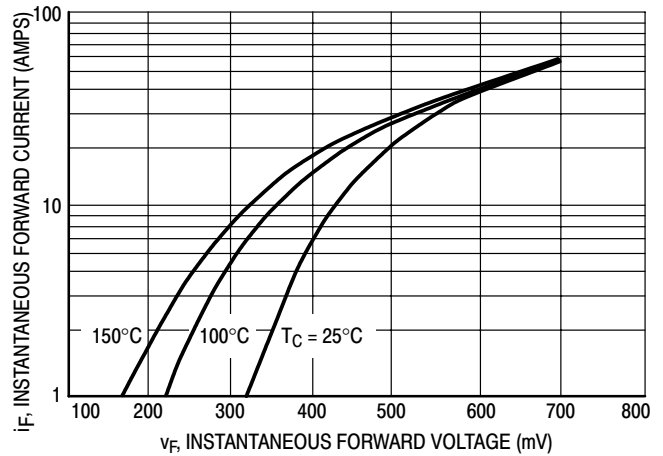
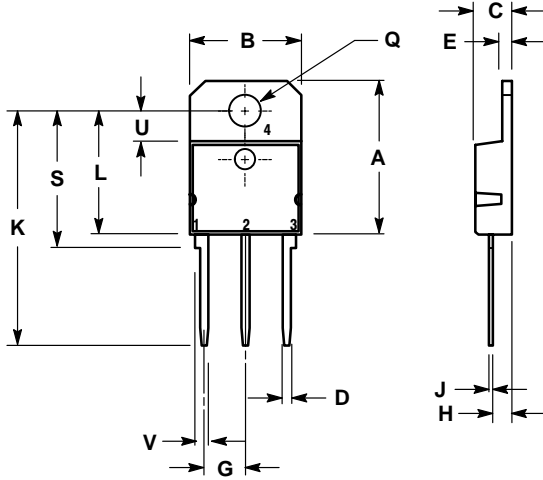


Figure 2. Typical Forward Voltage

# MBR6045PT

## PACKAGE DIMENSIONS

SOT-93  
 (TO-218)  
 PLASTIC  
 CASE 340D-02  
 ISSUE B




- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	---	20.35	---	0.801
B	14.70	15.20	0.579	0.598
C	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
E	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
H	2.00	3.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF		1.220 REF	
L	---	16.20	---	0.638
Q	4.00	4.10	0.158	0.161
S	17.80	18.20	0.701	0.717
U	4.00 REF		0.157 REF	
V	1.75 REF		0.069	

- STYLE 2:  
 PIN 1. ANODE  
 2. CATHODE  
 3. ANODE  
 4. CATHODE

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