

MBR4045PT

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: B4045

MAXIMUM RATINGS

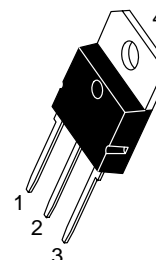
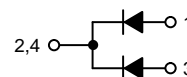
Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	V
Average Rectified Forward Current (Rated V_R , $T_C = 125^\circ\text{C}$) Per Diode Per Device	$I_{F(AV)}$	20 40	A
Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz @ $T_C = 90^\circ\text{C}$) Per Diode	I_{FRM}	40	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	400	A
Peak Repetitive Reverse Current (2.0 μs , 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/ μs



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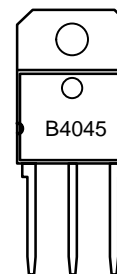
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 40 AMPERES 45 VOLTS



SOT-93
CASE 340D
STYLE 2

MARKING DIAGRAM



B4045 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBR4045PT	SOT-93	30 Units/Rail

MBR4045PT

THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Thermal Resistance — Junction to Case	$R_{\theta JC}$	1.4	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS

Instantaneous Forward Voltage (Note 1.) @ $I_F = 20$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 20$ Amps, $T_C = 125^{\circ}\text{C}$ @ $I_F = 40$ Amps, $T_C = 25^{\circ}\text{C}$ @ $I_F = 40$ Amps, $T_C = 125^{\circ}\text{C}$	V_F	0.70 0.60 0.80 0.75	Volts
Instantaneous Reverse Current (Note 1.) @ Rated DC Voltage, $T_C = 25^{\circ}\text{C}$ @ Rated DC Voltage, $T_C = 100^{\circ}\text{C}$	I_R	1.0 50	mA

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

TYPICAL ELECTRICAL CHARACTERISTICS

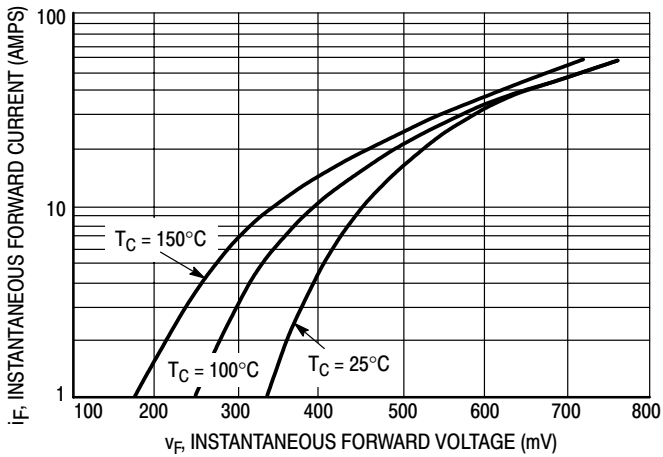


Figure 1. Typical Forward Voltage

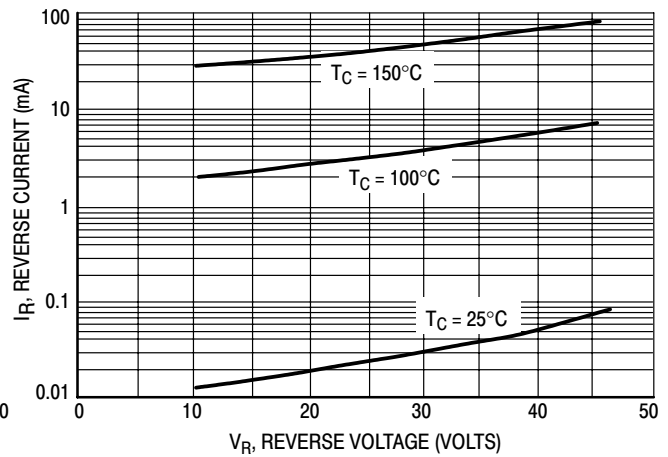


Figure 2. Typical Reverse Current

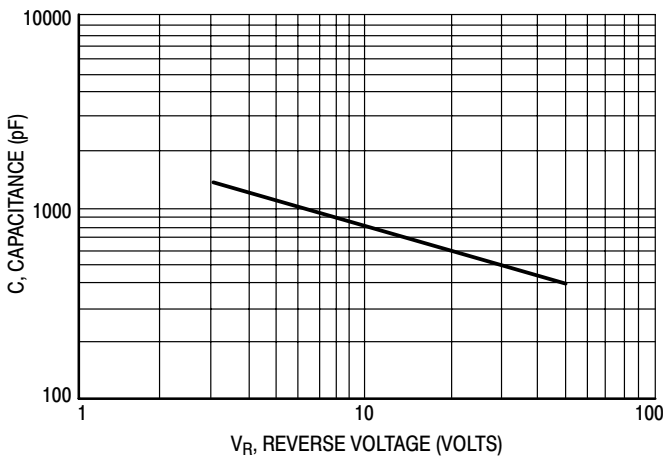


Figure 3. Typical Capacitance Per Leg

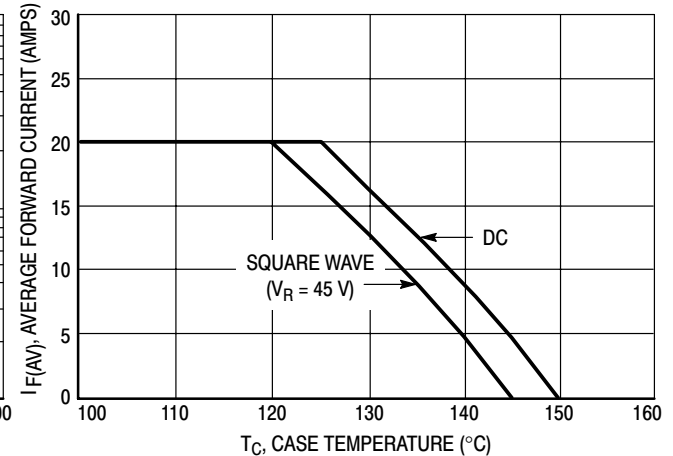
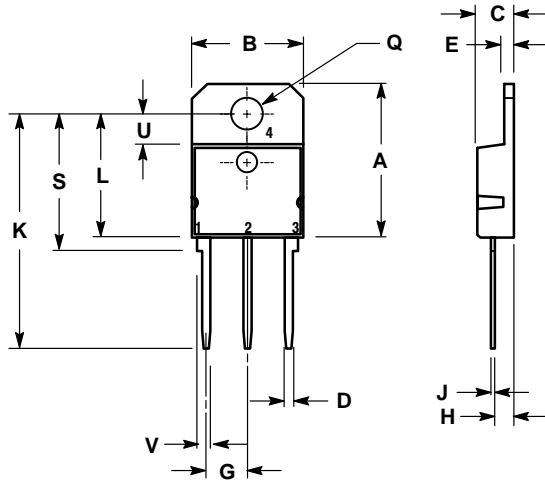


Figure 4. Current Derating Per Leg

MBR4045PT

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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