MBR3045PT

Preferred Device

Switch-mode Power Rectifier

These state-of-the-art devices use the Schottky Barrier principle with a platinum barrier metal.

Features

- Dual Diode Construction; Terminals 1 and 3 may be Connected for Parallel Operation at Full Rating
- Guard-ring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Pb-Free Package is Available*

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

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 , $T_C = 105$ °C) Per Device Per Diode	I _{F(AV)}	30 15	А
Peak Repetitive Forward Current, (Rated V _R , Square Wave, 20 kHz) Per Diode	I _{FRM}	30	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	200	А
Peak Repetitive Reverse Current (2.0 μs, 1.0 kHz) Per Diode (See Figure 6)	I _{RRM}	2.0	Α
Storage Temperature Range	T _{stg}	-65 to +175	°C
Operating Junction Temperature (Note 1)	TJ	-65 to +175	°C
Peak Surge Junction Temperature (Forward Current Applied)	T _{J(pk)}	175	°C
Voltage Rate of Change (Rated V _R)	dv/dt	10,000	V/μs

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

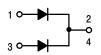
*For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



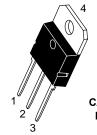
ON Semiconductor®

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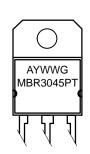
SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 45 VOLTS



MARKING DIAGRAM



SOT-93 CASE 340D PLASTIC



A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
MBR3045PT	SOT-93	30 Units / Rail
MBR3045PTG	SOT-93 (Pb-Free)	30 Units / Rail

Preferred devices are recommended choices for future use and best overall value.

MBR3045PT

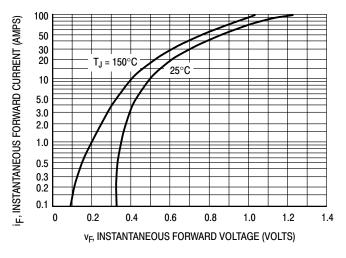
THERMAL CHARACTERISTICS (Per Diode)

Rating	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{ heta JC}$	1.4	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	40	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode)

Instantaneous Forward Voltage (Note 2) ($i_F = 20 \text{ Amps}, T_C = 125^{\circ}\text{C}$) ($i_F = 30 \text{ Amps}, T_C = 125^{\circ}\text{C}$) ($i_F = 30 \text{ Amps}, T_C = 25^{\circ}\text{C}$)	VF	0.60 0.72 0.76	V
Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_C = 125$ °C) (Rated dc Voltage, $T_C = 25$ °C)	i _R	100 1.0	mA

^{2.} Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.

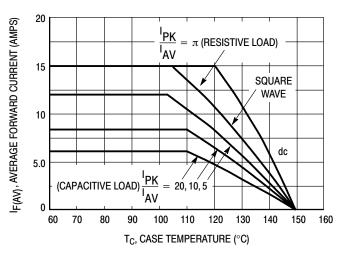


100 $T_J = 150^{\circ}C$ IR, REVERSE CURRENT (mA) 125°C 10 100°C 1.0 75°C 0.1 25°C 0.01 5.0 10 0 25 45 50 V_R, REVERSE VOLTAGE (VOLTS)

Figure 1. Typical Forward Voltage

Figure 2. Typical Reverse Current

MBR3045PT



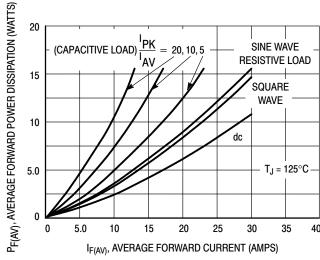


Figure 3. Current Derating (Per Leg)

Figure 4. Forward Power Dissipation (Per Leg)

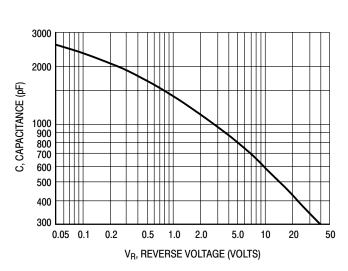


Figure 5. Capacitance

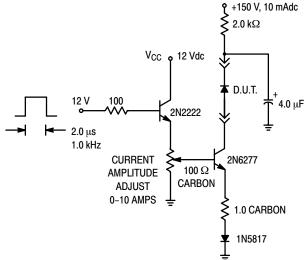
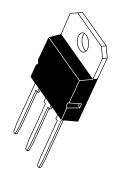


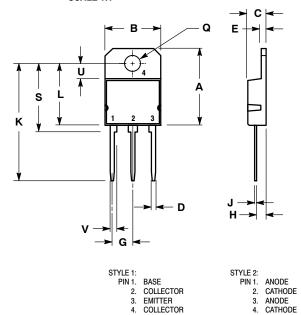
Figure 6. Test Circuit for Repetitive Reverse Current



SOT-93 (TO-218) CASE 340D-02 **ISSUE E**

DATE 01/03/2002

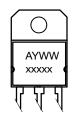




- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
Α		20.35		0.801
В	14.70	15.20	0.579	0.598
С	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
Е	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
Н	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
٧	1.75 REF		0.0	169

MARKING DIAGRAM



= Assembly Location

= Year

WW = Work Week XXXXX = Device Code

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