

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
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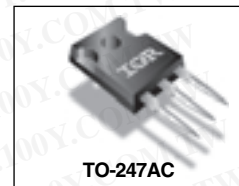
PD -20725 01/2000

International IOR Rectifier

MBR6045WT

SCHOTTKY RECTIFIER

60 Amp



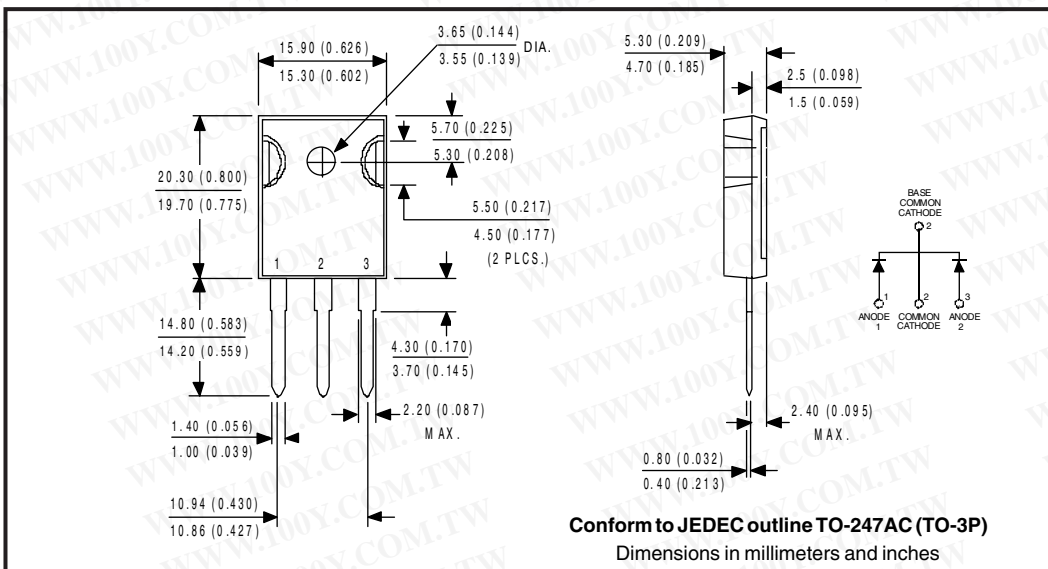
Major Ratings and Characteristics

Characteristics	MBR6045WT	Units
$I_{F(AV)}$ Rectangular waveform	60	A
V_{RRM}	45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	2900	A
V_F @ 30 Apk, $T_J = 125^\circ C$ (per leg)	0.55	V
T_J	-55 to 150	$^\circ C$

Description/Features

The MBR6045WT center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to $150^\circ C$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $150^\circ C$ T_J operation
- Center tap TO-247 package
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



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Voltage Ratings

Part number	MBR6045WT
V_R Max. DC Reverse Voltage (V)	45
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg) * See Fig. 5 (Per Device)	30	A	50% duty cycle @ $T_C = 122^\circ\text{C}$, rectangular wave form
	60		
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	2900	A	Following any rated load condition and with rated V_{RWM} applied
	360		
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	27	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 4$ Amps, $L = 3.4$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	6	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	Values	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.62	V	$T_J = 25^\circ\text{C}$
	0.75	V	
		0.55	V
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	1	mA	$T_J = 25^\circ\text{C}$
	150	mA	$T_J = 125^\circ\text{C}$
$V_{F(TO)}$ Threshold Voltage	0.27	V	$T_J = T_J$ max.
r_t Forward Slope Resistance	7.3	m Ω	
C_T Max. Junction Capacitance (Per Leg)	1400	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance (Per Leg)	7.5	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

(1) Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg) * See Fig. 4	1.0	$^\circ\text{C/W}$	DC operation
R_{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.5	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.24	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	6(0.21)	g(oz.)	
T Mounting Torque	Min. 6(5)	Kg-cm (lbf-in)	
	Max. 12(10)		
Case Style	TO-247AC(TO-3P)	JEDEC	

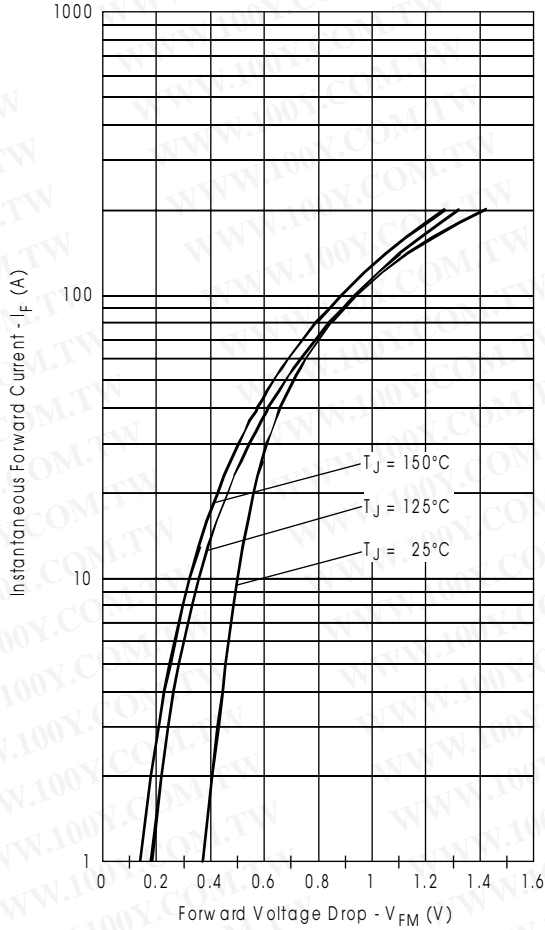


Fig. 1 - Max. Forward Voltage Drop Characteristics (PerLeg)

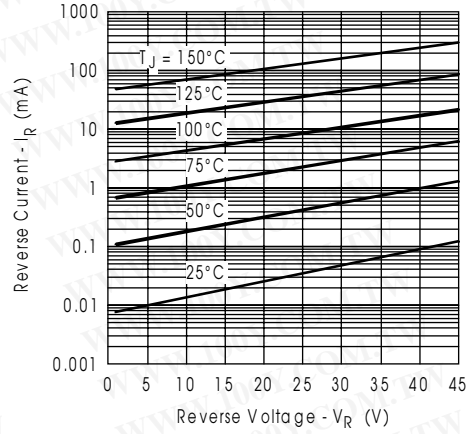


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (PerLeg)

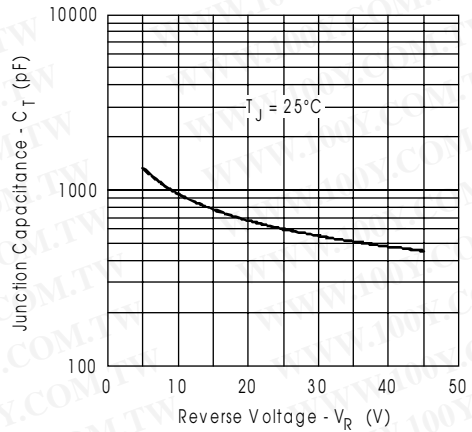


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (PerLeg)

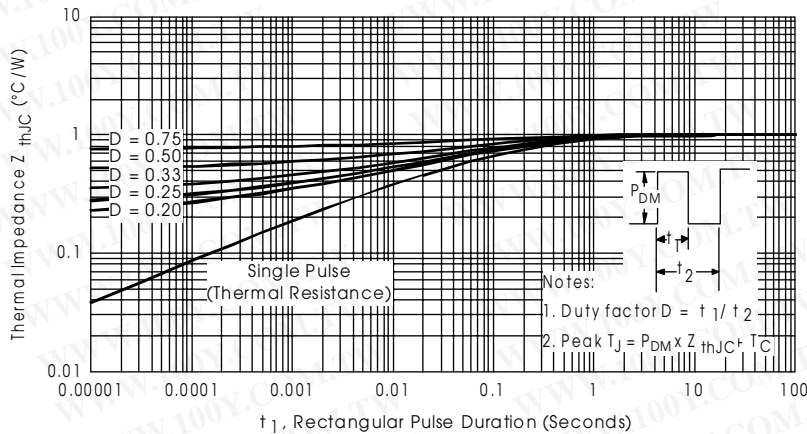


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (PerLeg)

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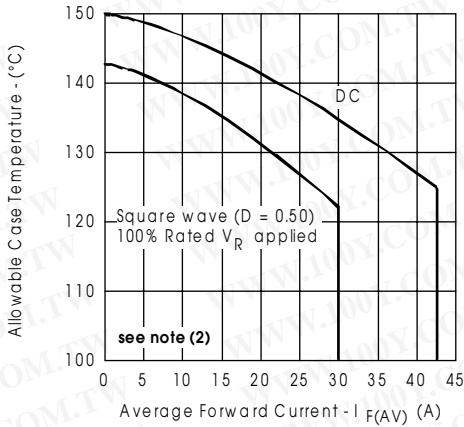


Fig.5- Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

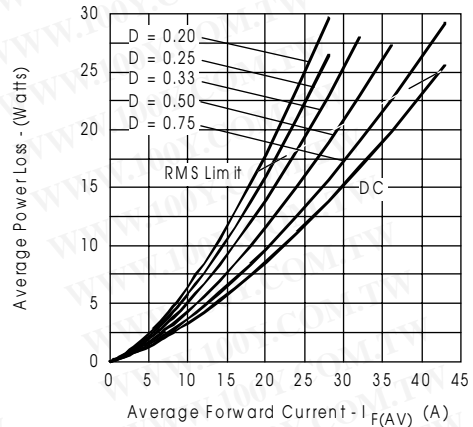


Fig.6- Forward Power Loss Characteristics (Per Leg)

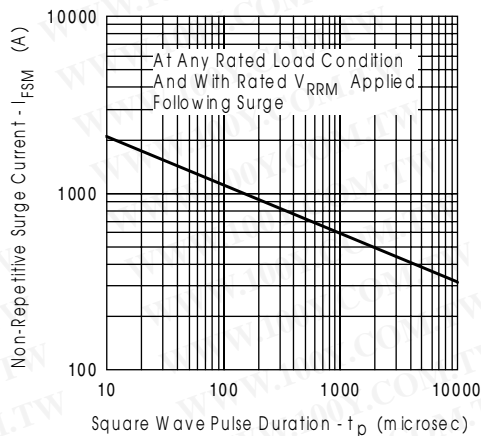


Fig.7- Max. Non-Repetitive Surge Current (Per Leg)

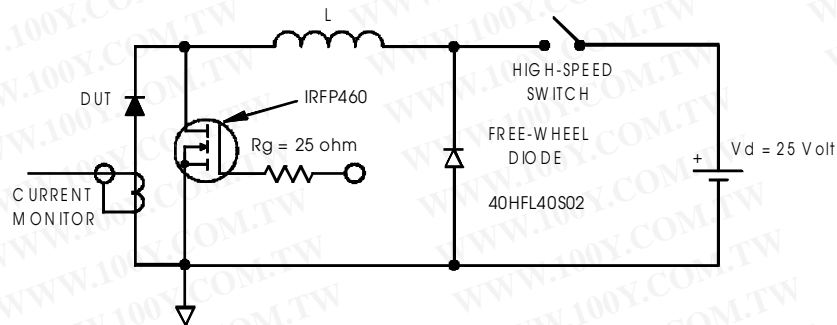


Fig.8 - Unclamped Inductive Test Circuit

- (2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;
 Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)}/D)$ (see Fig. 6);
 Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ $V_{R1} = 100\%$ rated V_R