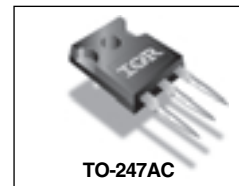


SCHOTTKY RECTIFIER

60 Amp



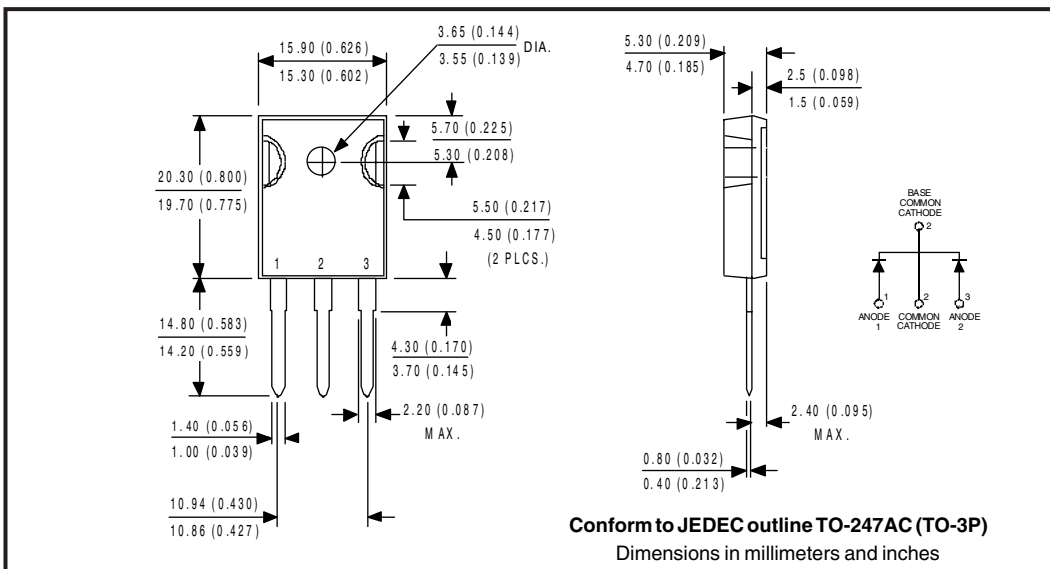
Major Ratings and Characteristics

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 @ $30 A_{pk}, T_J=125^\circ C$ (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



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°C, rectangular wave form
	60		
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	2900	A	5µs Sine or 3µs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V _{RRM} applied
	360		
E _{AS} Non-Repetitive Avalanche Energy (Per Leg)	27	mJ	T _J = 25 °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 x V _R typical

Electrical Specifications

Parameters	Values	Units	Conditions
V _{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.62	V	@ 30A T _J = 25 °C
	0.75	V	@ 60A T _J = 25 °C
	0.55	V	@ 30A T _J = 125 °C
I _{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	1	mA	T _J = 25 °C
	150	mA	T _J = 125 °C V _R = rated V _R
V _{F(TO)} Threshold Voltage	0.27	V	T _J = T _J max.
r _t Forward Slope Resistance	7.3	mΩ	
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 < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T _J Max. Junction Temperature Range	-55 to 150	°C	
T _{stg} Max. Storage Temperature Range	-55 to 150	°C	
R _{thJC} Max. Thermal Resistance Junction to Case (Per Leg) * See Fig. 4	1.0	°C/W	DC operation
R _{thJC} Max. Thermal Resistance Junction to Case (Per Package)	0.5	°C/W	DC operation
R _{thCS} Typical Thermal Resistance, Case to Heatsink	0.24	°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	

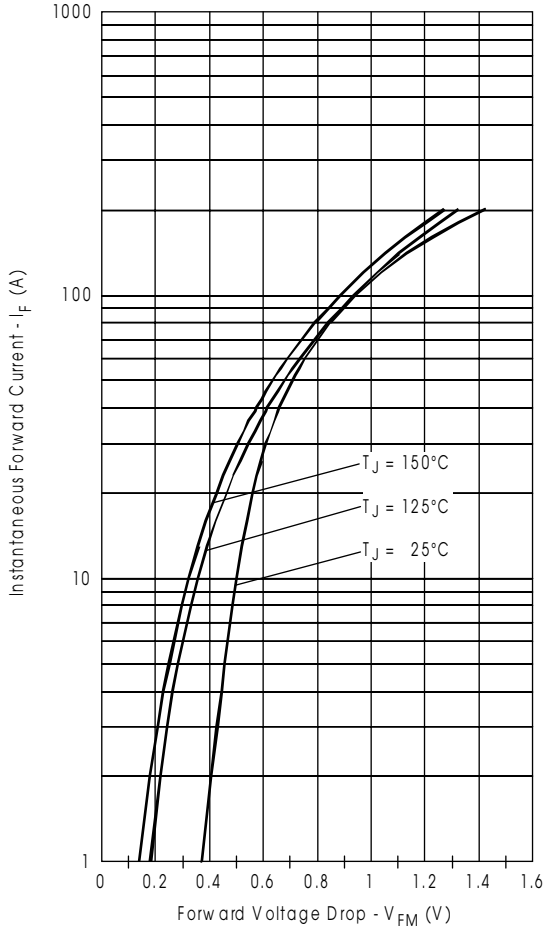


Fig. 1 - Max. Forward Voltage Drop Characteristics (PerLeg)

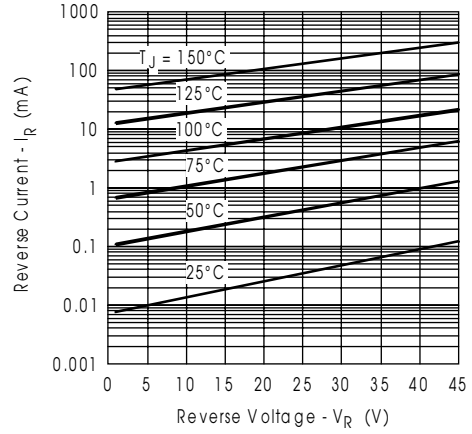


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (PerLeg)

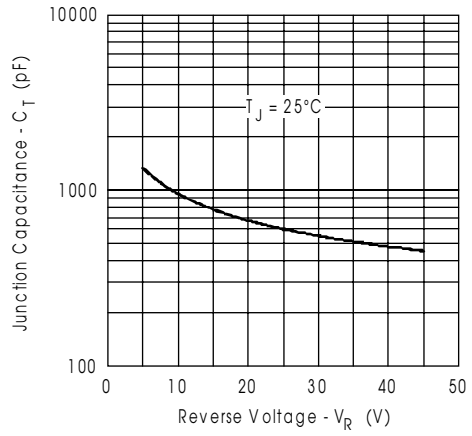


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (PerLeg)

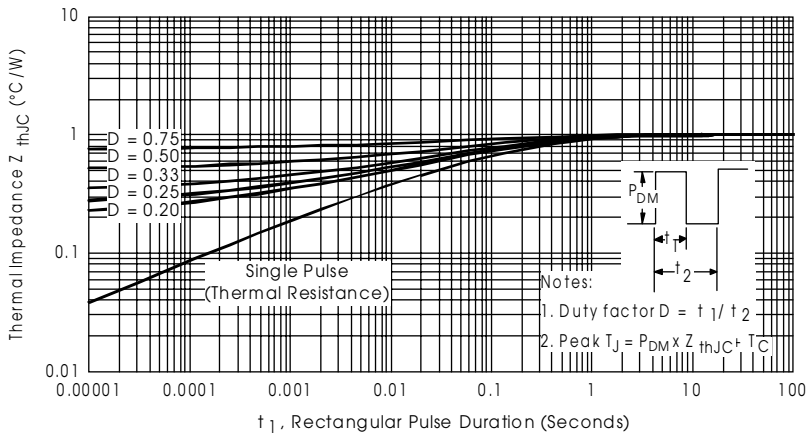


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (PerLeg)

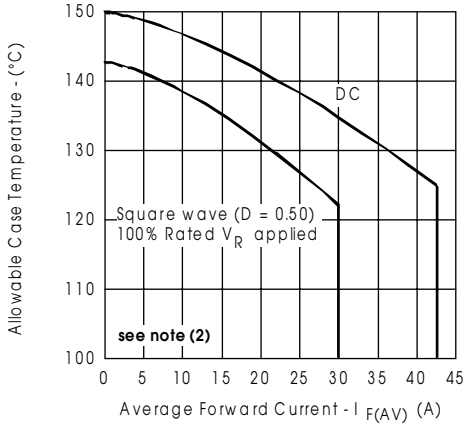


Fig.5- Max. Allowable Case Temperature Vs. Average Forward Current (PerLeg)

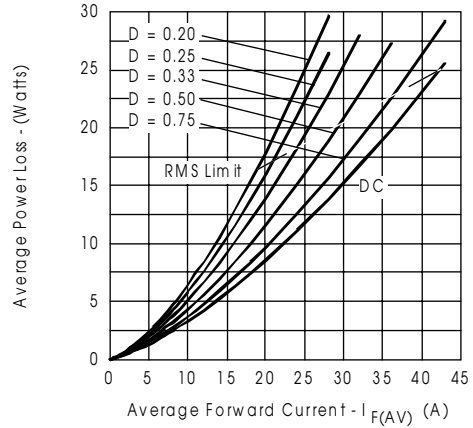


Fig.6- Forward Power Loss Characteristics (PerLeg)

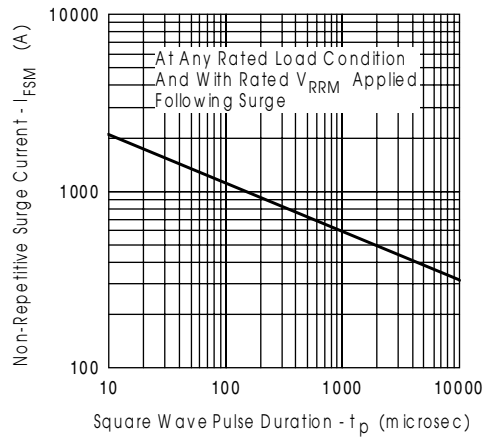


Fig.7- Max. Non-Repetitive Surge Current (PerLeg)

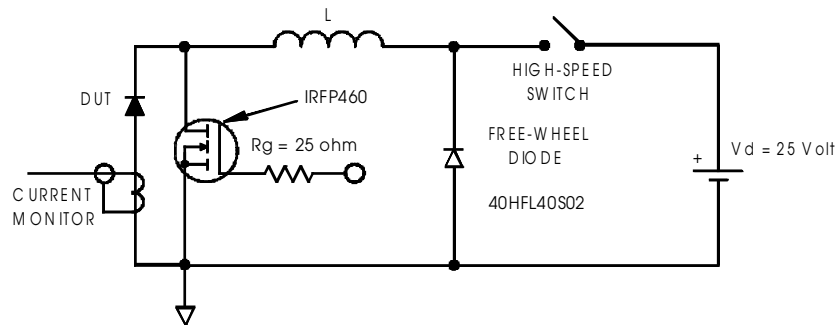


Fig.8- Unclamped Inductive Test Circuit

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

