

$$I_{F(AV)} = 30\text{Amp}$$

$$V_R = 35\text{-}45\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	30	A
I_{FRM} @ $T_C = 125^\circ\text{C}$ (Per Leg)	30	A
V_{RRM}	35-45	V
I_{FSM} @ $t_p = 5\ \mu\text{s}$ sine	1020	A
V_F @ $20\ \text{Apk}$, $T_J = 125^\circ\text{C}$	0.60	V
T_J range	-65 to 150	$^\circ\text{C}$

Description/ Features

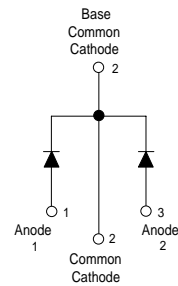
The MBR30..WTPbF center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150°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
- Lead-Free ("PbF" suffix)

Case Styles



TO-247AC



Voltage Ratings

Part number	MBR3035WTPbF	MBR3045WTPbF
V _R Max. DC Reverse Voltage (V)	35	45
V _{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
I _{F(AV)} Max. Average Forward (PerLeg) Current (PerDevice)	15	A	@ T _C = 125° C (Rated V _R)
	30		
I _{FRM} Peak Repetitive Forward Current (Per Leg)	30	A	Rated V _R , square wave, 20kHz T _C = 125° C
I _{FSM} Non Repetitive Peak Surge Current	1020	A	5µs Sine or 3µs Rect. pulse Following any rated load condition and with rated V _{RRM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
	200		
I _{RRM} Peak Repetitive Reverse Surge Current	2.0	A	2.0 µsec 1.0KHz

Electrical Specifications

Parameters	Values	Units	Conditions
V _{FM} Max. Forward Voltage Drop (1)	0.76	V	@ 30A T _J = 25° C
	0.60	V	@ 20A T _J = 125° C
	0.72	V	@ 30A
I _{IRM} Max. Instantaneous Reverse Current (1)	1.0	mA	T _J = 25° C
	100	mA	T _J = 125° C
V _{F(TO)} Threshold Voltage	0.29	V	T _J = T _J max.
r _f Forward Slope Resistance	13.8	mΩ	
C _T Max. Junction Capacitance	800	pF	V _R = 5V _{DC} (test signal range 100Khz to 1Mhz) 25° C
L _S Typical Series Inductance	7.5	nH	Measured from top of terminal to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V _R)	10000	V/ µs	

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

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T _J Max. Junction Temperature Range	-65 to 150	°C	
T _{stg} Max. Storage Temperature Range	-65 to 175	°C	
R _{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	1.40	°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
Marking Device	MBR30..WT		

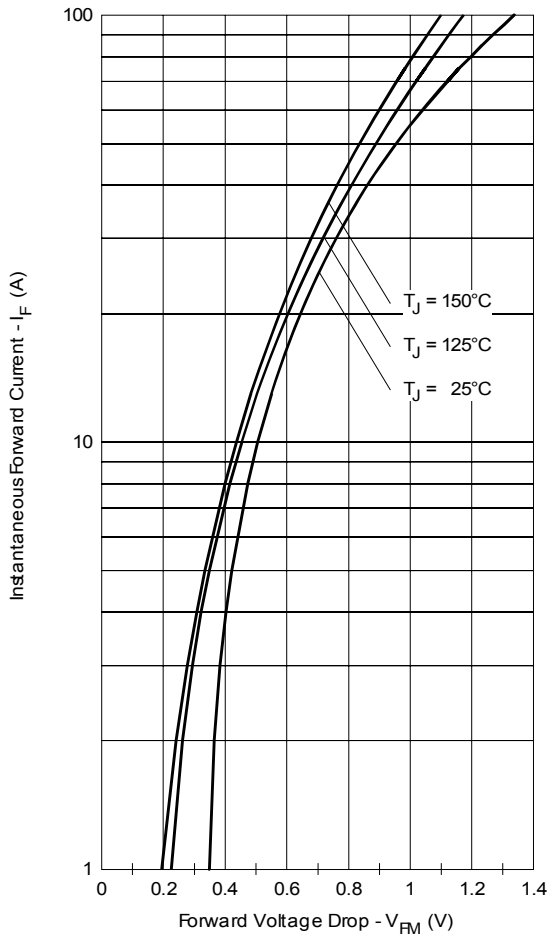


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

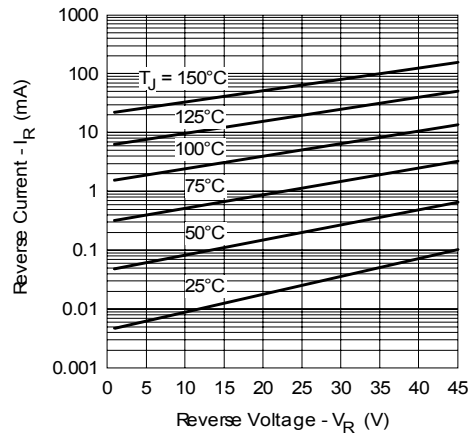


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

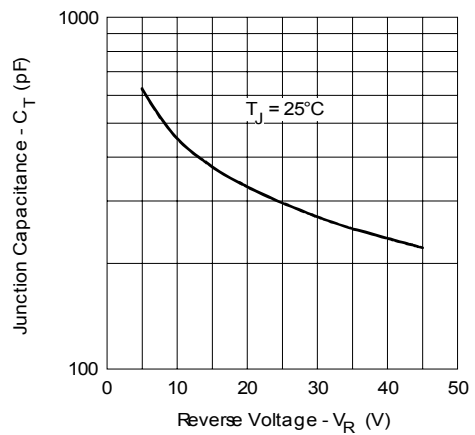


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

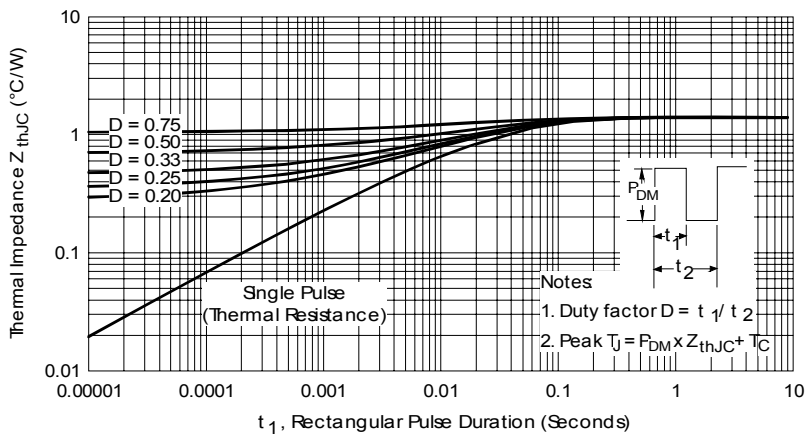


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

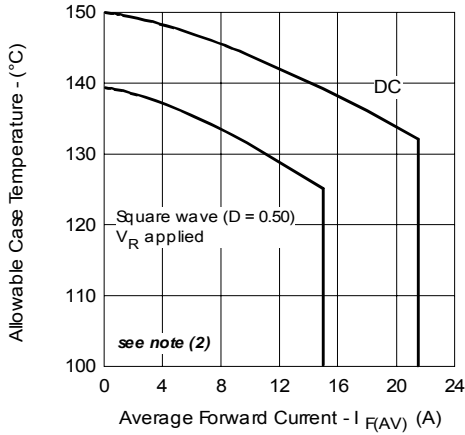


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

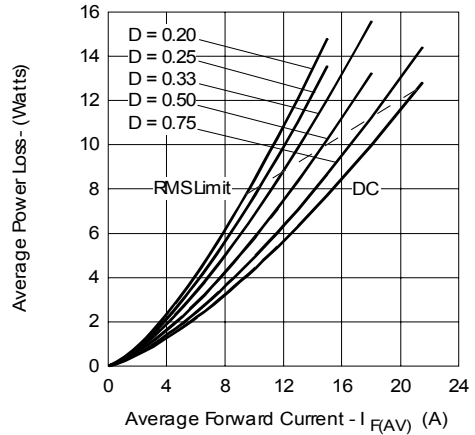


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

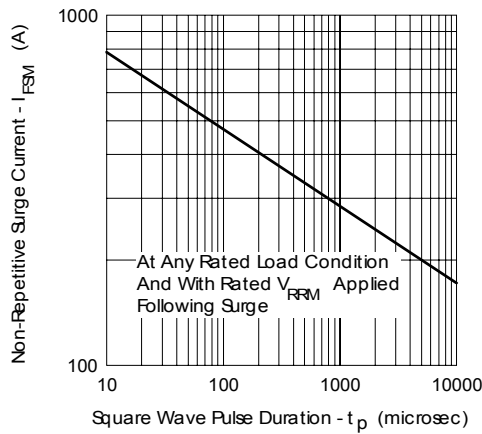


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

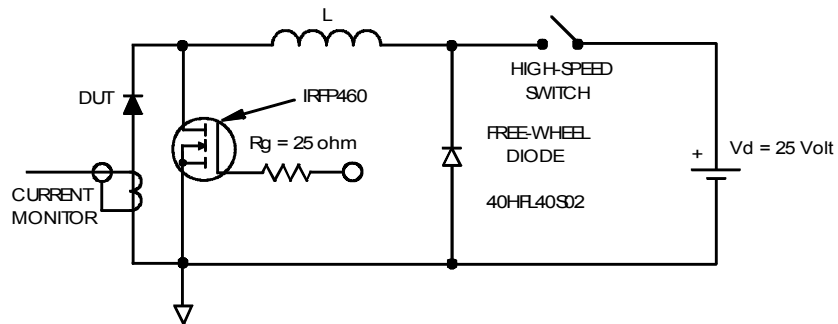


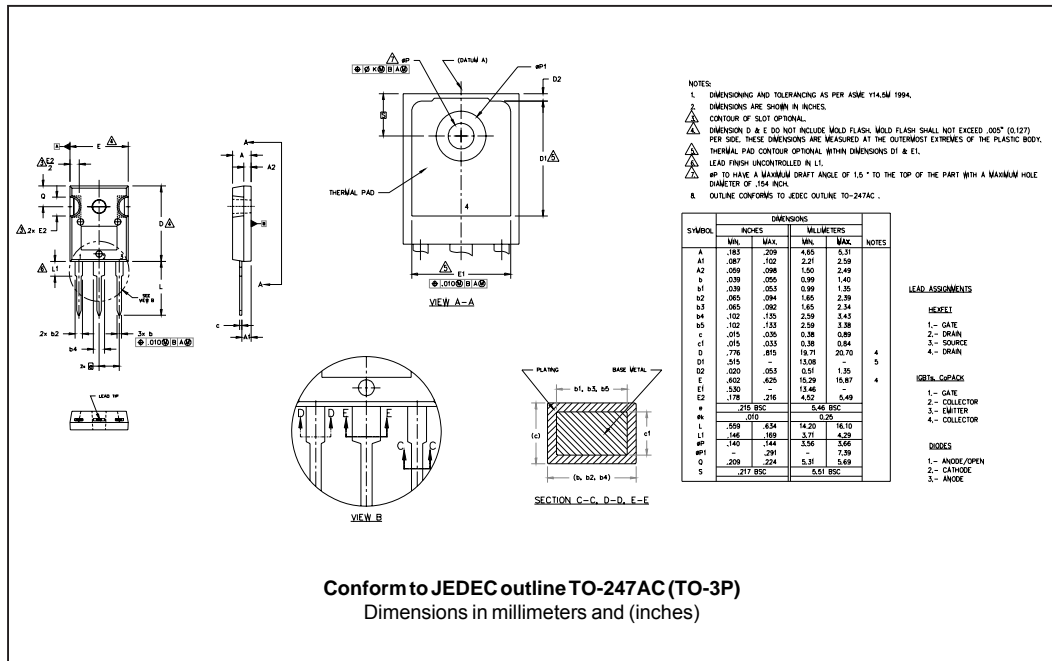
Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

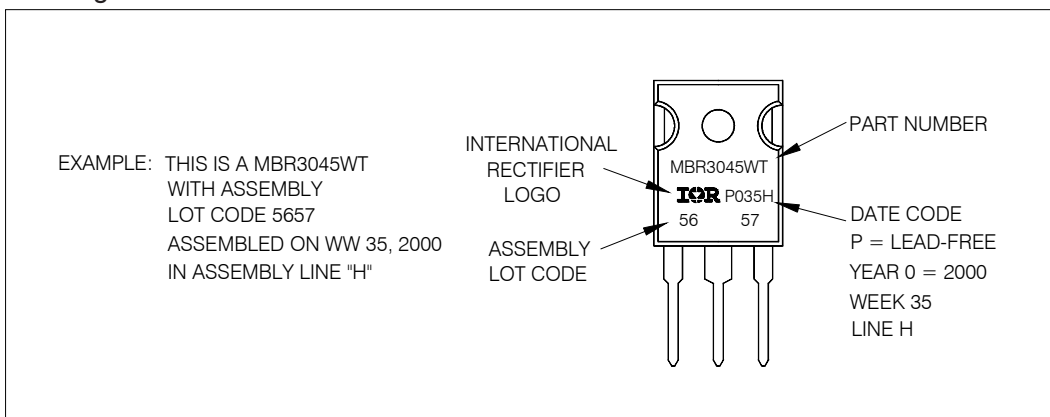
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1}$ = rated V_R

Outline Table



Marking Information



Ordering Information Table

Device Code				
MBR	30	45	WT	PbF
①	②	③	④	⑤
1	- Schottky MBR Series			
2	- Current Rating (30 = 30A)			
3	- Voltage Ratings			
4	- Circuit Configuration : Center Tap (Dual) TO-247			
5	- • none = Standard Production • PbF = Lead-Free			

35 = 35V
45 = 45V

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.