

International
IOR Rectifier

MBR735
MBR745

SCHOTTKY RECTIFIER

7.5 Amp

Major Ratings and Characteristics

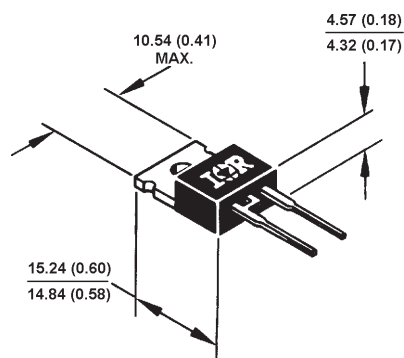
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	7.5	A
V_{RRM}	35/45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	690	A
V_F @ 7.5 Apk, $T_J = 125^\circ C$	0.57	V
T_J range	- 65 to 150	$^\circ C$

Description/Features

The MBR7.. Schottky rectifier has been optimized for low reverse leakage at high temperature. 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
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case Styles



TO-220

Voltage Ratings

Parameters	MBR735	MBR745
V_R Max. DC Reverse Voltage (V)	35	45
V_{RRM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	MBR7..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	7.5	A	@ $T_C = 131^\circ\text{C}$ (Rated V_R)
I_{FSM} Non-Repetitive Peak Surge Current	690	A	5 μs Sine or 3 μs Rect. pulse Following any rated load condition and with rated V_{RRM} applied
	150		Surge applied at rated load condition halfwave single phase 60Hz
I_{RRM} Peak Repetitive Reverse Surge Current	1.0	A	2.0 μsec 1.0 KHz

Electrical Specifications

Parameters	MBR7..	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1)	0.84	V	@ 15A $T_J = 25^\circ\text{C}$
	0.57	V	@ 7.5A $T_J = 125^\circ\text{C}$
	0.72	V	@ 15A
I_{RM} Max. Instantaneous Reverse Current (1)	0.1	mA	$T_J = 25^\circ\text{C}$ Rated DC voltage
	15	mA	$T_J = 125^\circ\text{C}$
C_T Max. Junction Capacitance	400	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	8.0	nH	Measured from top of terminal to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V_R)	1000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	MBR7..	Units	Conditions
T_J Max. Junction Temperature Range	-65 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-65 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	3.0	$^\circ\text{C/W}$	DC operation
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.50	$^\circ\text{C/W}$	Mounting surface, smooth and greased
w_t Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min. 6 (5)	Kg-cm (lbf-in)	
	Max. 12 (10)		
Case Style	TO-220AC		JEDEC

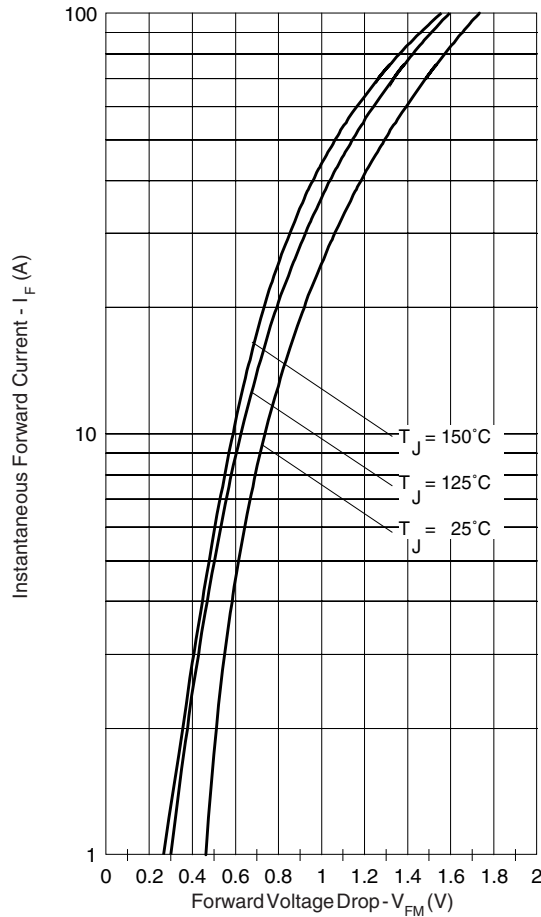


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

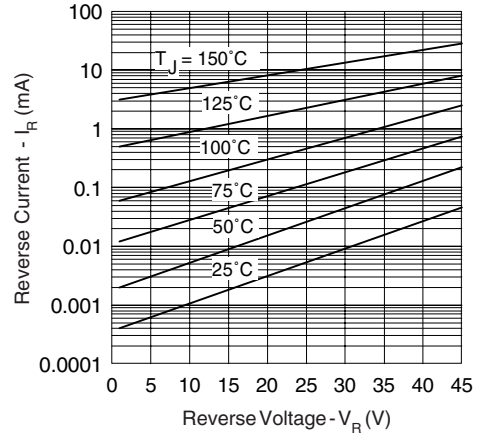


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

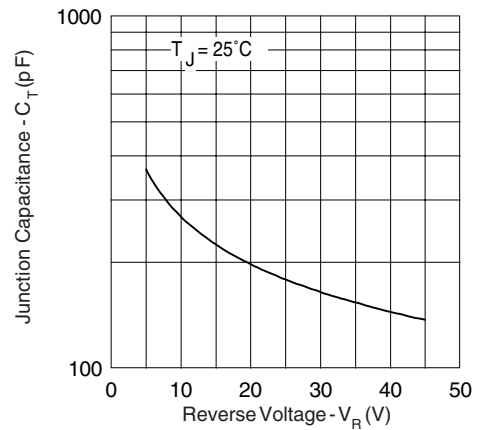


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

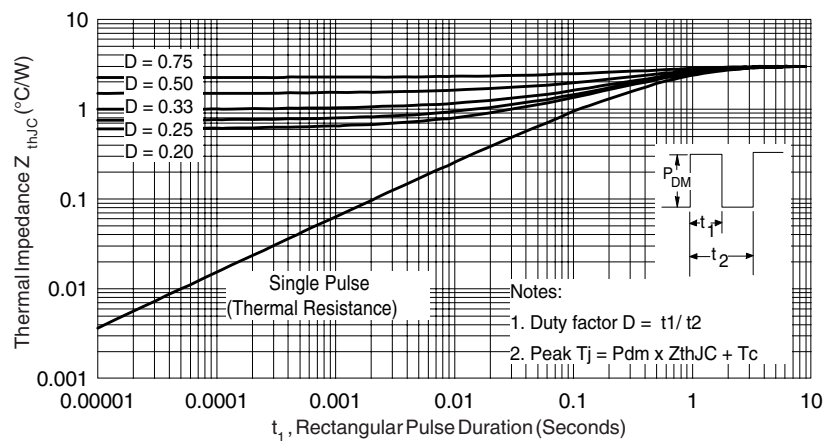


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

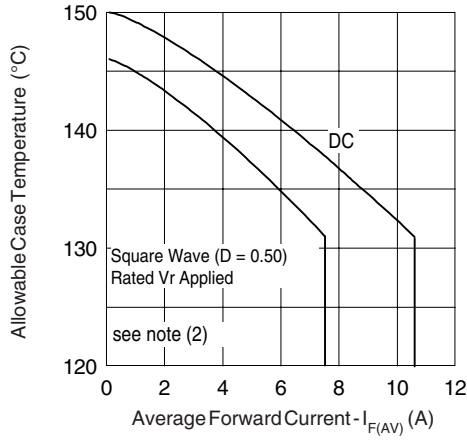


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

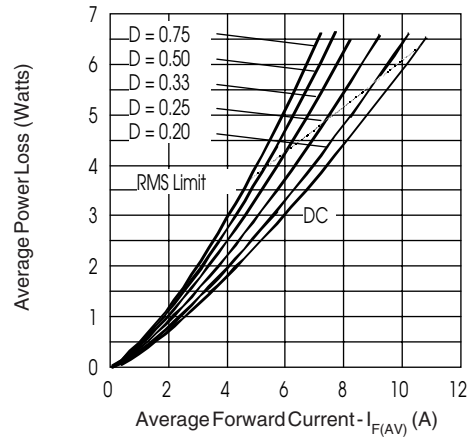


Fig. 6 - Forward Power Loss Characteristics

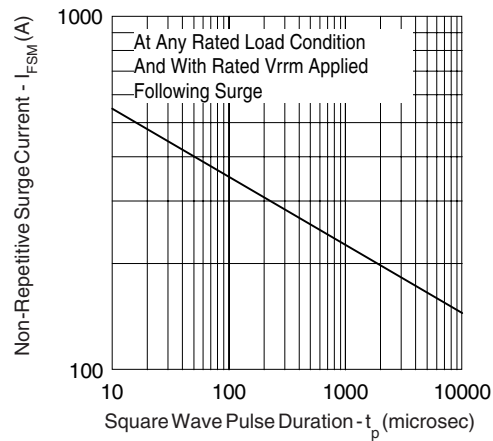


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

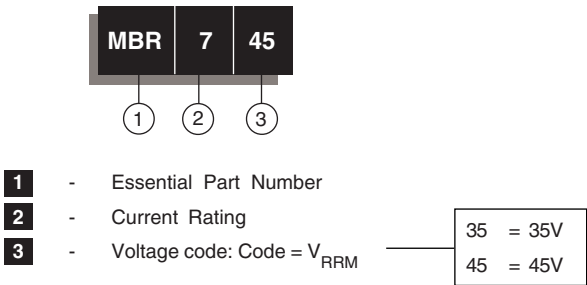
(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

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

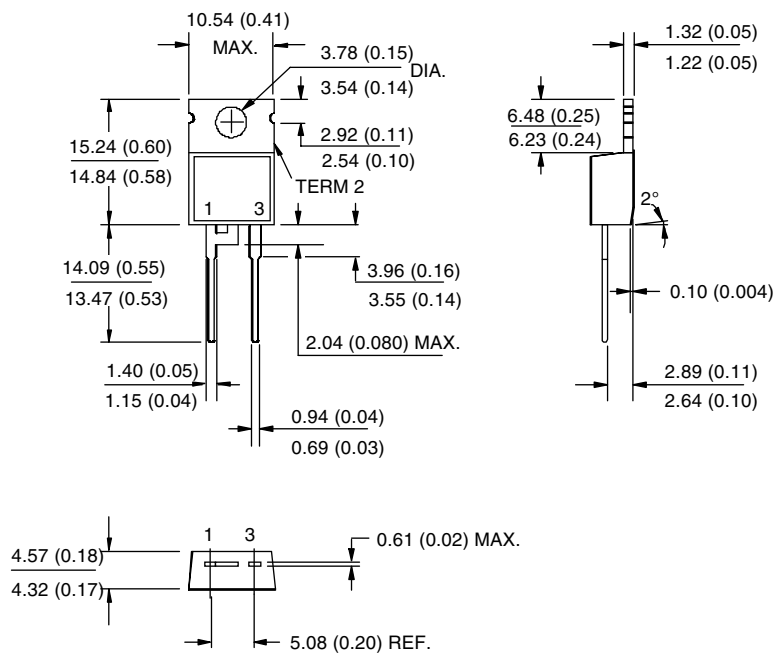
$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ V_{R1} = rated V_R

Ordering Information Table

Device Code



Outline Table



Conform to JEDEC outline TO-220AC
Dimensions in millimeters and (inches)

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