

International IOR Rectifier

MBR1635/ MBR1645 MBRB1635/ MBRB1645

SCHOTTKY RECTIFIER

16 Amp

Major Ratings and Characteristics

Characteristics	MBR16..	Units
$I_{F(AV)}$ Rectangular waveform	16	A
V_{RRM}	35/45	V
I_{FSM} @ $t_p = 5 \mu s$ sine	1800	A
V_F @ 16 Apk, $T_J = 125^\circ C$	0.57	V
T_J	-65 to 150	$^\circ C$

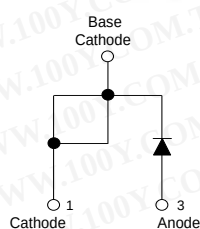
Description/ Features

The MBR16.. 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
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

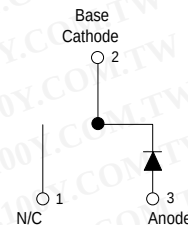
Case Styles

MBR1635/ MBR1645



TO-220AC

MBRB1635/ MBRB1645



D²PAK

MBR1635/ MBR1645, MBRB1635/ MBRB1645

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Voltage Ratings

Part number	MBR1635	MBR1645
V_R Max. DC Reverse Voltage (V)	35	45
V_{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	MBR16..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	16	A	@ $T_C = 134^\circ\text{C}$, (Rated V_R)
I_{FSM} Non-Repetitive Peak Surge Current	1800	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
E_{AS} Non-Repetitive Avalanche Energy	24	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 3.6$ Amps, $L = 3.7$ mH
I_{AR} Repetitive Avalanche Current	3.6	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	MBR16..	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1)	0.63	V	@ 16A $T_J = 25^\circ\text{C}$
	0.57	V	@ 16A $T_J = 125^\circ\text{C}$
I_{RM} Max. Instantaneous Reverse Current (1)	0.2	mA	$T_J = 25^\circ\text{C}$
	40	mA	$T_J = 125^\circ\text{C}$ Rated DC voltage
C_T Max. Junction Capacitance	1400	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)	10000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters		MBR16..	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	1.50	°C/W	DC operation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.50	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	2 (0.07)	g (oz.)	
T	Mounting Torque	Min. 6 (5)	Kg-cm (lbf-in)	
		Max. 12 (10)		
Case Style		TO-220AC, D ² PAK	JEDEC	
Marking Device		MBR1645, MBRB1645		

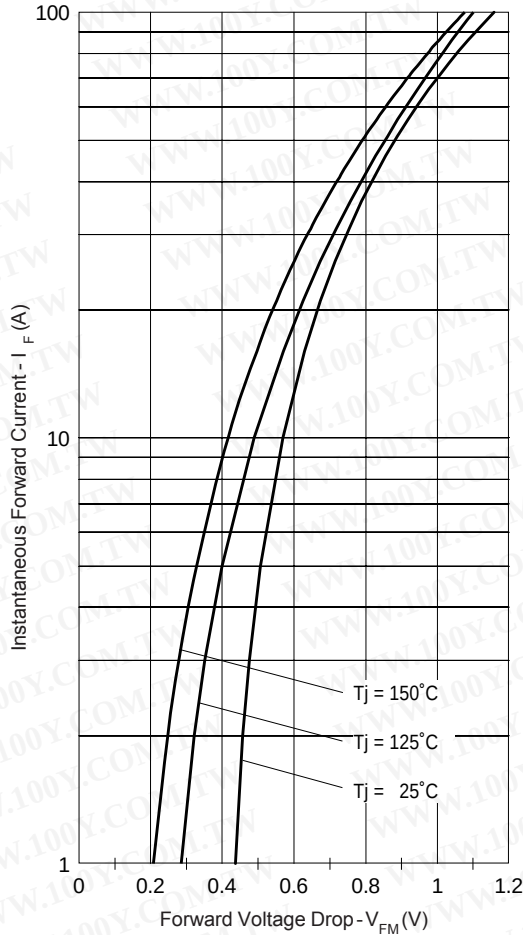


Fig. 1 - Maximum Forward Voltage Drop Characteristics

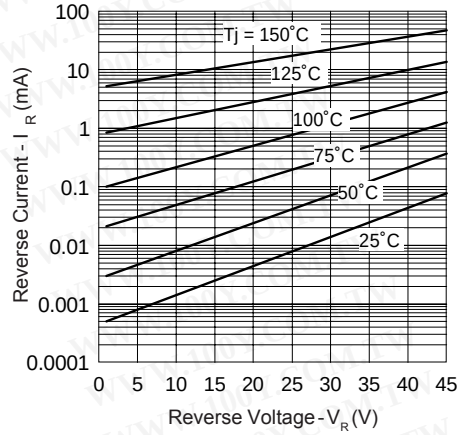


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

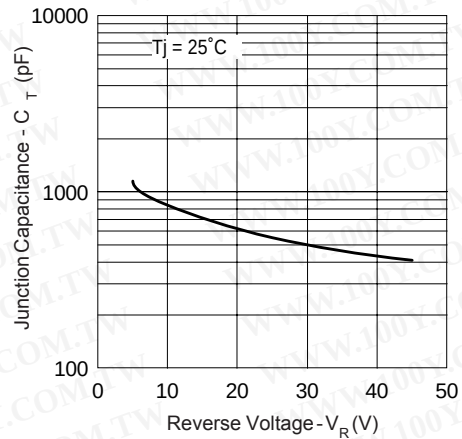


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

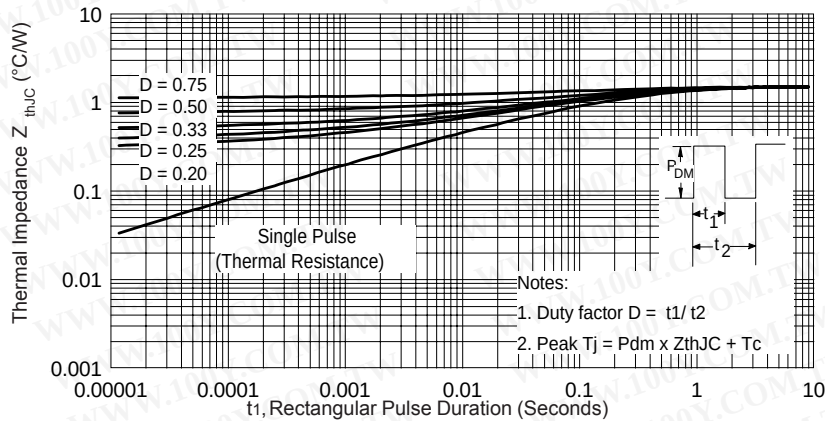


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

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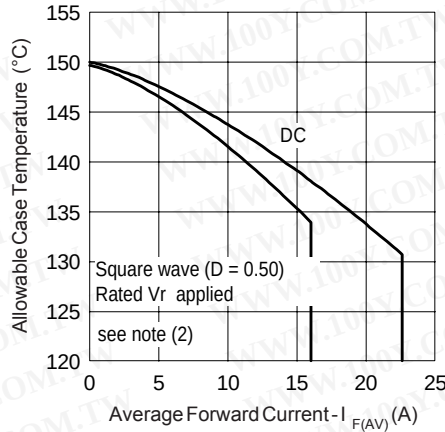


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

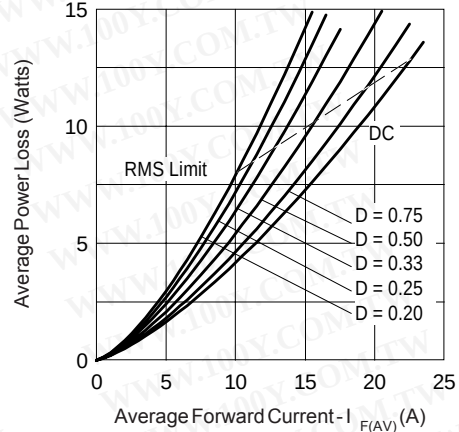


Fig. 6 - Forward Power Loss Characteristics

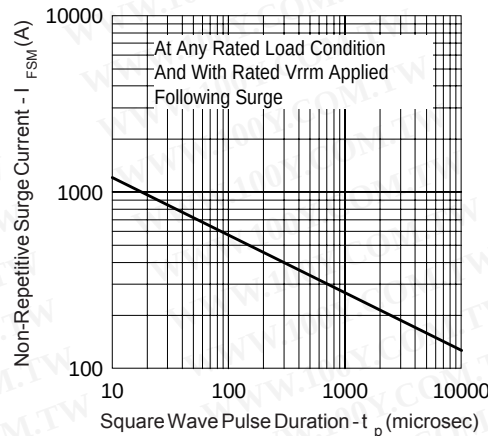


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

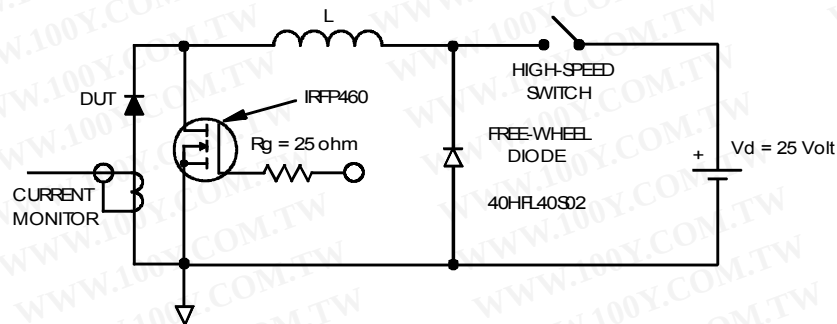


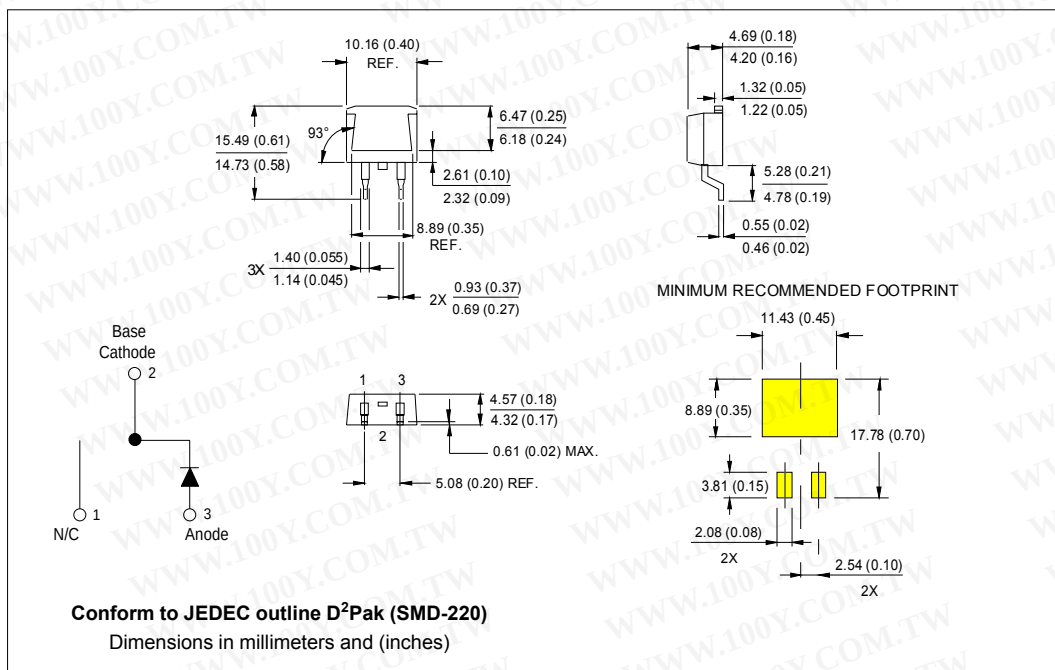
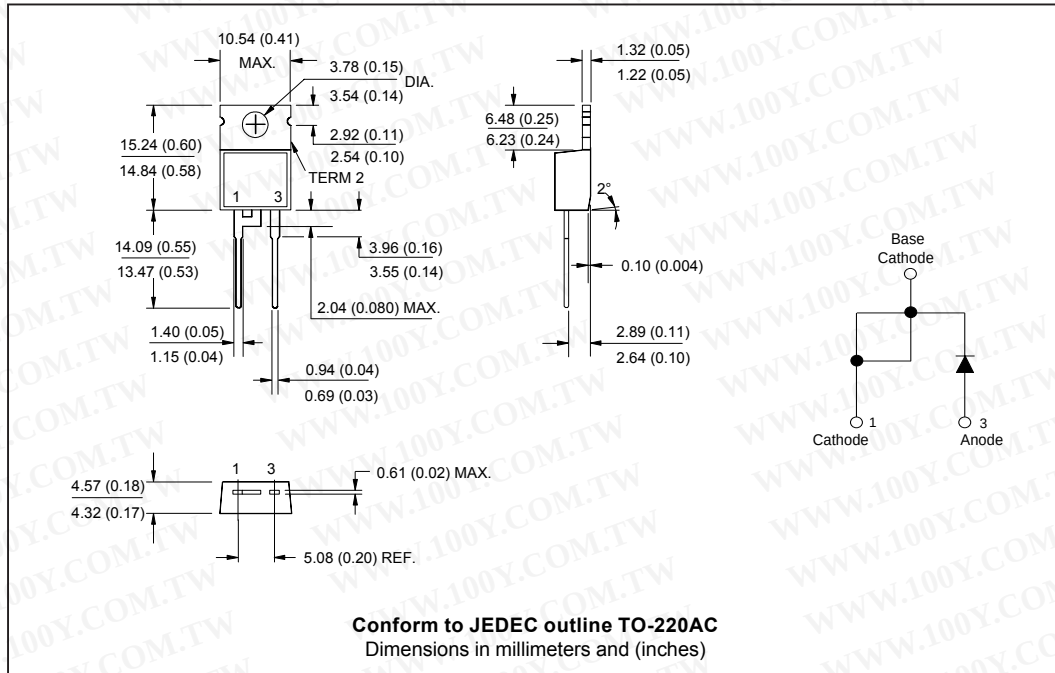
Fig. 8 - Unclamped Inductive Test Circuit

(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 applied

Outline Table

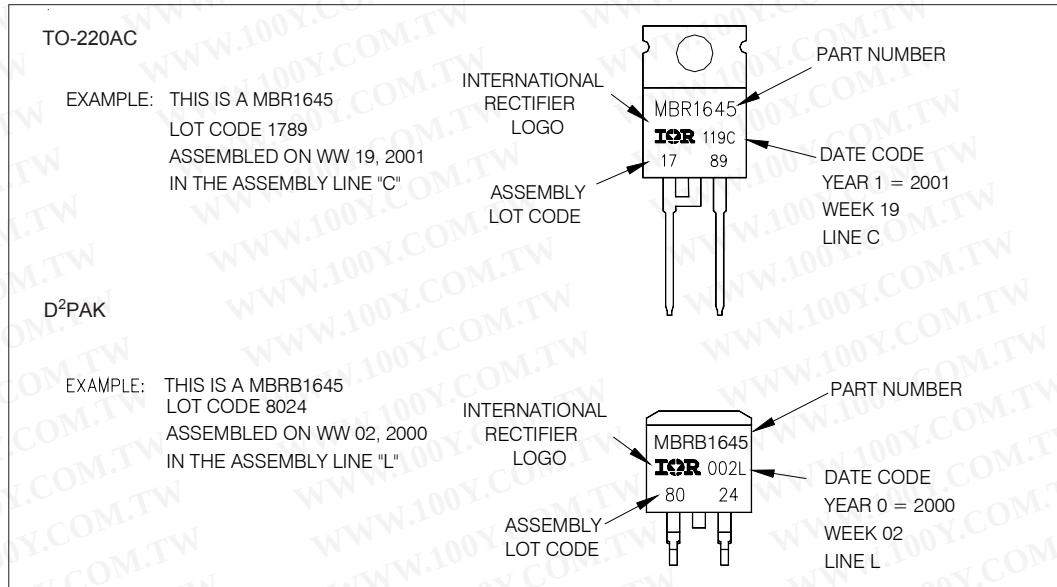


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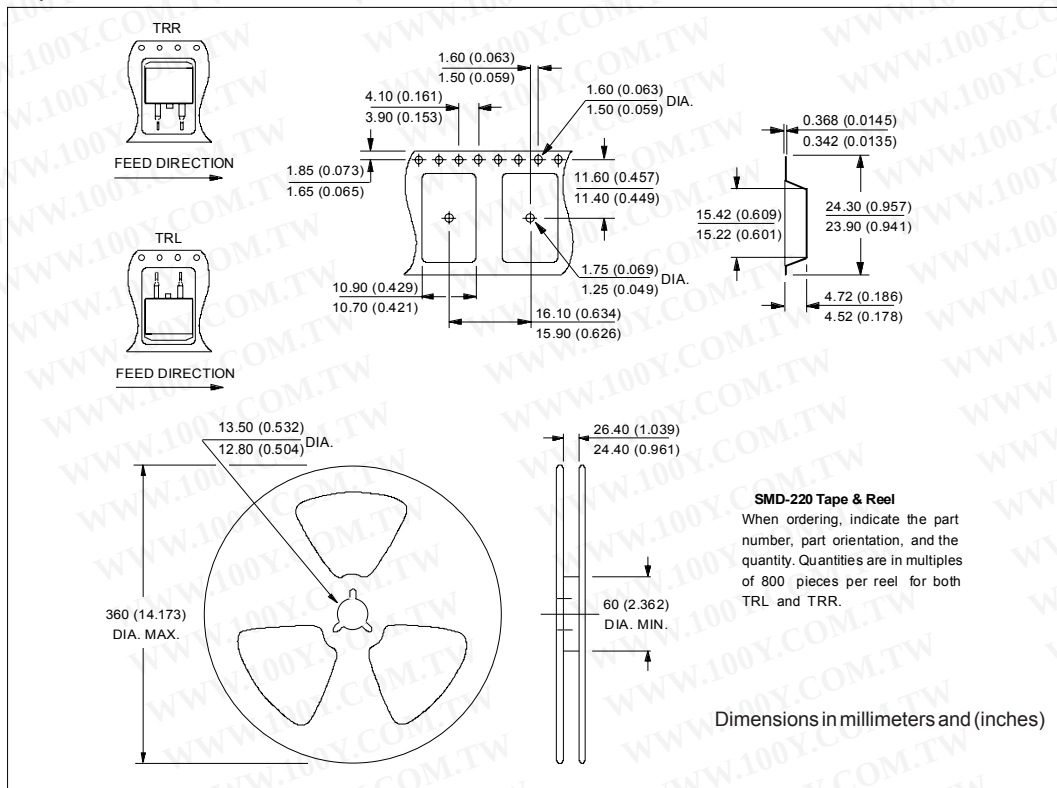
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Part Marking Information



Tape & Reel Information



Ordering Information Table

Device Code				
MBR	B	16	45	TRL
1	2	3	4	5
1	Essential Part Number			
2	Package Style:			
	• none = TO-220 • B = D²PAK			
3	Current Rating (16 = 16A)			
4	Voltage Ratings			
5	• none = Tube • TRR = Tape & Reel (Right Oriented) • TRL = Tape & Reel (Left Oriented)			

35 = 35V
 45 = 45V

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
[Http://www.100y.com.tw](http://www.100y.com.tw)

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

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