



MBR25..CT
MBRB25..CT
MBR25..CT-1

SCHOTTKY RECTIFIER

30 Amp

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

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

Major Ratings and Characteristics

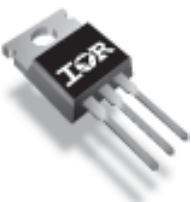
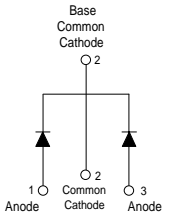

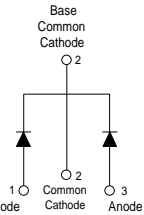

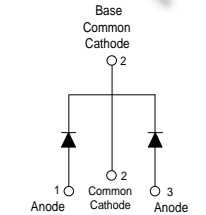
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	30	A
I_{FRM} @ $T_C = 130^\circ\text{C}$ (Per Leg)	30	A
V_{RRM}	35 - 45	V
I_{FSM} @ tp = 5 μs sine	1060	A
V_F @ 30 Apk, $T_J = 125^\circ\text{C}$	0.73	V
T_J range	-65 to 150	$^\circ\text{C}$

Description/ Features

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. 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-220 and D²Pak packages
- Low forward voltage drop
- 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

MBR25..CT	MBRB25.. CT	MBR25..CT -1
 <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode 2 Common Cathode 3 Anode</p> <p>TO-220</p>	 <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode 2 Common Cathode 3 Anode</p> <p>D²PAK</p>	 <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode 2 Common Cathode 3 Anode</p> <p>TO-262</p>

Voltage Ratings

Parameters	MBR2535CT MBRB2535CT MBR2535CT-1	MBR2545CT MBRB2545CT MBR2545CT-1
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 Current (Per Leg) (Per Device)	15	A	@ T _C = 130° C, (Rated V _R)
	30		
I _{FRM} Peak Repetitive Forward Current (Per Leg)	30	A	Rated V _R , square wave, 20kHz T _C = 130° C
I _{FSM} Non Repetitive Peak Surge Current	1060	A	5µs Sine or 3µs Rect. pulse Following any rated load condition and with rated V _{RWM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
	150		
E _{AS} Non-Repetitive Avalanche Energy	16	mJ	(Per Leg) T _J = 25° C, I _{AS} = 2 Amps, L = 8 mH
I _{AR} Repetitive Avalanche Current (Per Leg)	2	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 (1)	0.82	V	@ 30A T _J = 25° C
	0.73	V	@ 30A T _J = 125° C
I _{RM} Max. Instantaneous Reverse Current (1)	0.2	mA	T _J = 25° C
	40	mA	T _J = 125° C Rated DC voltage
V _{F(TO)} Threshold Voltage	0.355	V	T _J = T _J max.
r _t Forward Slope Resistance	12.3	mΩ	
C _T Max. Junction Capacitance	700	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 < 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)	1.5	°C/W	DC operation
R _{thCS} Typical Thermal Resistance Case to Heatsink	0.50	°C/W	Mounting surface, smooth and greased Only for TO-220
wt Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)
	Max.	12 (10)	

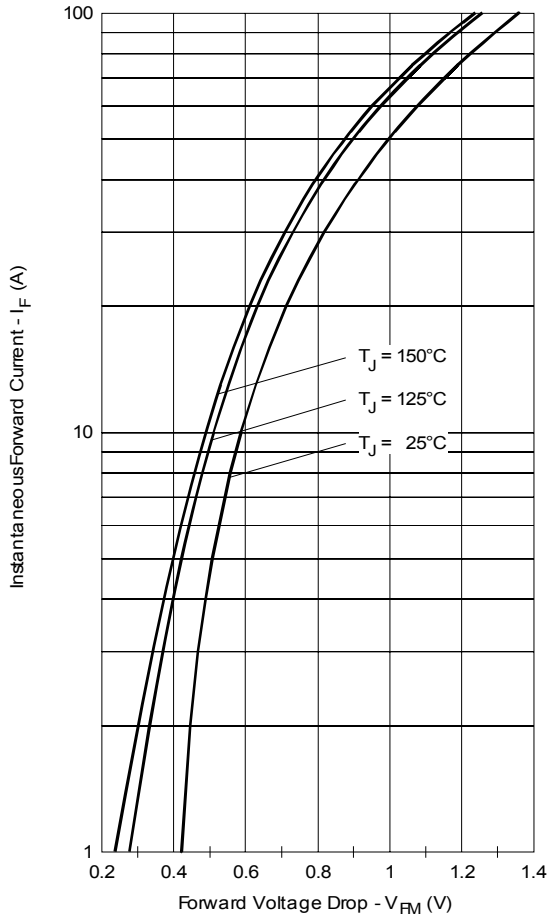


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

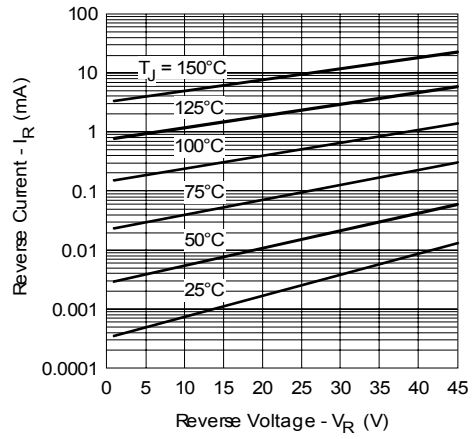


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

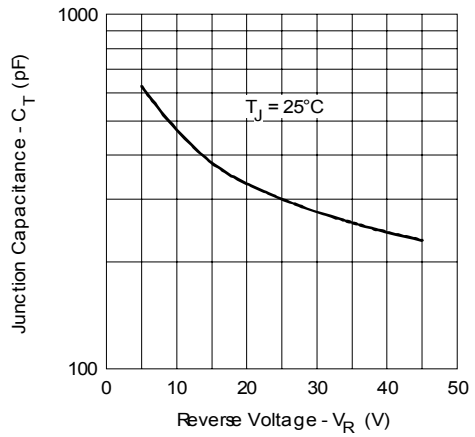


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

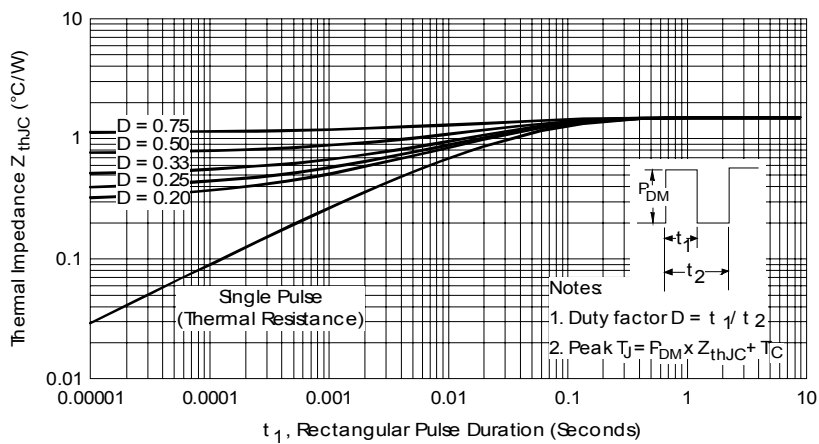


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

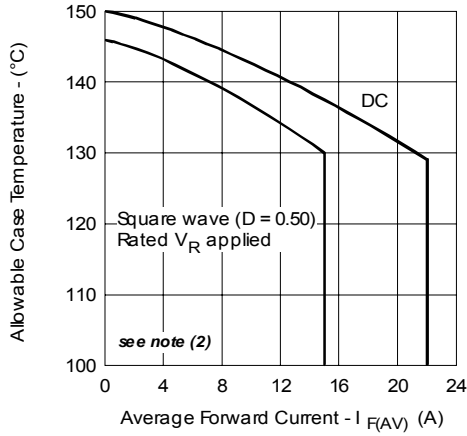


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

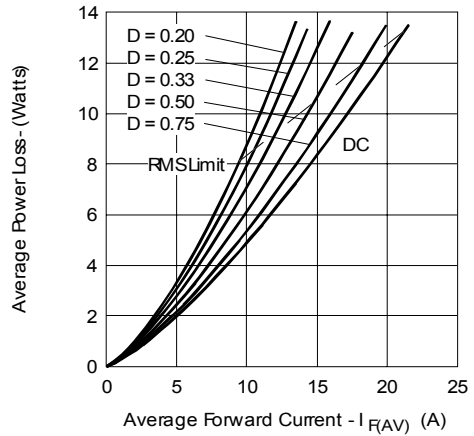


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

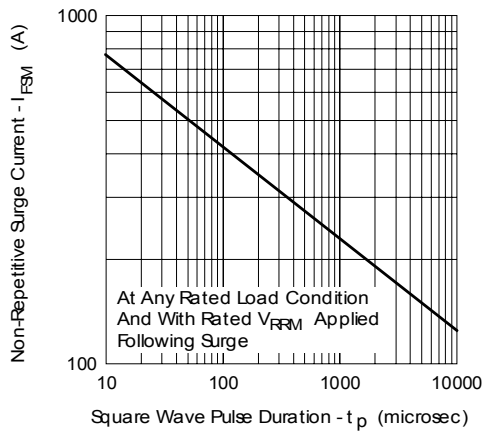
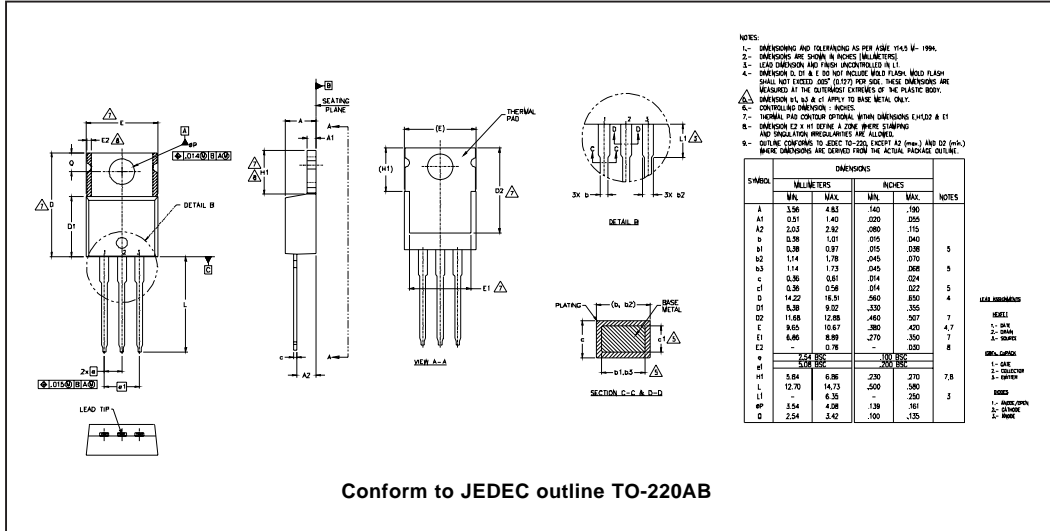


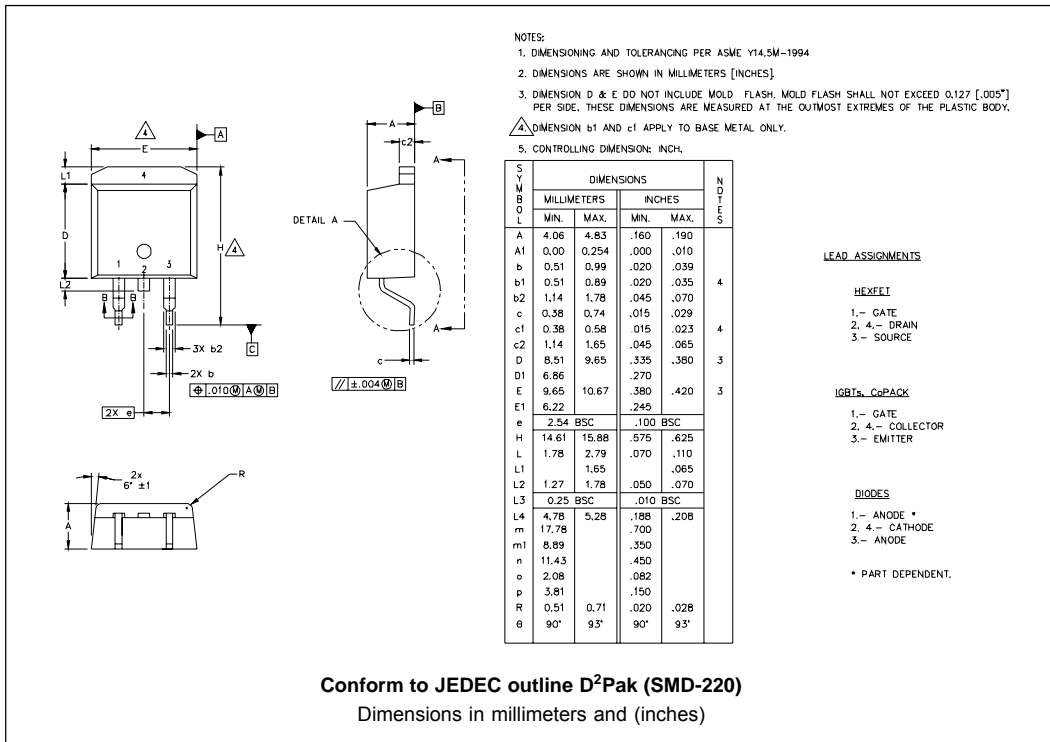
Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

- (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 = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1}$ = rated V_R

Outline Table

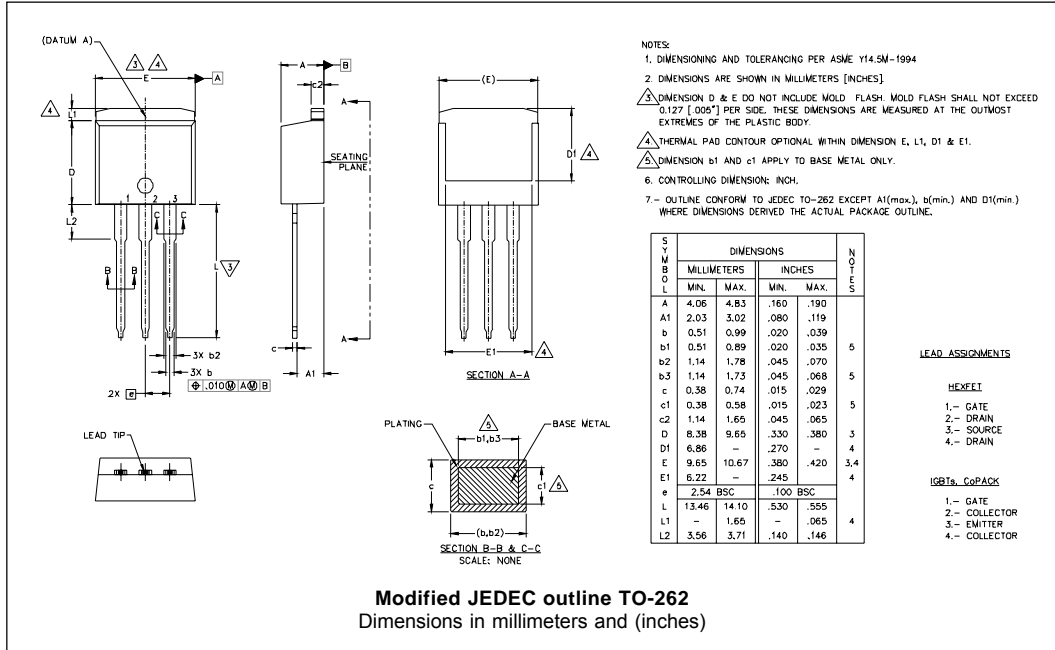


Conform to JEDEC outline TO-220AB

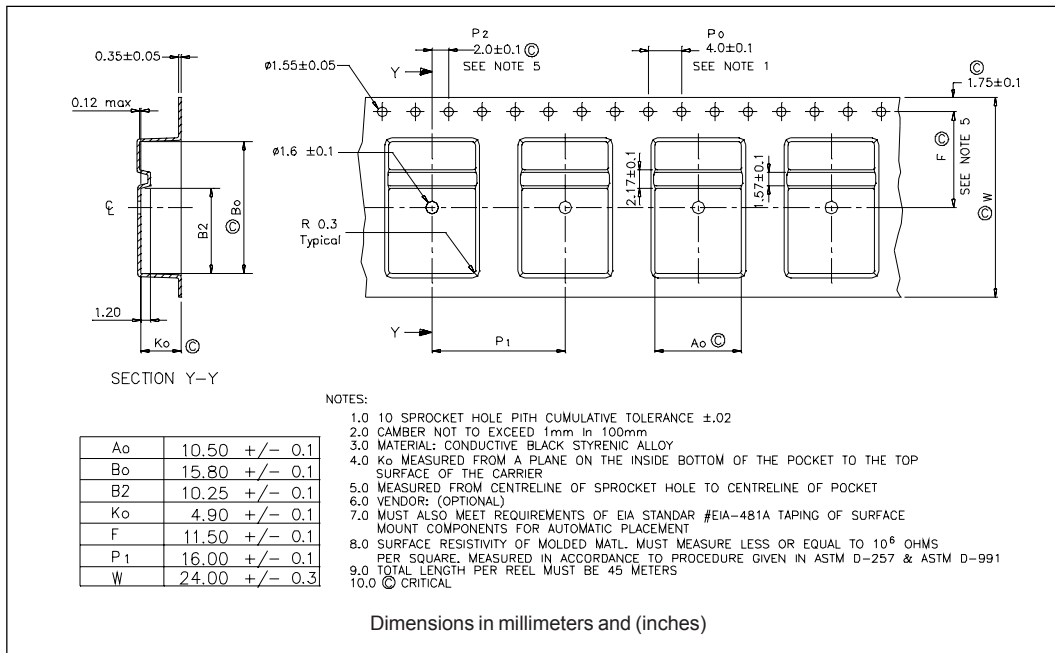


Conform to JEDEC outline D²Pak (SMD-220)
Dimensions in millimeters and (inches)

Outline Table



Tape & Reel Information



Part Marking Information

<p>TO-220</p>	<p>EXAMPLE: THIS IS A MBR2545CT LOT CODE 1789 ASSEMBLED ON WW 19, 2000 IN THE ASSEMBLY LINE "C"</p>	<p>INTERNATIONAL RECTIFIER LOGO</p> <p>ASSEMBLY LOT CODE</p> <p>PART NUMBER</p> <p>DATE CODE YEAR 0 = 2000 WEEK 19 LINE C</p>
<p>D²PAK</p>	<p>EXAMPLE: THIS IS A MBRB2545CT LOT CODE 8024 ASSEMBLED ON WW 02, 2003 IN ASSEMBLY LINE "C"</p>	<p>INTERNATIONAL RECTIFIER LOGO</p> <p>ASSEMBLY LOT CODE</p> <p>PART NUMBER</p> <p>DATE CODE YEAR 3 = 2003 WEEK 02 LINE C</p>
<p>TO-262</p>	<p>EXAMPLE: THIS IS A MBR2545CT-1 LOT CODE 1789 ASSEMBLED ON WW 19, 2002 IN ASSEMBLY LINE "C"</p>	<p>INTERNATIONAL RECTIFIER LOGO</p> <p>ASSEMBLY LOT CODE</p> <p>PART NUMBER</p> <p>DATE CODE YEAR 2 = 2002 WEEK 19 LINE C</p>

Ordering Information Table

Device Code																	
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">MBR</td> <td style="padding: 5px;">B</td> <td style="padding: 5px;">25</td> <td style="padding: 5px;">45</td> <td style="padding: 5px;">CT</td> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">TRL</td> <td style="padding: 5px;">-</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> <td style="text-align: center;">⑦</td> <td style="text-align: center;">⑧</td> </tr> </table>	MBR	B	25	45	CT	-1	TRL	-	①	②	③	④	⑤	⑥	⑦	⑧
MBR	B	25	45	CT	-1	TRL	-										
①	②	③	④	⑤	⑥	⑦	⑧										
1	- Essential Part Number																
2	- <ul style="list-style-type: none"> • B = D²Pak 6 none • none = TO-262 6 = -1 																
3	- Current Rating (25 = 25A)																
4	- Voltage Ratings																
5	- CT = Essential Part Number																
6	- <ul style="list-style-type: none"> • none = D²Pak 2 = B • -1 = TO-262 2 none 																
7	- <ul style="list-style-type: none"> • none = Tube (50 pieces) • TRL = Tape & Reel (Left Oriented - for D²Pak only) • TRR = Tape & Reel (Right Oriented - for D²Pak only) 																
8	- <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free (for TO-262 and D²Pak tube) • P = Lead-Free (for D²Pak TRR and TRL) 																

35 = 35V
45 = 45V

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.