



**MBR2545CT**  
**MBRB2545CT**  
**MBR2545CT-1**

**SCHOTTKY RECTIFIER**

**30 Amp**


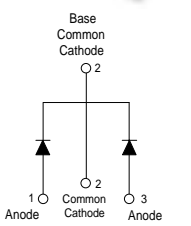

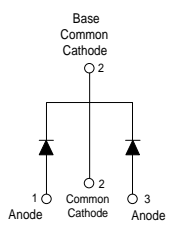

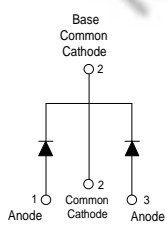
**Major Ratings and Characteristics**

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
$I_{FSM}$ @ $tp = 5 \mu\text{s}$ sine	1060	A
$V_F$ @ 30Apk, $T_J = 125^\circ\text{C}$	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 D<sup>2</sup>Pak 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		
<p><b>MBR25..CT</b></p>  <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode    2 Common Cathode    3 Anode</p> <p><b>TO-220</b></p>	<p><b>MBRB25..CT</b></p>  <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode    2 Common Cathode    3 Anode</p> <p><b>D<sup>2</sup>PAK</b></p>	<p><b>MBR25..CT-1</b></p>  <p>Base Common Cathode</p> <p>2</p>  <p>1 Anode    2 Common Cathode    3 Anode</p> <p><b>TO-262</b></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	@ $T_C = 130^\circ\text{C}$ , (Rated $V_R$ )
	30		
$I_{FRM}$ Peak Repetitive Forward Current (Per Leg)	30	A	Rated $V_R$ , square wave, 20kHz $T_C = 130^\circ\text{C}$
$I_{FSM}$ Non Repetitive Peak Surge Current	1060	A	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ 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) $T_J = 25^\circ\text{C}$ , $I_{AS} = 2$ Amps, $L = 8$ mH
$I_{AR}$ Repetitive Avalanche Current (Per Leg)	2	A	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical

### Electrical Specifications

Parameters	Values	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop (1)	0.82	V	@ 30A $T_J = 25^\circ\text{C}$
	0.73	V	@ 30A $T_J = 125^\circ\text{C}$
$I_{RM}$ 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
$V_{F(TO)}$ Threshold Voltage	0.355	V	$T_J = T_J$ max.
$r_f$ Forward Slope Resistance	12.3	m $\Omega$	
$C_T$ Max. Junction Capacitance	700	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$
$L_S$ 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/ $\mu\text{s}$	

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

### Thermal-Mechanical Specifications

Parameters	Values	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 (Per Leg)	1.5	$^\circ\text{C}/\text{W}$	DC operation
$R_{thCS}$ Typical Thermal Resistance Case to Heatsink	0.50	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased Only for TO-220
wt Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Non-lubricated threads
	Max.	12 (10)	

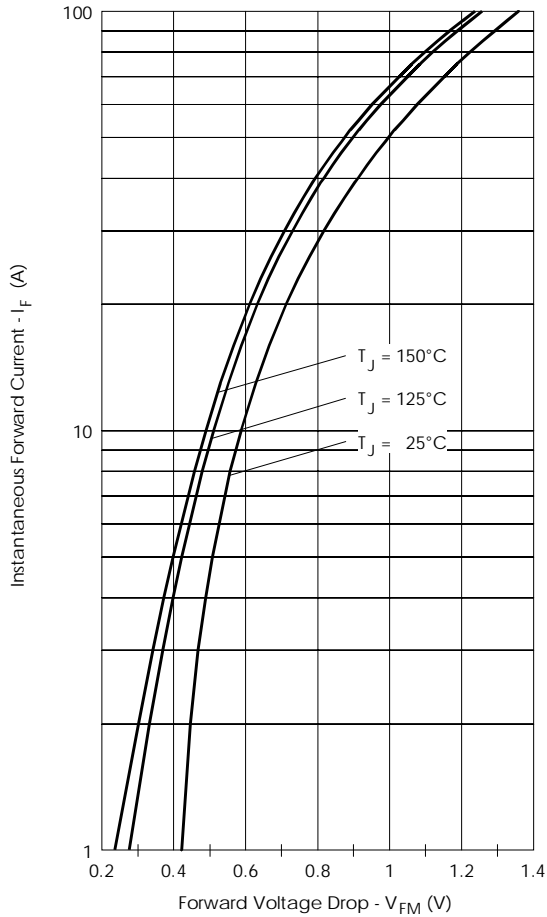


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

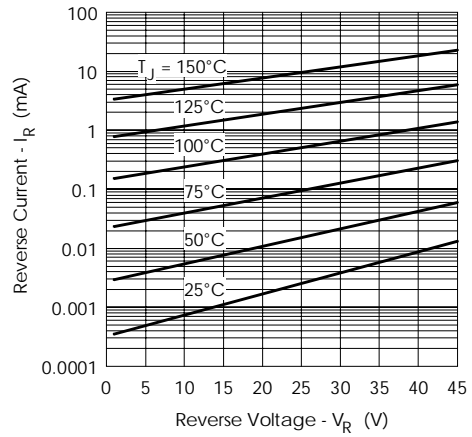


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

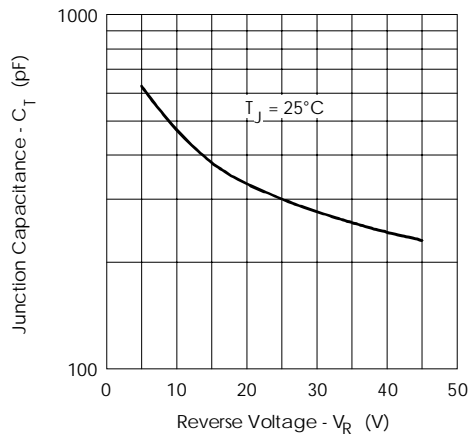


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

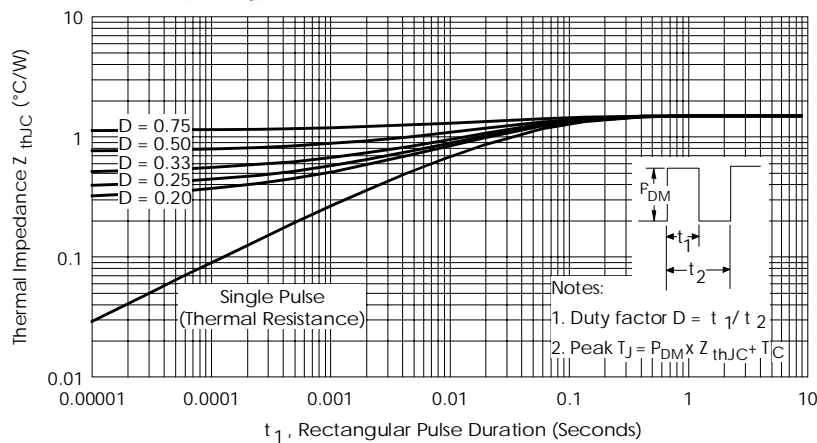


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

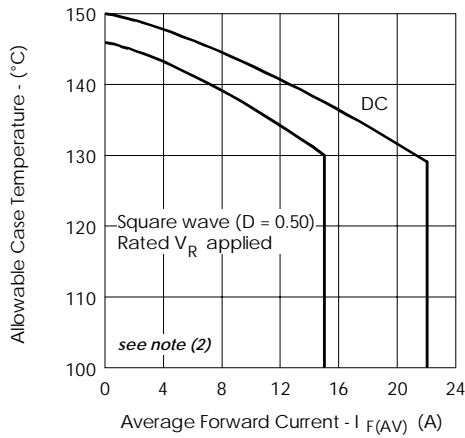


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

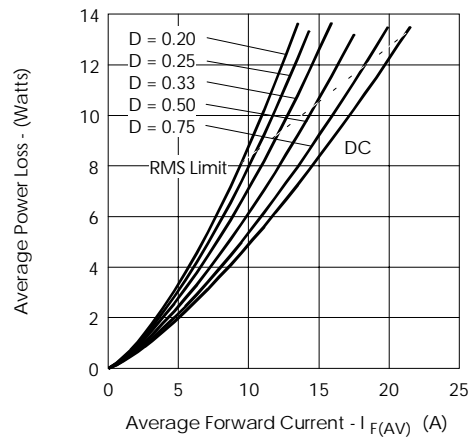


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

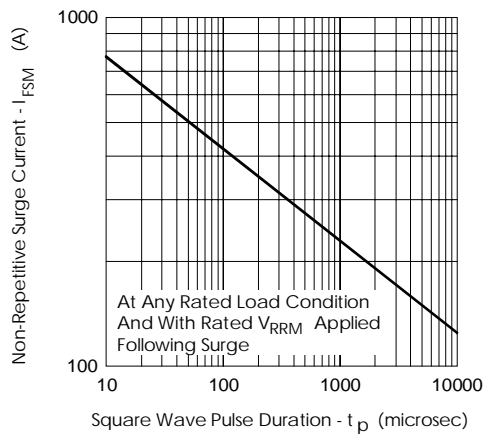


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

- (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  $V_R$

Ordering Information Table

Device Code					
<b>MBR</b>	<b>B</b>	<b>25</b>	<b>45</b>	<b>CT</b>	<b>-1</b>
①	②	③	④	⑤	⑥

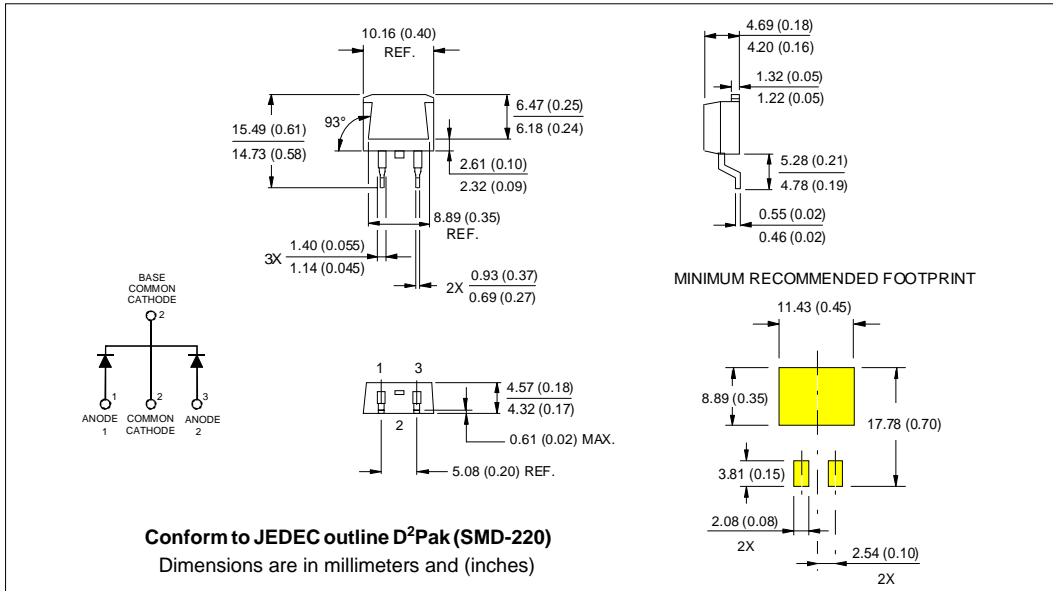
<b>1</b>	- Essential Part Number
<b>2</b>	- B = Surface Mount None = TO-220
<b>3</b>	- Current Rating
<b>4</b>	- Voltage code: Code = $V_{RRM}$
<b>5</b>	- CT= Essential Part Number
<b>6</b>	- -1 = TO-262 None = TO-220

35	= 35V
45	= 45V

Outline Table

**Conform to JEDEC outline TO-220AB**  
 Dimensions are in millimeters and (inches)

Outline Table



Tape & Reel Information

