



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

**SCHOTTKY RECTIFIER**

**30 Amp**


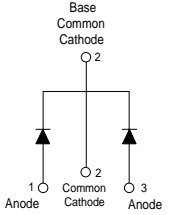

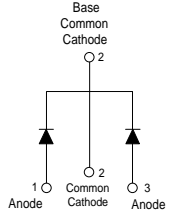

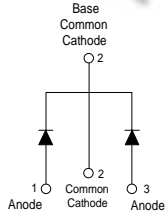
**Major Ratings and Characteristics**

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
$V_F$ @ 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  $150^\circ\text{C}$  junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $150^\circ\text{C}$   $T_J$  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>TO-220</p>	<p><b>MBRB25..CT</b></p>  <p>Base Common Cathode</p>  <p>D<sup>2</sup>PAK</p>	<p><b>MBR25..CT-1</b></p>  <p>Base Common Cathode</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	@ $T_C = 130^\circ\text{C}$ , (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.
$r_t$ 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)	

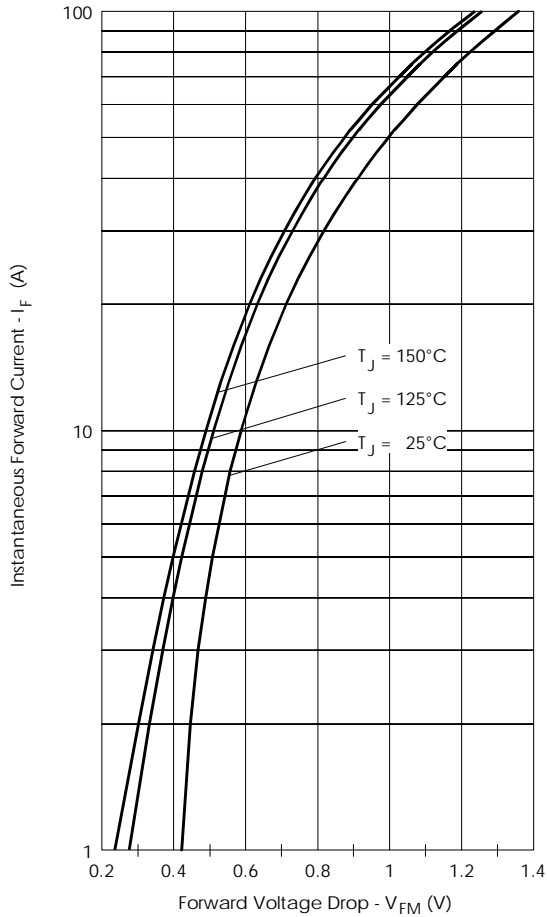


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

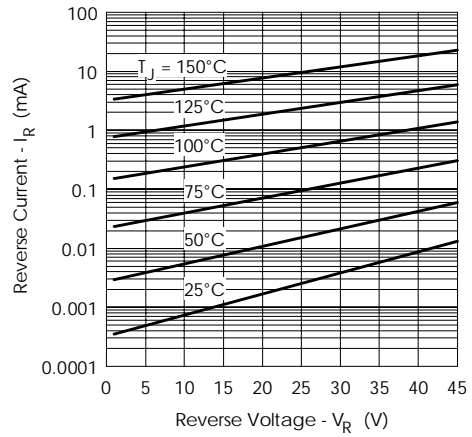


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

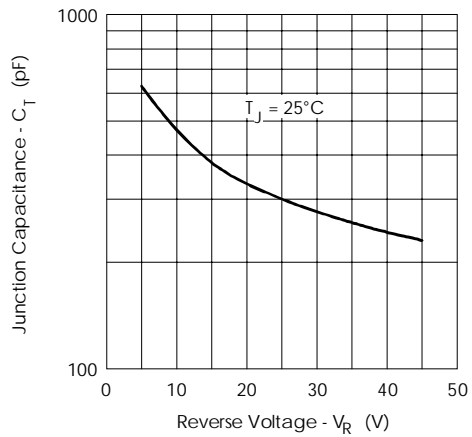


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

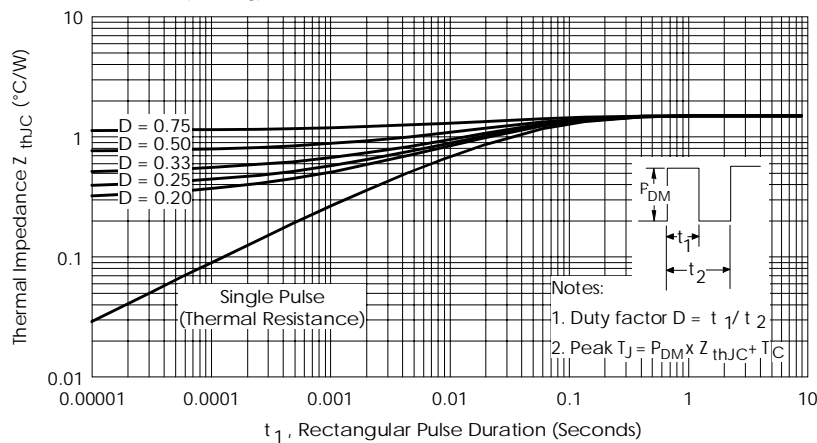


Fig. 4 - Max. Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

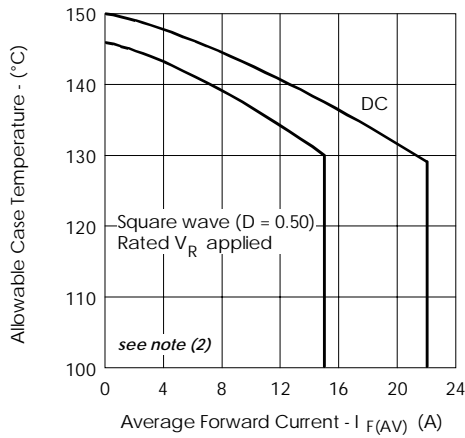


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

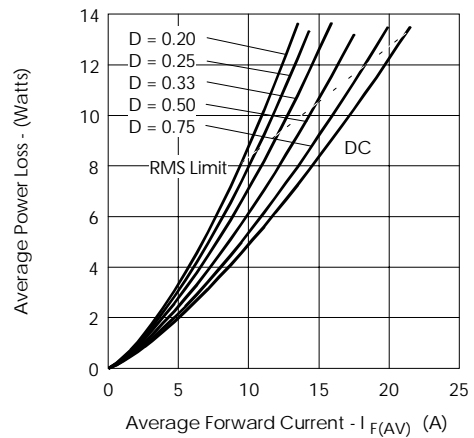


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

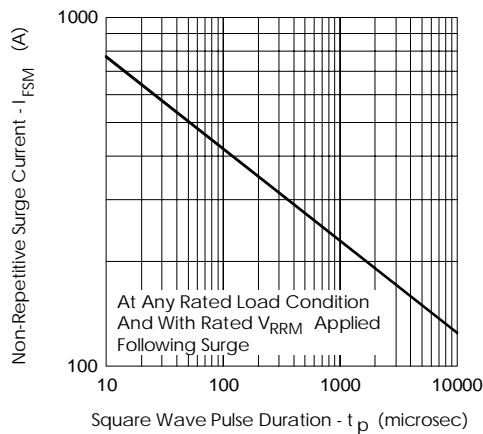


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

- (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					
MBR	B	25	45	CT	-1
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

Technical drawing showing dimensions for the MBR2545CT diode. Dimensions are provided in millimeters (mm) and inches (in).

**Top View Dimensions:**

- 10.54 (0.41) MAX.
- 3.78 (0.15) DIA.
- 3.54 (0.14)
- 2.92 (0.11)
- 2.54 (0.10)
- 15.24 (0.60)
- 14.84 (0.58)
- 14.09 (0.55)
- 13.47 (0.53)
- 1.40 (0.05)
- 1.15 (0.04)
- 0.94 (0.04)
- 0.69 (0.03)
- 3.96 (0.16)
- 3.55 (0.14)
- 2.04 (0.080) MAX.

**Side View Dimensions:**

- 1.32 (0.05)
- 1.22 (0.05)
- 6.48 (0.25)
- 6.23 (0.24)
- 2°
- 0.10 (0.004)
- 2.89 (0.11)
- 2.64 (0.10)

**Terminal Detail Dimensions:**

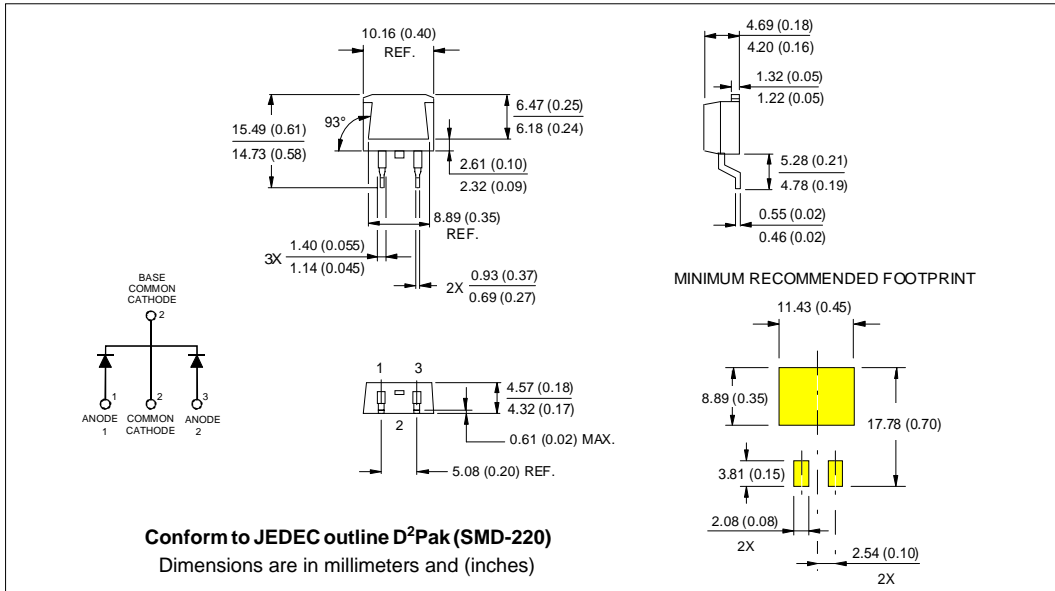
- 4.57 (0.18)
- 4.32 (0.17)
- 0.61 (0.02) MAX.
- 5.08 (0.20) REF.

**Pin Configuration:**

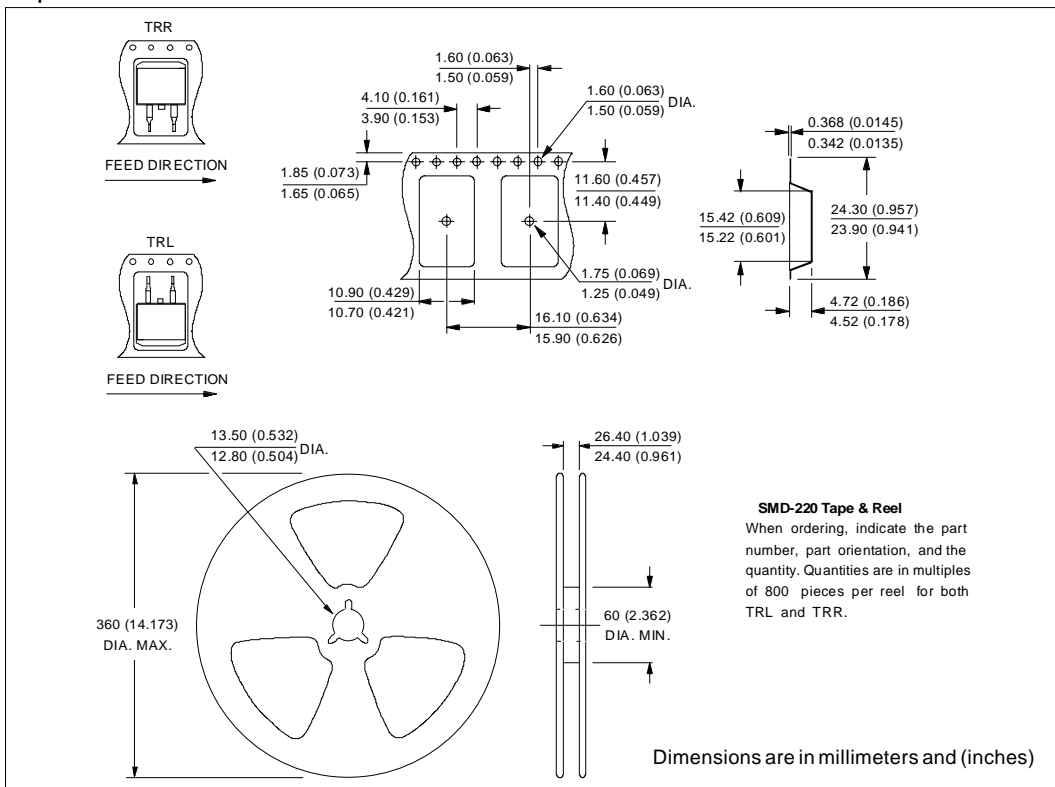
- 1: ANODE
- 2: COMMON CATHODE
- 3: ANODE

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

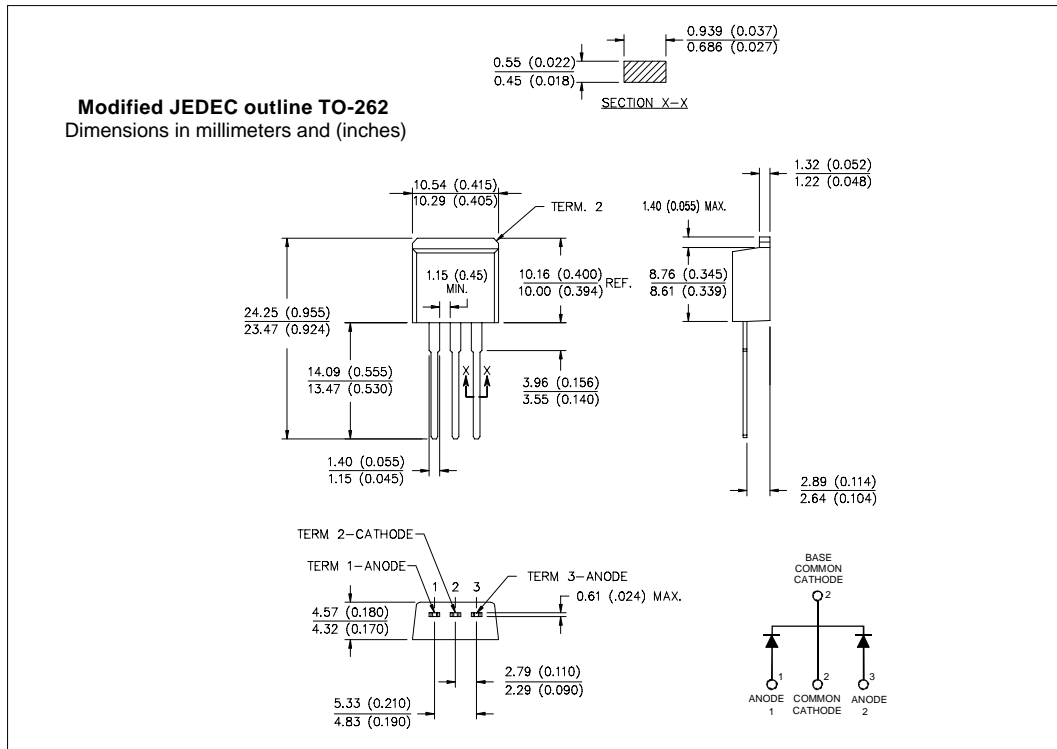
Outline Table



Tape & Reel Information



Outline Table



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.