



MBR2545CT
MBRB2545CT
MBR2545CT-1

SCHOTTKY RECTIFIER

30 Amp

Major Ratings and Characteristics




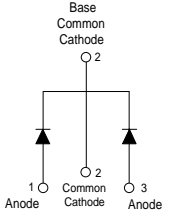
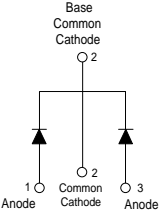
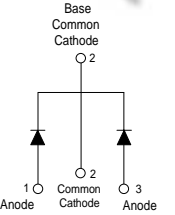
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	30	A
I_{FRM} @ $T_C = 130^\circ\text{C}$ (Per Leg)	30	A
V_{RRM}	35/45	V
I_{FSM} @ tp = 5 μs sine	1060	A
V_F @ 30 Apk, $T_J = 125^\circ\text{C}$	0.73	V
T_J range	-65 to 150	$^\circ\text{C}$

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>1 Anode 2 Common Cathode 3 Anode</p> <p>TO-220</p>	<p>Base Common Cathode</p>  <p>1 Anode 2 Common Cathode 3 Anode</p> <p>D²PAK</p>	<p>Base Common Cathode</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	@ $T_C = 130^\circ\text{C}$, (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 μs Sine or 3 μs 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 (Per Leg)	16	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 8$ mH
I_{AR} Repetitive Avalanche Current (Per Leg)	2	A	Current decaying linearly to zero in 1 μsec 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 Ω	
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 < 300 μs , 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)	

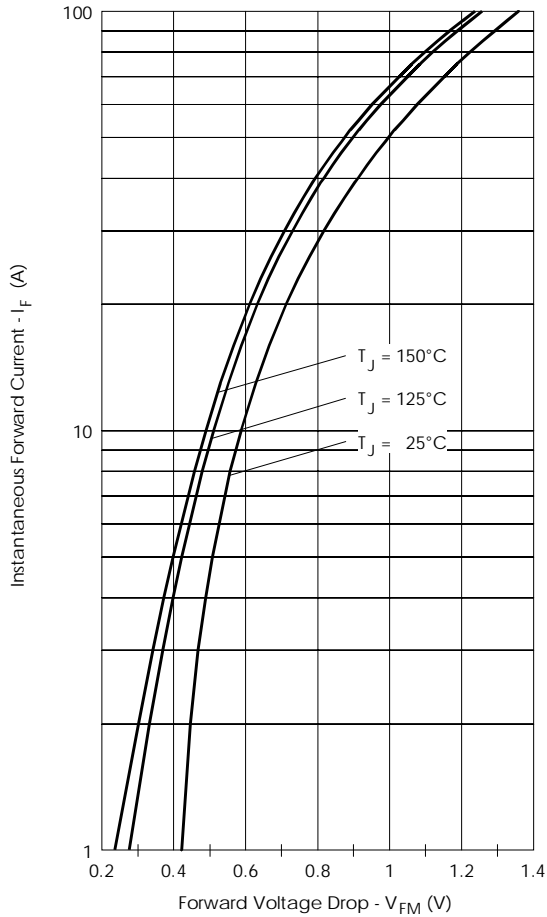


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

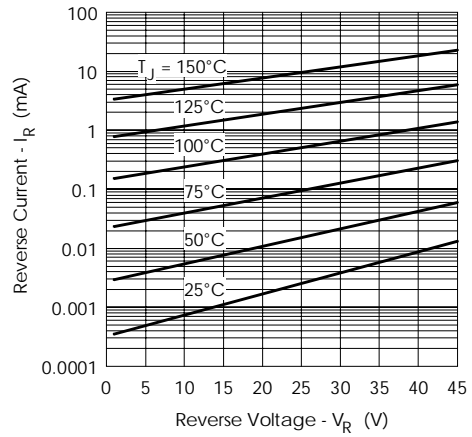


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

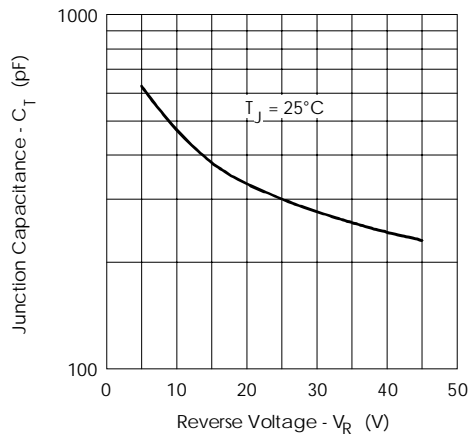


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

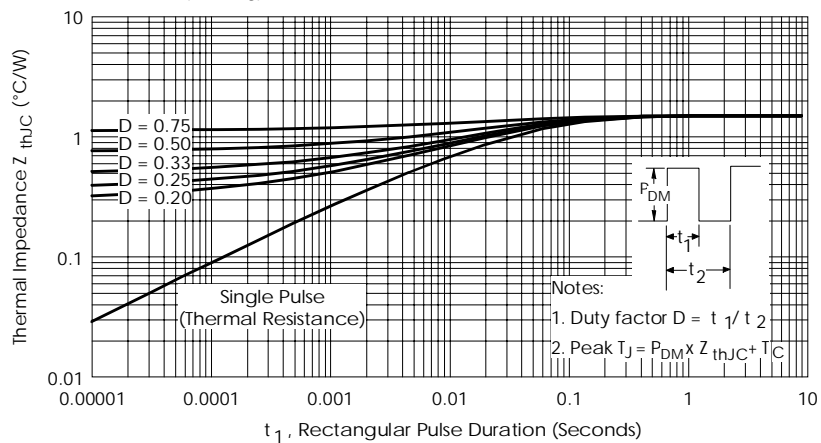


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

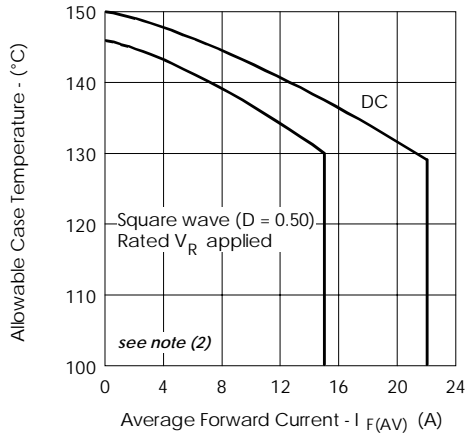


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

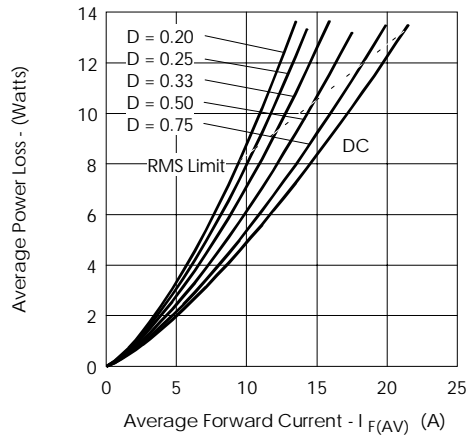


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

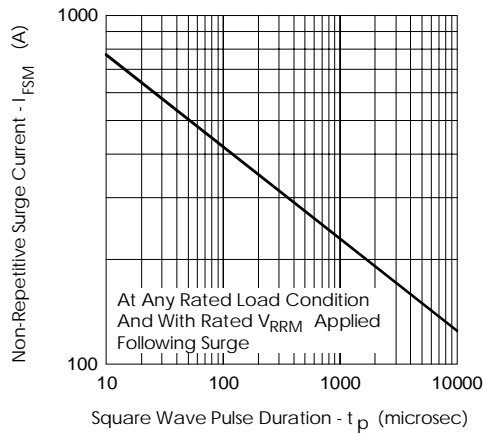


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

- (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

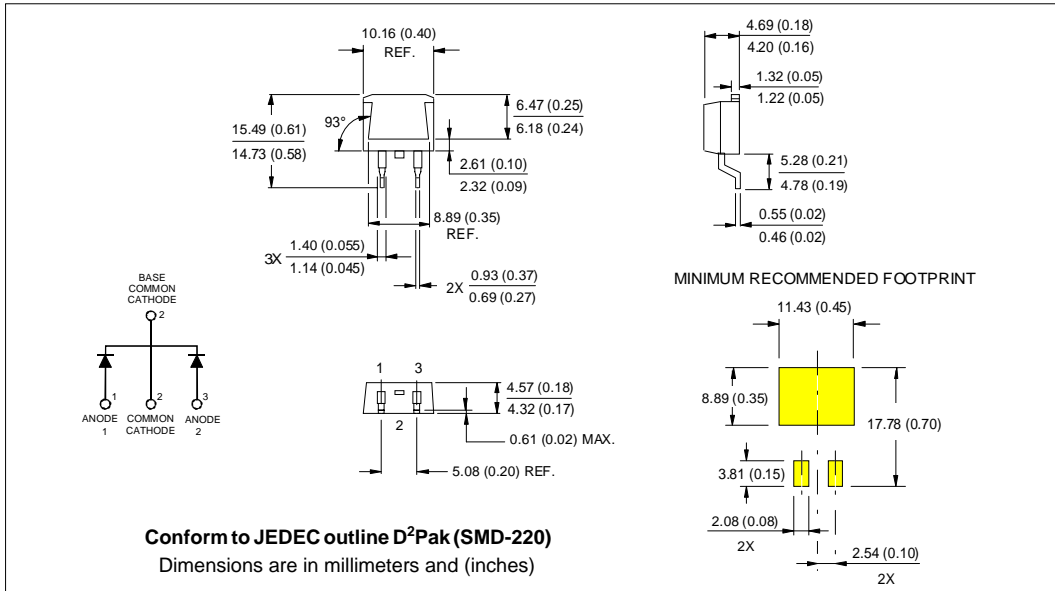
1	- Essential Part Number
2	- B = Surface Mount None = TO-220
3	- Current Rating
4	- Voltage code: Code = V_{RRM}
5	- CT= Essential Part Number
6	- -1 = TO-262 None = TO-220

35	= 35V
45	= 45V

Outline Table

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

Outline Table



Tape & Reel Information

