

PD-2.322 rev. B 06/99

International
IR Rectifier

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} @ $t_p = 5 \mu\text{s}$ 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°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

<p>MBR2535CT MBR2545CT</p>  <p>TO-220</p>	<p>MBRB2535CT MBRB2545CT</p>  <p>D²PAK</p>	<p>MBR2535CT-1 MBR2545CT-1</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	@ $T_C = 130^\circ C$, (Rated V_R)
	30		
I_{FRM} Peak Repetitive Forward Current (Per Leg)	30	A	Rated V_R , square wave, 20kHz $T_C = 130^\circ C$
I_{FSM} Non Repetitive Peak Surge Current	1060	A	5 μ s Sine or 3 μ s Rect. pulse Following any rated load condition and with rated V_{RRM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
	150		
I_{RRM} Peak Repetitive Reverse Surge Current	1.0	A	2.0 μ sec 1.0KHz

Electrical Specifications

Parameters	Values	Units	Conditions	
V_{FM} Max. Forward Voltage Drop (1)	0.82	V	@ 30A	$T_J = 25^\circ C$
	0.73	V	@ 30A	$T_J = 125^\circ C$
I_{RM} Max. Instantaneous Reverse Current (1)	0.2	mA	$T_J = 25^\circ C$	Rated DC voltage
	40	mA	$T_J = 125^\circ C$	
$V_{F(TO)}$ Threshold Voltage	0.355	V	$T_J = T_J$ max.	
r_t Forward Slope Resistance	12.3	m Ω		
C_T Max. Junction Capacitance	700	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) $25^\circ C$	
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)	1000	V/ μ s		

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

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T_J Max. Junction Temperature Range	-65 to 150	$^\circ C$	
T_{stg} Max. Storage Temperature Range	-65 to 175	$^\circ C$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	1.5	$^\circ C/W$	DC operation
R_{thCS} Typical Thermal Resistance Case to Heatsink	0.50	$^\circ C/W$	Mounting surface, smooth and greased Only for TO-220
wt Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Non-lubricated threads
	Max.	12(10)	

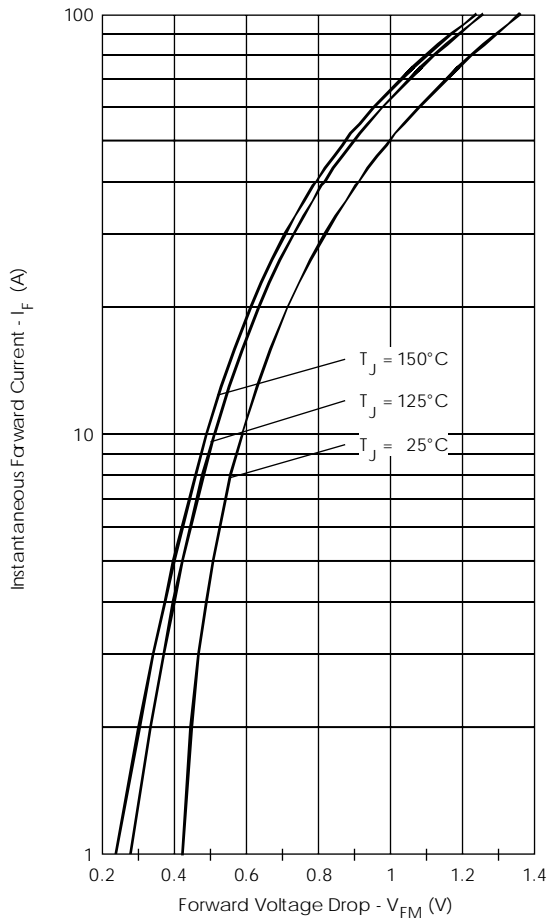


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

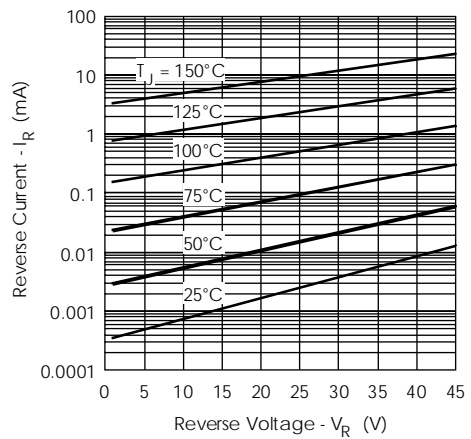


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

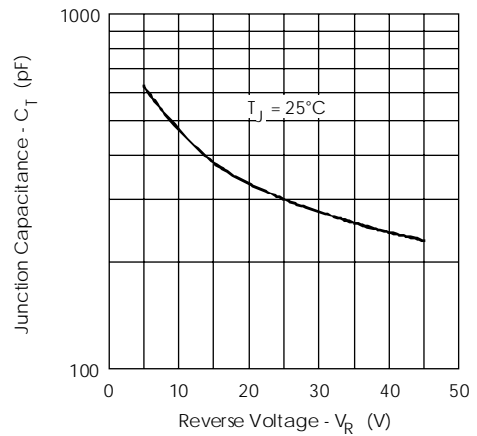


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

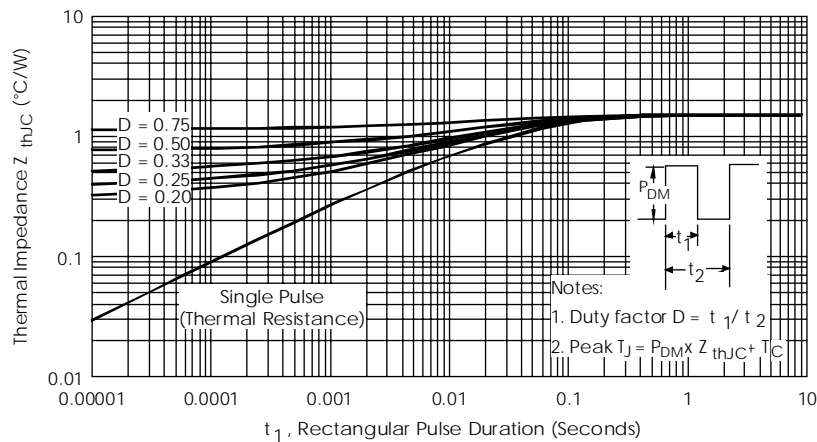


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

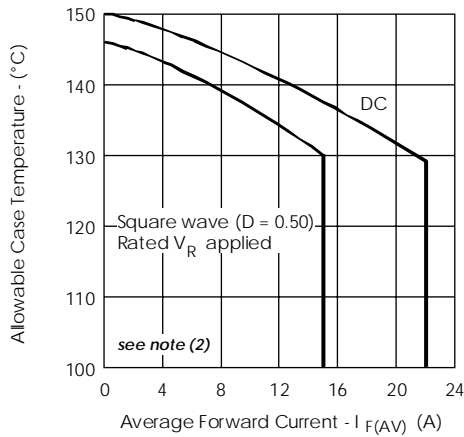


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

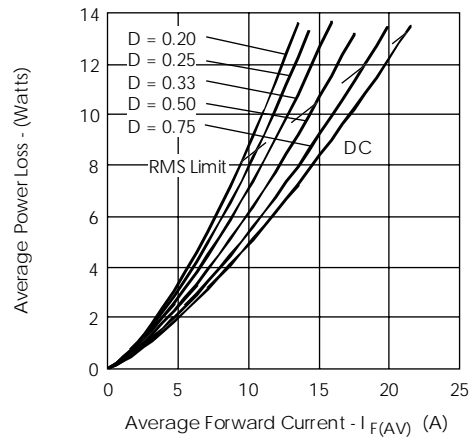


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

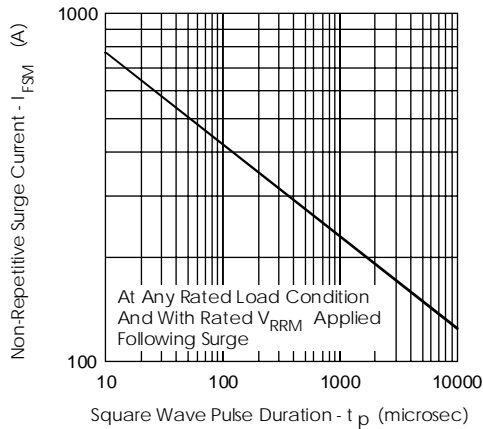


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)}/D)$ (see Fig. 6);
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = \text{rated } V_R$

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}

35	= 35V
45	= 45V
- 5** - CT= Essential Part Number
- 6** - -1 = TO-262
None = TO-220

Outline Table

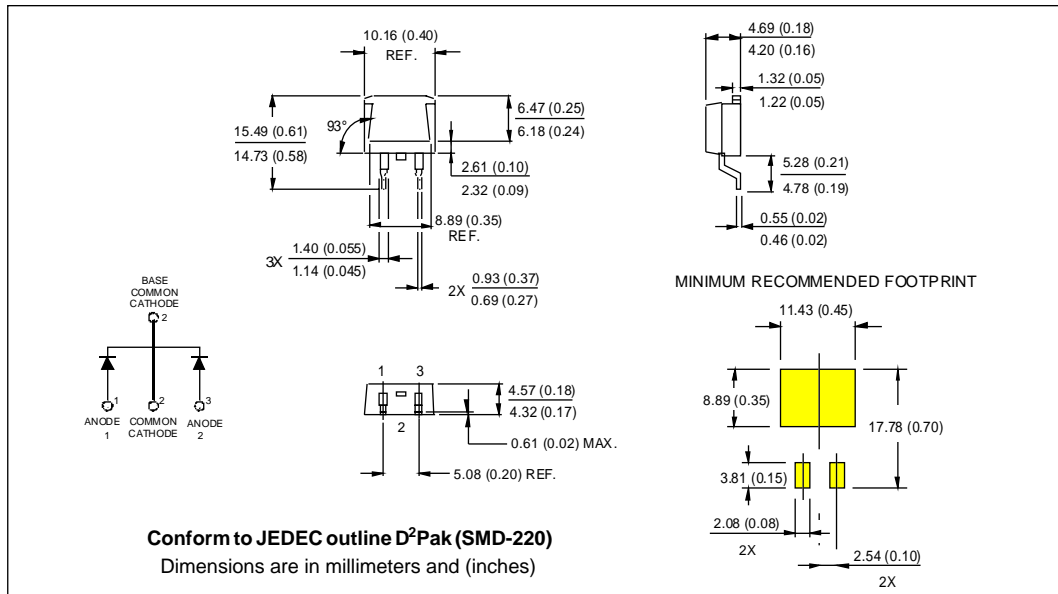
Conform to JEDEC outline TO-220AB
 Dimensions are in millimeters and (inches)

MBR2545CT, MBRB2545CT, MBR2545CT-1

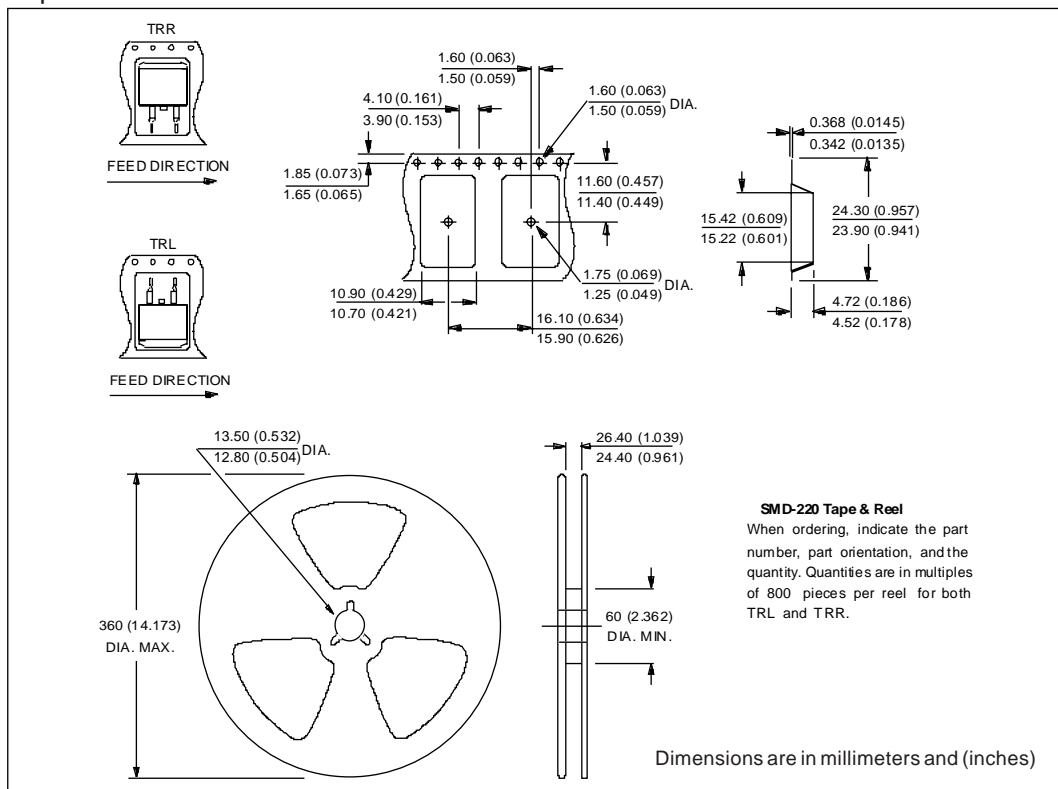
PD-2.322 rev. B 06/99



Outline Table



Tape & Reel Information



Outline Table

