

International
IOR Rectifier

MBR30...CT
MBRB30...CT
MBR30...CT-1

SCHOTTKY RECTIFIER

30 Amp

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	30	A
I_{FRM} @ $T_C = 123^\circ\text{C}$ (Per Leg)	30	A
V_{RRM}	35/45	V
I_{FSM} @ $t_p = 5\mu\text{s}$ sine	1020	A
V_F @ 20Apk, $T_J = 125^\circ\text{C}$	0.6	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, D²Pak and TO-262 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

MBR30...CT	MBRB30...CT	MBR30...CT-1
		
TO-220	D ² PAK	TO-262

Voltage Ratings

Parameters	MBR3035CT MBRB3035CT MBR3035CT-1	MBR3045CT MBRB3045CT MBR3045CT-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 (PerLeg) Current (Per Device)	15 30	A	@ T _C = 123° C, (Rated V _R)
I _{FRM} Peak Repetitive Forward Current (Per Leg)	30	A	Rated V _R , square wave, 20kHz T _C = 123° C
I _{FSM} Non Repetitive Peak Surge Current	1020	A	5μs Sine or 3μs Rect. pulse
	200		Following any rated load condition and with rated V _{RRM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
I _{RRM} Peak Repetitive Reverse Surge Current	2.0	A	2.0 μsec 1.0 KHz

Electrical Specifications

Parameters	Values	Units	Conditions
V _{FM} Max. Forward Voltage Drop (1)	0.76	V	@ 30A
	0.6	V	@ 20A
	0.72	V	@ 30A
I _{RM} Max. Instantaneous Reverse Current (1)	1	mA	T _J = 25 °C
	100	mA	T _J = 125 °C
V _{F(TO)} Threshold Voltage	0.29	V	T _J = T _J max.
r _f Forward Slope Resistance	13.6	mΩ	
C _T Max. Junction Capacitance	800	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)	10,000	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
R _{thJA} Max. Thermal Resistance Junction to Ambient	50	°C/W	DC operation For D ² Pak and TO-262
wt Approximate Weight	2(0.07)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	

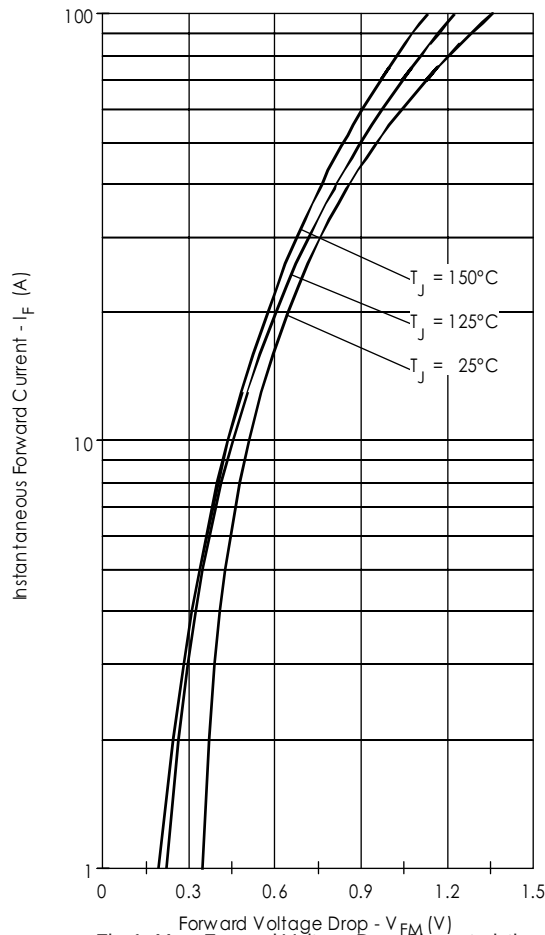


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

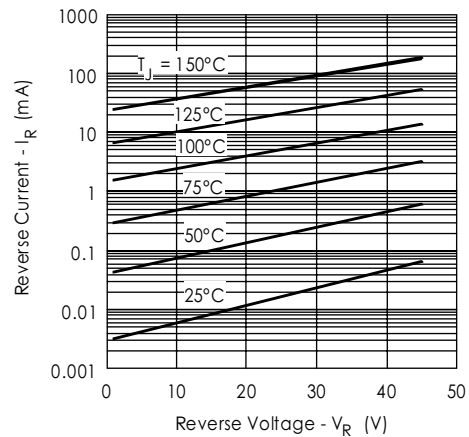


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

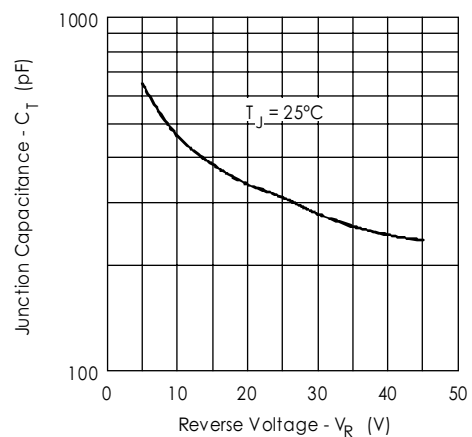


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

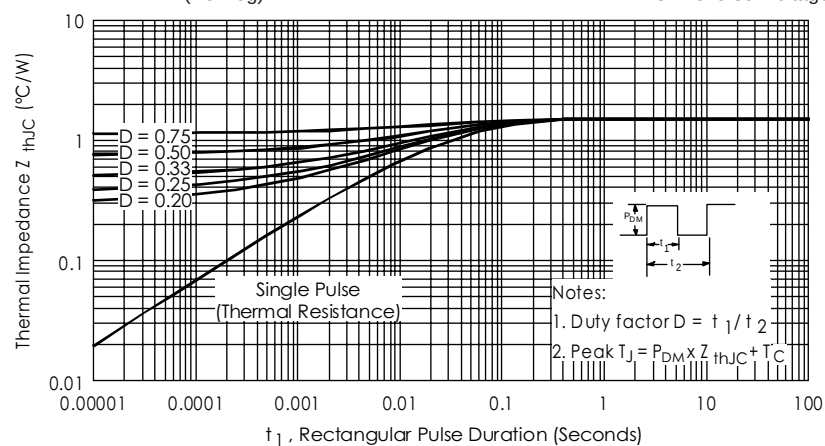


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

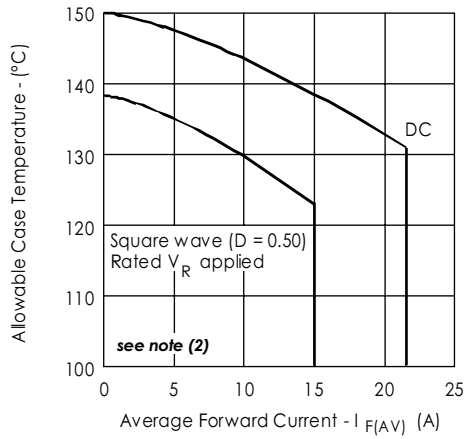


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

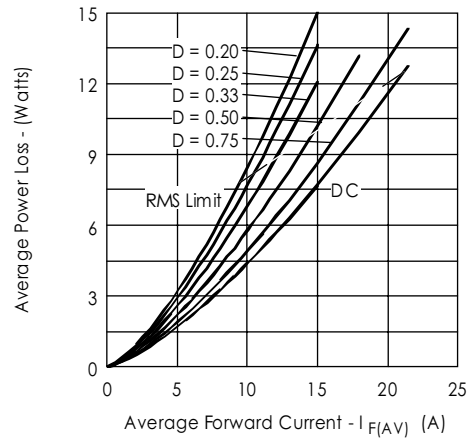


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

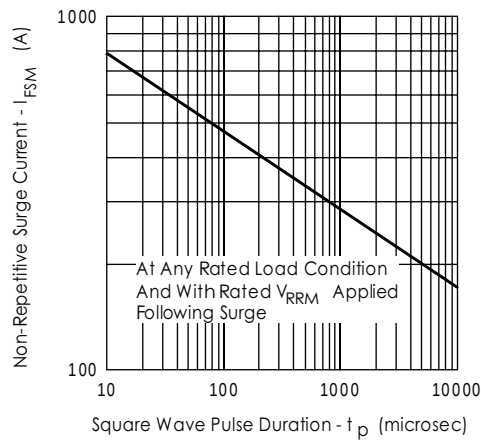
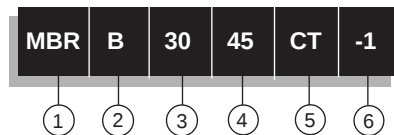


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

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

Ordering Information Table

Device Code



1 - Essential Part Number

2 - B = Surface Mount

None = TO-220

3 - Current Rating

4 - Voltage code: Code = V_{RRM}

35 = 35V

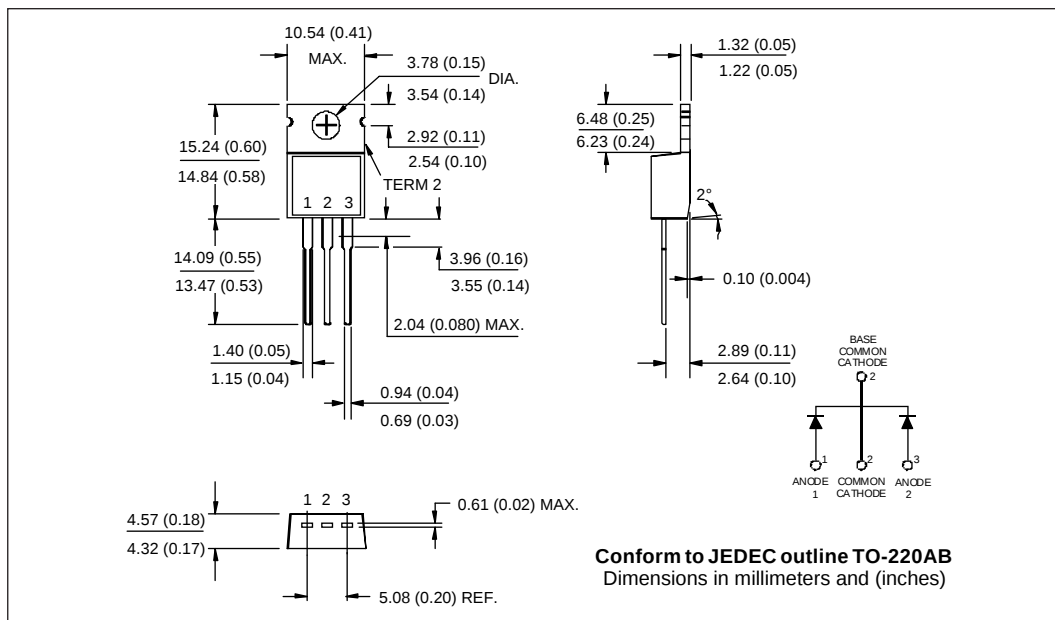
45 = 45V

5 - CT= Essential Part Number

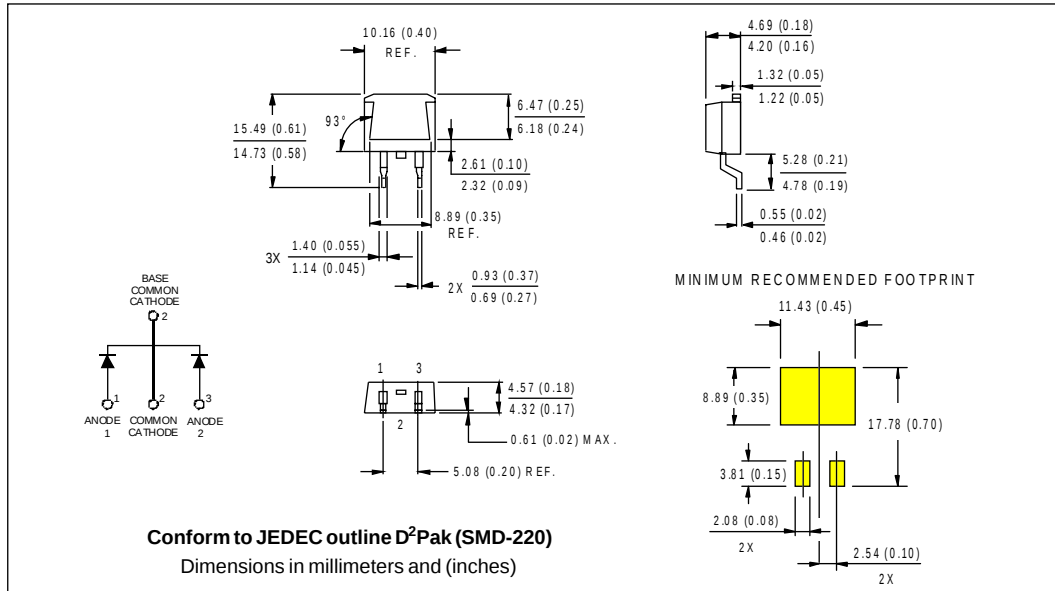
6 - -1 = TO-262

None = TO-220

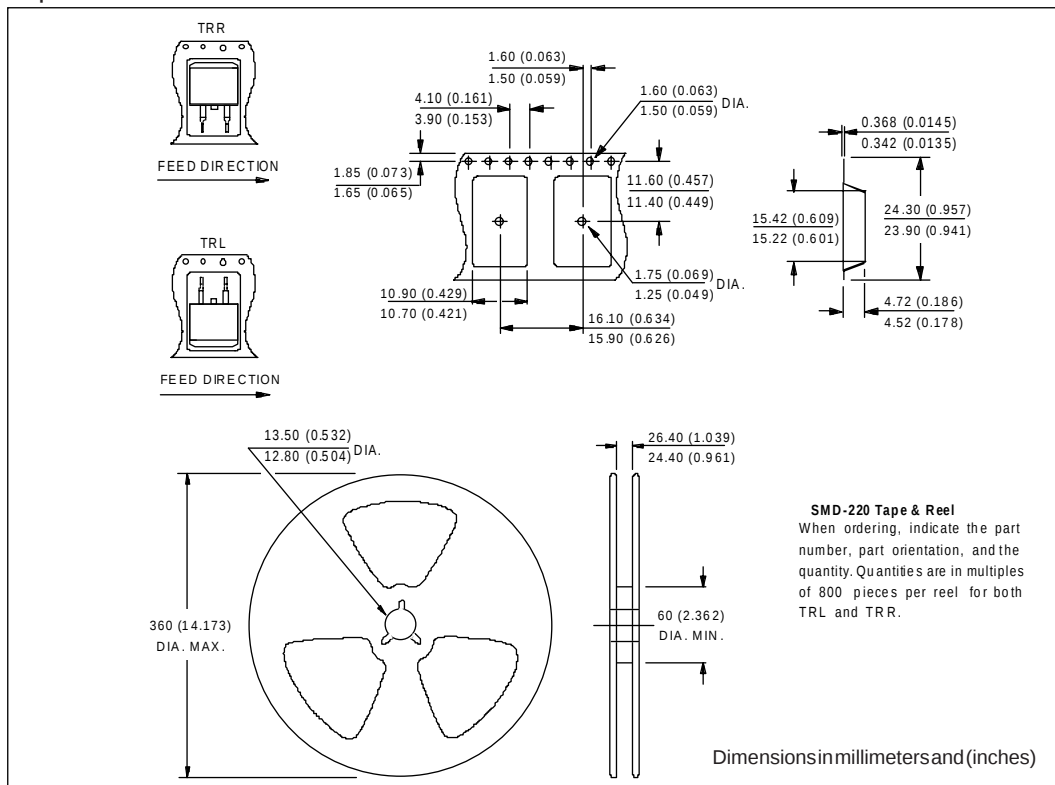
Outline Table



Outline Table



Tape & Reel Information



Outline Table

