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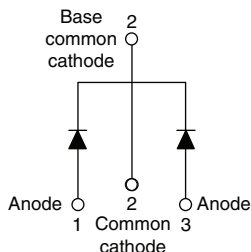
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Schottky Rectifier, 2 x 7.5 A


TO-220AB


FEATURES

- 150 °C T_J operation
- Center tap TO-220 package
- Low forward voltage drop
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Designed and qualified for industrial level

DESCRIPTION

The MBR15..CT 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, freewheeling diodes, and reverse battery protection.

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 7.5 A
V_R	35/45 V
I_{RM}	15 mA at 125 °C

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	15	A
V_{RRM}		35/45	V
I_{FSM}	$t_p = 5 \mu s$ sine	690	A
V_F	7.5 Apk, $T_J = 125 \text{ }^\circ\text{C}$	0.57	V
T_J	Range	- 65 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	MBR1535CT	MBR1545CT	UNITS
Maximum DC reverse voltage	V_R	35	45	V
Maximum working peak reverse voltage	V_{RWM}			

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 131 \text{ }^\circ\text{C}$, rated V_R		7.5	A
				15	
Maximum peak one cycle non-repetitive surge	I_{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V_{RRM} applied	690	
		Surge applied at rated load condition half wave single phase 60 Hz		150	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25 \text{ }^\circ\text{C}$, $I_{AS} = 2 \text{ A}$, $L = 3.5 \text{ mH}$		7	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical		2	A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V _{FM} ⁽¹⁾	15 A	T _J = 25 °C	0.84	V
		7.5 A	T _J = 125 °C	0.57	
		15 A		0.72	
Maximum instantaneous reverse current	I _{RM} ⁽¹⁾	T _J = 25 °C	Rated DC voltage	0.1	mA
		T _J = 125 °C		15	
Maximum junction capacitance	C _T	V _R = 5 V _{DC} (test signal range 100 kHz to 1 MHz) 25 °C		400	pF
Typical series inductance	L _S	Measured from top of terminal to mounting plane		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V _R		10 000	V/μs

Note

⁽¹⁾ Pulse width < 300 μ s, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction temperature range		T _J		- 65 to 150	°C
Maximum storage temperature range		T _{Stg}		- 65 to 175	
Maximum thermal resistance, junction to case per leg		R _{thJC}	DC operation	3.0	°C/W
Typical thermal resistance, case to heatsink		R _{thCS}	Mounting surface, smooth and greased	0.50	
Maximum thermal resistance, junction to ambient		R _{thJA}	DC operation	60	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device			Case style TO-220AB	MBR1535CT	
				MBR1545CT	

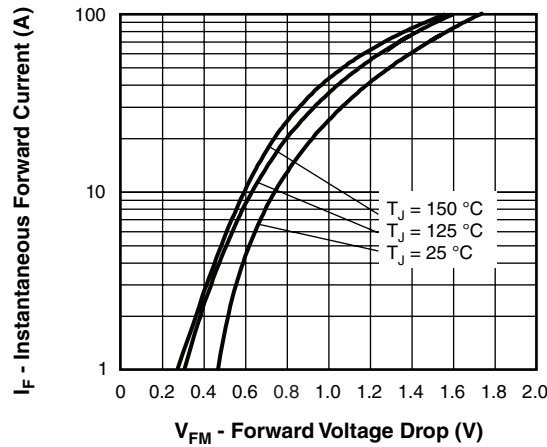


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

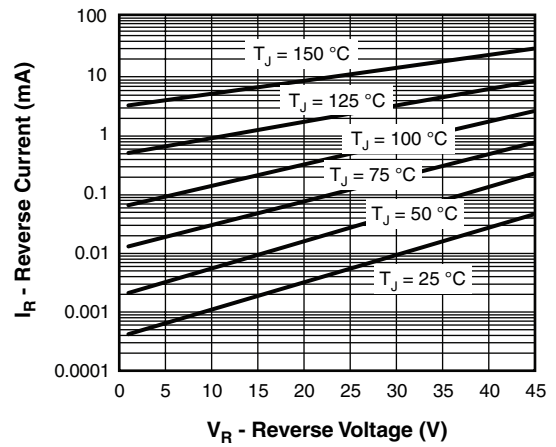


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

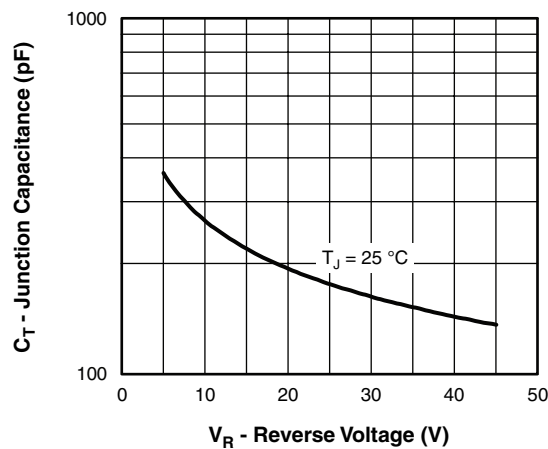


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

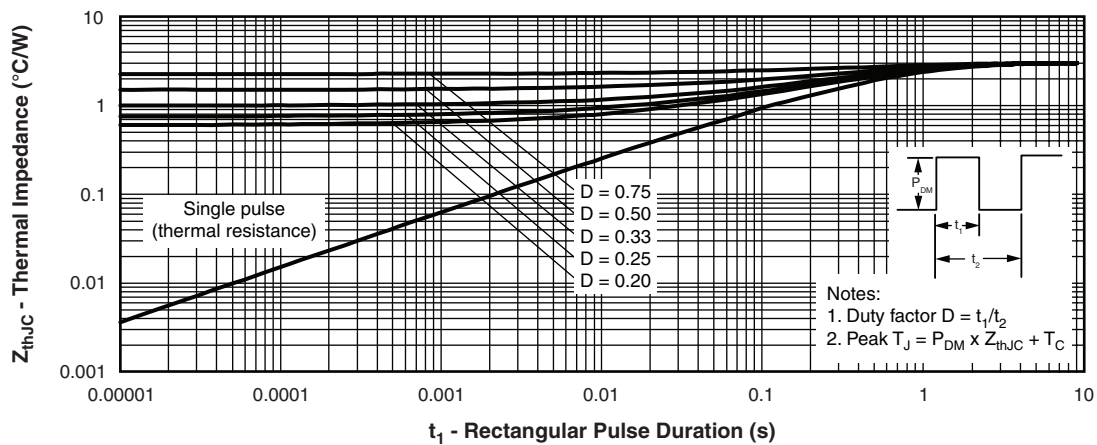


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

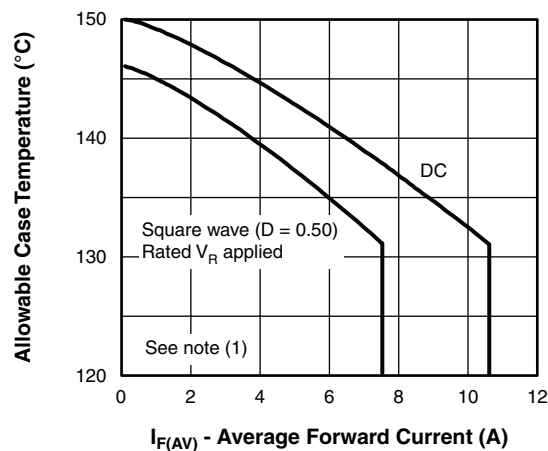


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

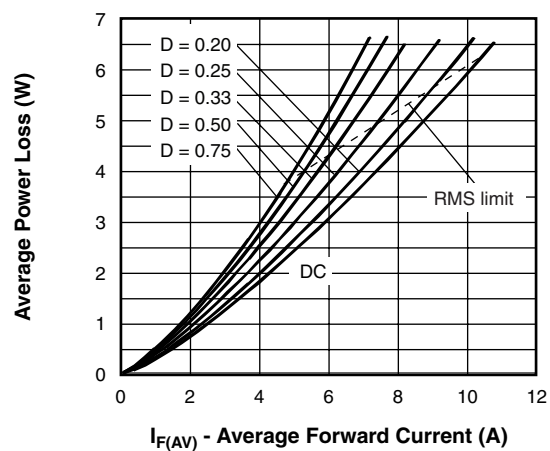


Fig. 6 - Forward Power Loss Characteristics

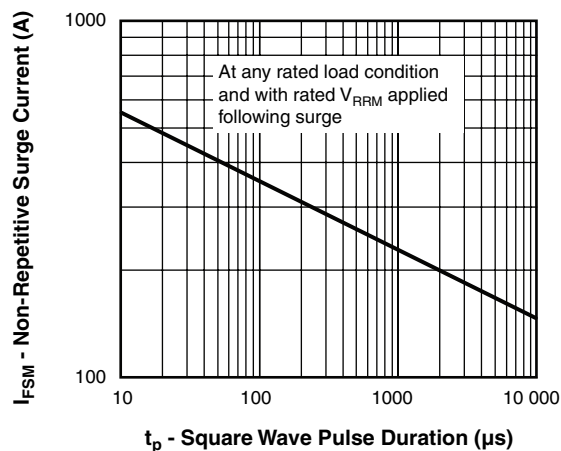


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

- (1) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;
 P_d = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6);
 $P_{d_{REV}}$ = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at V_{R1} = Rated V_R



ORDERING INFORMATION TABLE

Device code	MBR	15	45	CT	-
	①	②	③	④	⑤

- 1 - Schottky MBR series
- 2 - Current rating (15 = 15 A)
- 3 - Voltage ratings _____
- 4 - CT = Essential part number
- 5 -
 - None = Standard production
 - PbF = Lead (Pb)-free

35 = 35 V
45 = 45 V

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95222
Part marking information	http://www.vishay.com/doc?95225
SPICE model	http://www.vishay.com/doc?95294



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