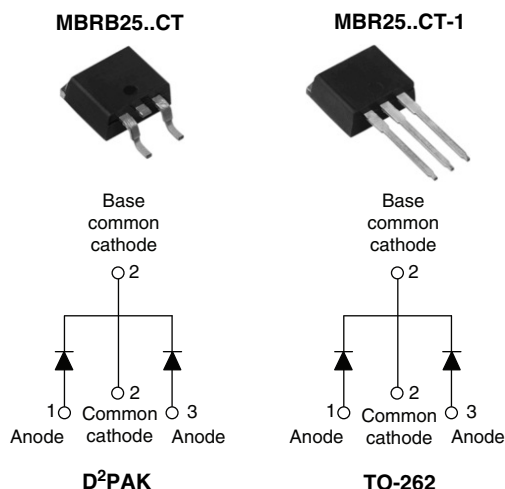


Schottky Rectifier, 2 x 15 A



FEATURES

- 150 °C T_J operation
- Center tap D²PAK and TO-262 packages
- 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 Q101 level

DESCRIPTION

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, freewheeling diodes, and reverse battery protection.

PRODUCT SUMMARY

I _{F(AV)}	2 x 15 A
V _R	35/45 V
I _{RM}	40 mA at 125 °C

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I _{F(AV)}	Rectangular waveform (per device)	30	A
I _{FRM}	T _C = 130 °C (per leg)	30	
V _{RRM}		35/45	V
I _{FSM}	t _p = 5 μs sine	1060	A
V _F	30 Apk, T _J = 125 °C	0.73	V
T _J	Range	- 65 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	MBRB2535CT MBR2535CT-1	MBRB2545CT MBR2545CT-1	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 = 130 °C, rated V _R	15	A
per leg			30	
Peak repetitive forward current per leg	I _{FRM}	Rated V _R , square wave, 20 kHz, T _C = 130 °C	30	
Non-repetitive peak surge current	I _{FSM}	5 μs sine or 3 μs rect. pulse	1060	
		Following any rated load condition and with rated V _{RRM} applied	150	
Non-repetitive avalanche energy per leg	E _{AS}	T _J = 25 °C, I _{AS} = 2 A, L = 8 mH	16	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 x V _R typical	2	A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^{\circ}\text{C}$	0.82	V
			$T_J = 125\text{ }^{\circ}\text{C}$	0.73	
Maximum instantaneous reverse current	$I_{RM}^{(1)}$	$T_J = 25\text{ }^{\circ}\text{C}$	Rated DC voltage	0.2	mA
		$T_J = 125\text{ }^{\circ}\text{C}$		40	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.355	V
Forward slope resistance	r_t			12.3	$\text{m}\Omega$
Maximum junction capacitance	C_T	$V_R = 5\text{ V}_{DC}$ (test signal range 100 kHz to 1 MHz) $25\text{ }^{\circ}\text{C}$		700	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 μs , 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	1.5	°C/W
Typical thermal resistance, case to heatsink		R _{thCS}	Mounting surface, smooth and greased (Only for TO-262)	0.50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum		Non-lubricated threads	6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style D ² PAK	MBRB2535CT		
			MBRB2545CT		
		Case style TO-262	MBR2535CT-1		
			MBR2545CT-1		

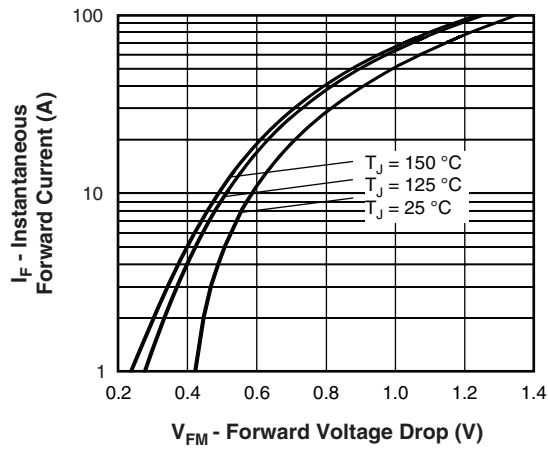


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

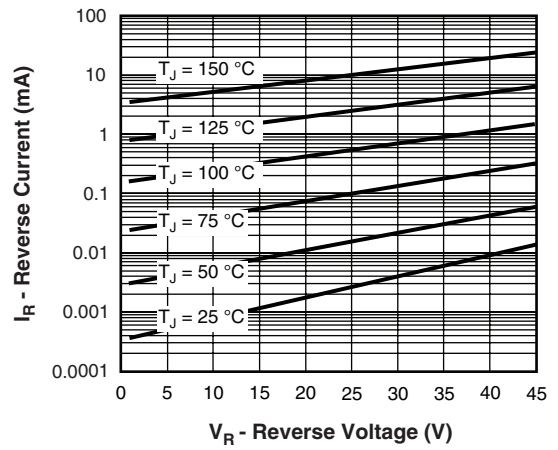


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

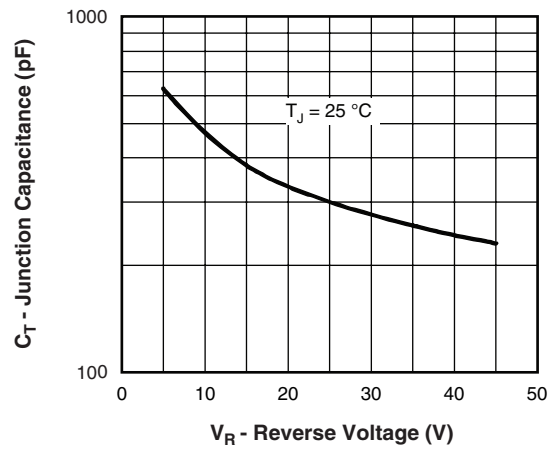


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

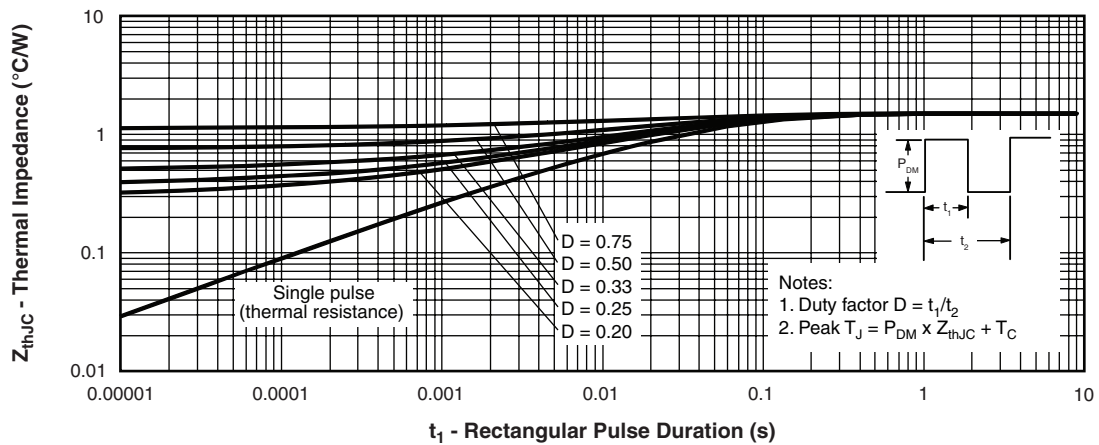


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

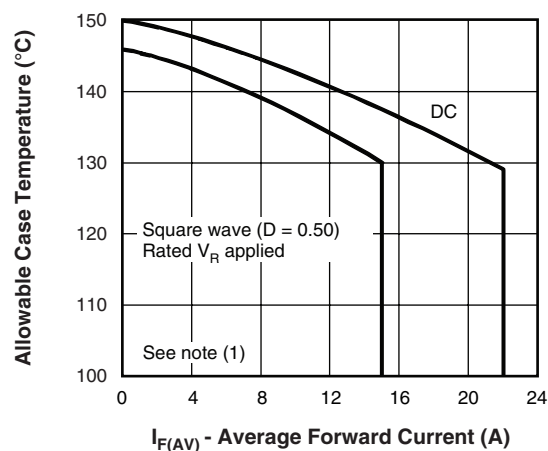


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

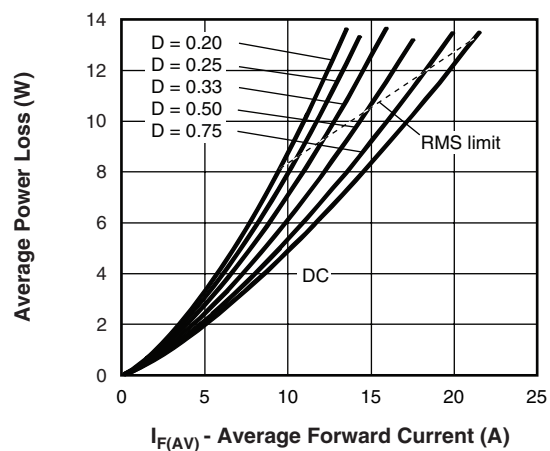


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

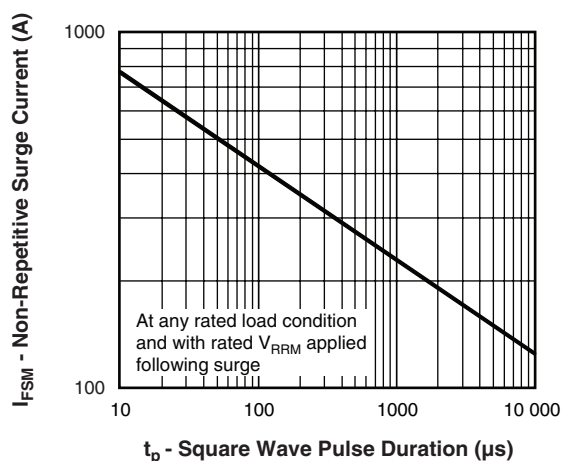


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

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	B	25	45	CT	-1	TRL	-
	1	2	3	4	5	6	7	8

- | | | | | |
|-----------|---|---|-----------|-----------|
| 1 | - | Essential part number | | |
| 2 | - | • B = D ² PAK 6 None | | |
| | | • None = TO-262 6 = -1 | | |
| 3 | - | Current rating (25 = 25 A) | | |
| 4 | - | Voltage ratings <table border="1" style="display: inline-table;"><tr><td>35 = 35 V</td></tr><tr><td>45 = 45 V</td></tr></table> | 35 = 35 V | 45 = 45 V |
| 35 = 35 V | | | | |
| 45 = 45 V | | | | |
| 5 | - | CT = Essential part number | | |
| 6 | - | • None = D ² PAK 2 = B | | |
| | | • -1 = TO-262 2 None | | |
| 7 | - | • None = Tube (50 pieces) | | |
| | | • TRL = Tape and reel (left oriented - for D ² PAK only) | | |
| | | • TRR = Tape and reel (right oriented - for D ² PAK only) | | |
| 8 | - | • None = Standard production | | |
| | | • PbF = Lead (Pb)-free (for TO-262 and D ² PAK tube) | | |
| | | • P = Lead (Pb)-free (for D ² PAK TRR and TRL) | | |

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95014
Part marking information	http://www.vishay.com/doc?95008
Packaging information	http://www.vishay.com/doc?95032



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