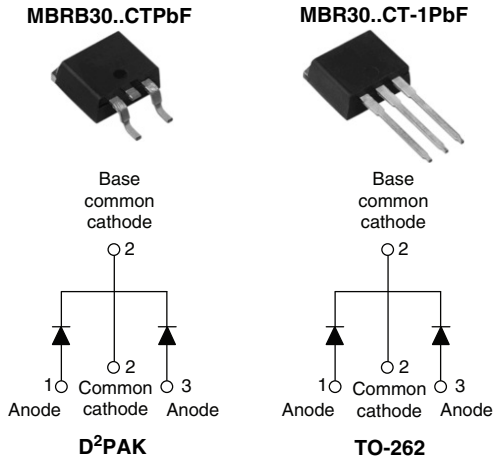


Schottky Rectifier, 2 x 15 A



FEATURES

- 150 °C T_J operation
- Low forward voltage drop
- High frequency operation
- Center tap D²PAK and TO-262 packages
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for Q101 level



Available
RoHS*
COMPLIANT

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}	100 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 = 123 °C (per leg)	30	
V _R		35/45	V
I _{FSM}	t _p = 5 μs sine	1020	A
V _F	20 Apk, T _J = 125 °C	0.6	V
T _J	Range	- 65 to 150	°C

VOLTAGE RATINGS				
PARAMETER	SYMBOL	MBRB3035CTPbF MBR3035CT-1PbF	MBRB3045CTPbF MBR3045CT-1PbF	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 = 123 °C, rated V _R	per leg	15	A
			per device	30	
Peak repetitive forward current per leg	I _{FRM}	Rated V _R , square wave, 20 kHz, T _C = 123 °C		30	
Non-repetitive peak surge current	I _{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V _{RRM} applied	1020	
		Surge applied at rated load conditions halfwave, single phase, 60 Hz		200	
Non-repetitive avalanche energy per leg	E _{AS}	T _J = 25 °C, I _{AS} = 2 A, L = 5 mH		10	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

* Pb containing terminations are not RoHS compliant, exemptions may apply

MBRB30..CTPbF/MBR30..CT-1PbF



Vishay High Power Products Schottky Rectifier, 2 x 15 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}^{(1)}$	30 A	$T_J = 25\text{ }^\circ\text{C}$	0.76	V
		20 A	$T_J = 125\text{ }^\circ\text{C}$	0.6	
		30 A		0.72	
Maximum instantaneous reverse current	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	Rated DC voltage	1	mA
		$T_J = 125\text{ }^\circ\text{C}$		100	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J$ maximum		0.29	V
Forward slope resistance	r_f			13.6	m Ω
Maximum junction capacitance	C_T	$V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz) 25 °C		800	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/ μ s

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	$^\circ\text{C}$
Maximum storage temperature range	T_{Stg}			- 65 to 175	
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation		1.5	$^\circ\text{C/W}$
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		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		MBRB3045CT	
		Case style TO-262		MBR3045CT-1	



MBRB30..CTPbF/MBR30..CT-1PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

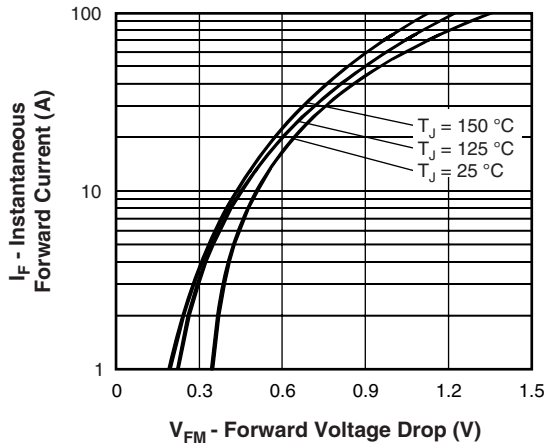


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

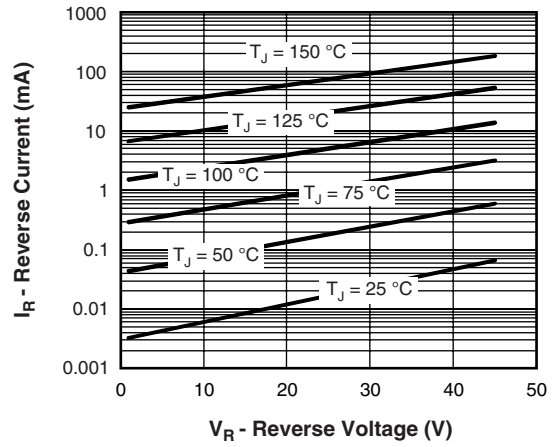


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

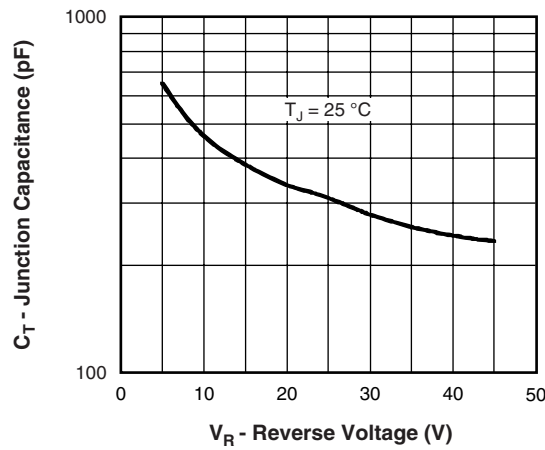


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

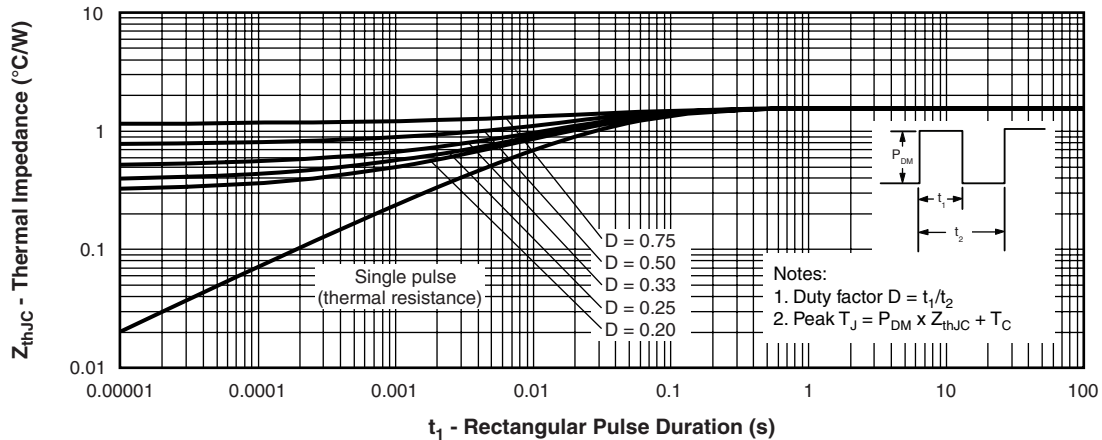


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

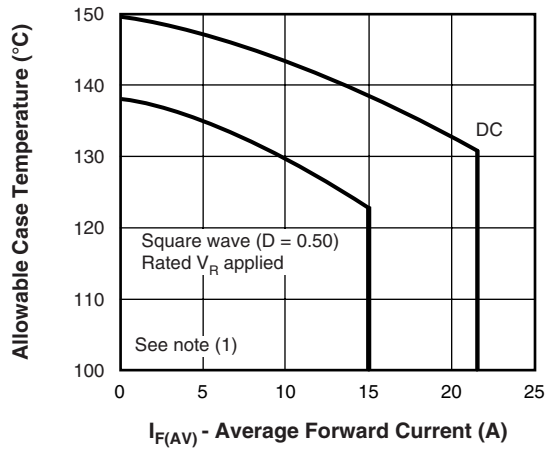


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

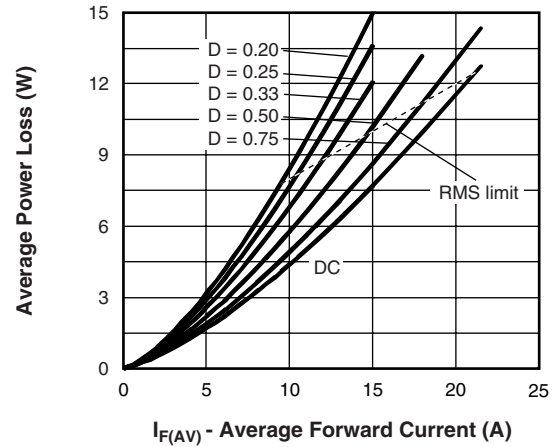


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

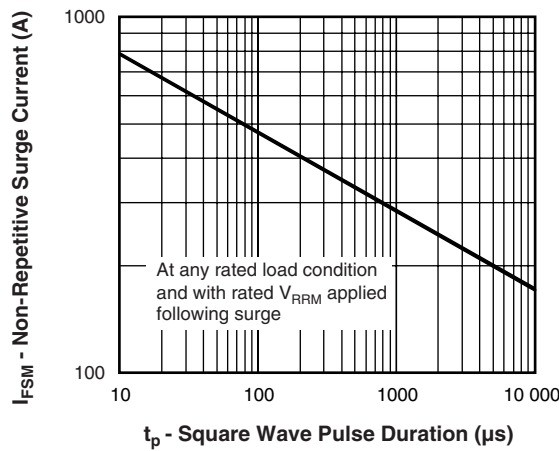


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

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



MBRB30..CTPbF/MBR30..CT-1PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

ORDERING INFORMATION TABLE

Device code	MBR	B	30	45	CT	-1	TRL	PbF
	1	2	3	4	5	6	7	8

- 1** - Essential part number
- 2** -
 - B = D²PAK **6** None
 - None = TO-262 **6** = -1
- 3** - Current rating (30 = 30 A)
- 4** - Voltage ratings

35 = 35 V
45 = 45 V
- 5** - CT = Essential part number
- 6** -
 - None = D²PAK **2** = B
 - -1 = TO-262 **2** None
- 7** -
 - None = Tube (50 pieces)
 - TRL = Tape and reel (left oriented - for D²PAK only)
 - TRR = Tape and reel (right oriented - for D²PAK only)
- 8** -
 - None = Standard production
 - PbF = Lead (Pb)-free (for TO-262 and D²PAK tube)
 - P = Lead (Pb)-free (for D²PAK 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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