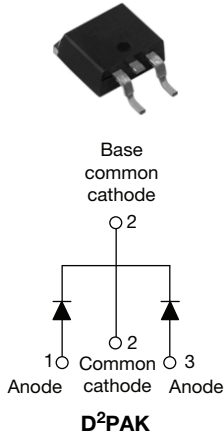
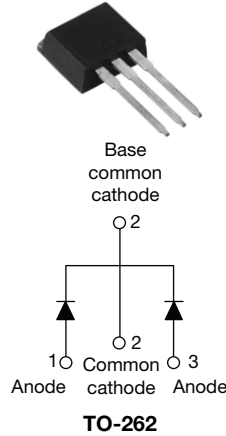


Schottky Rectifier, 2 x 15 A

VS-MBRB25..CTPbF



VS-MBR25..CT-1PbF



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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Halogen-free according to IEC 61249-2-21 definition
- Compliant to RoHS directive 2002/95/EC
- AEC-Q101 qualified



RoHS
COMPLIANT
HALOGEN
FREE

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 V/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}	$t_p = 5$ μ s 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	VS-MBRB2535CTPbF VS-MBR2535CT-1PbF	VS-MBRB2545CTPbF VS-MBR2545CT-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	$I_{F(AV)}$	$T_C = 130$ °C, rated V_R	per leg	15
			per device	30
Peak repetitive forward current per leg	I_{FRM}	Rated V_R , square wave, 20 kHz, $T_C = 130$ °C	30	A
Non-repetitive peak surge current	I_{FSM}	5 μ s sine or 3 μ s rect. pulse	1060	
		Surge applied at rated load conditions halfwave, single phase, 60 Hz	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 μ s Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	2	A

VS-MBRB25..CTPbF, VS-MBR25..CT-1PbF Series



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	$T_J = 25\text{ }^\circ\text{C}$	0.82	V
			$T_J = 125\text{ }^\circ\text{C}$	0.73	
Maximum instantaneous reverse current	$I_{RM}^{(1)}$	Rated DC voltage	$T_J = 25\text{ }^\circ\text{C}$	0.2	mA
			$T_J = 125\text{ }^\circ\text{C}$	40	
Threshold voltage	$V_{F(TO)}$	$T_J = T_J$ maximum		0.355	V
Forward slope resistance	r_t			12.3	m Ω
Maximum junction capacitance	C_T	$V_R = 5\text{ }V_{DC}$ (test signal range 100 kHz to 1 MHz), 25 $^\circ\text{C}$		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	$^\circ\text{C}$
Maximum storage temperature range	T_{Stg}			- 65 to 175	
Maximum thermal resistance, junction to case per leg	R_{thJC}	DC operation		1.5	$^\circ\text{C}/\text{W}$
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased		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		MBRB2545CT	
		Case style TO-262		MBR2545CT-1	

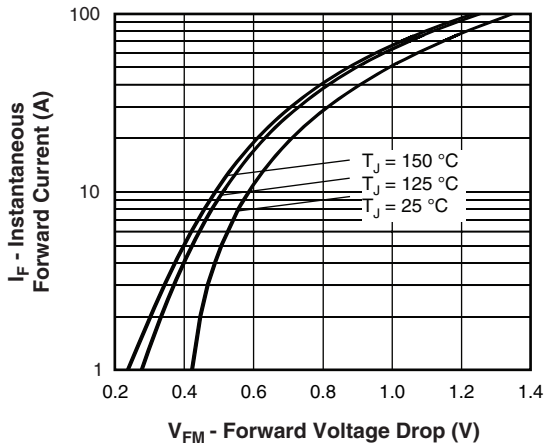


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

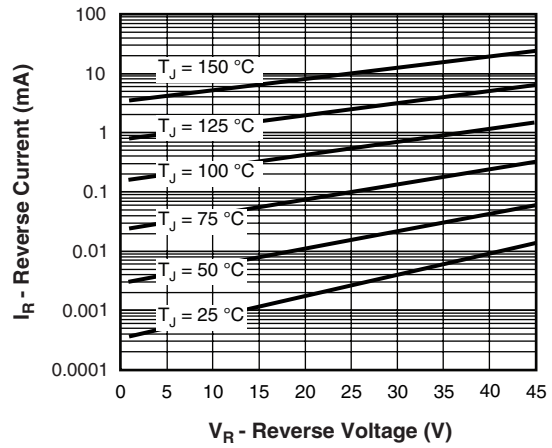


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

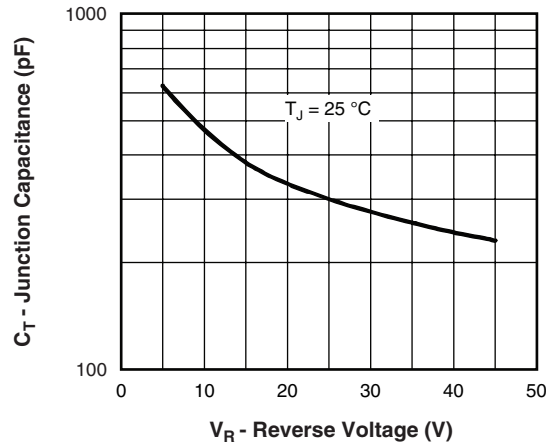


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

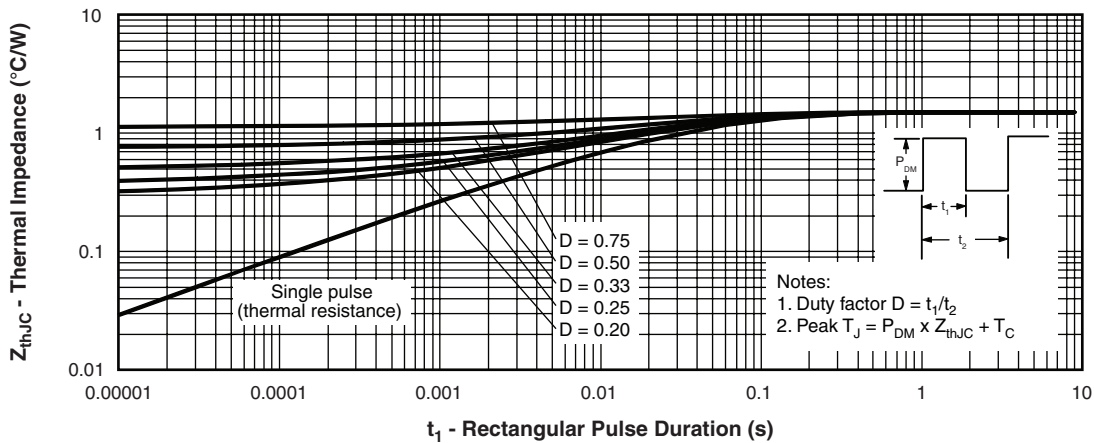


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

VS-MBRB25..CTPbF, VS-MBR25..CT-1PbF Series



Vishay High Power Products Schottky Rectifier, 2 x 15 A

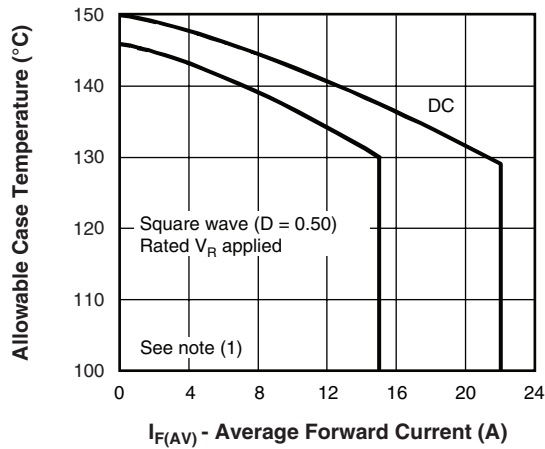


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

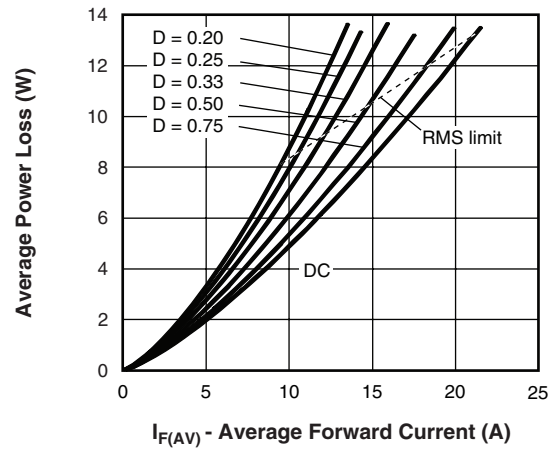


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

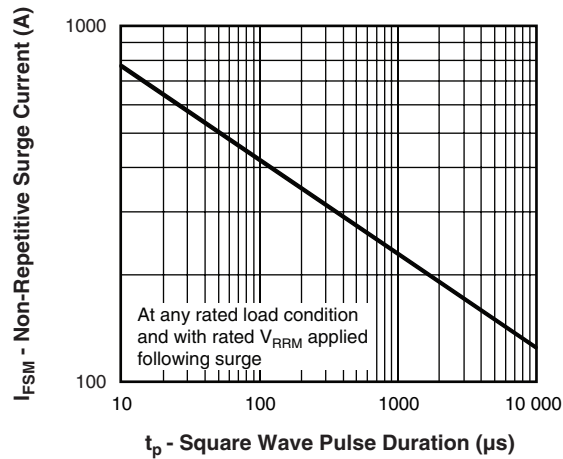


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

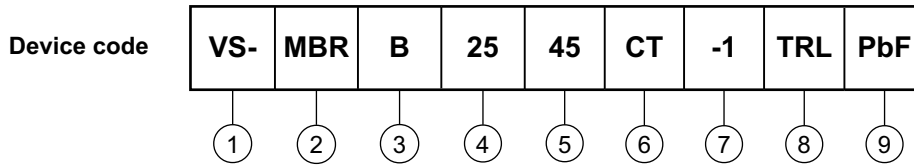
- (1) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
 Pd = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)}/D)$ (see fig. 6);
 Pd_{REV} = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at V_{R1} = Rated V_R



VS-MBRB25..CTPbF, VS-MBR25..CT-1PbF Series

Schottky Rectifier, 2 x 15 A Vishay High Power Products

ORDERING INFORMATION TABLE



- 1** - HPP product suffix
- 2** - Essential part number
- 3** -
 - B = D²PAK **7** None
 - None = TO-262 **7** = -1
- 4** - Current rating (25 = 25 A)
- 5** - Voltage ratings 35 = 35 V
45 = 45 V
- 6** - CT = Essential part number
- 7** -
 - None = D²PAK **3** = B
 - -1 = TO-262 **3** None
- 8** -
 - None = Tube (50 pieces)
 - TRL = Tape and reel (left oriented - for D²PAK only)
 - TRR = Tape and reel (right oriented - for D²PAK only)
- 9** -
 - PbF = Lead (Pb)-free (for TO-262 and D²PAK tube)
 - P = Lead (Pb)-free (for D²PAK TRR and TRL)

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



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