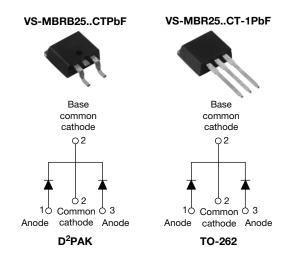


Vishay High Power Products

Schottky Rectifier, 2 x 15 A



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

FEATURES

- 150 °C T_J operation
- Center tap D²PAK and TO-262 packages
- Low forward voltage drop
- High frequency operation



- RoHS COMPLIANT HALOGEN FREE
- Guard ring for enhanced ruggedness and long term reliability

encapsulation for enhanced mechanical

• High purity, high temperature epoxy

- 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

strength and moisture resistance

• AEC-Q101 qualified

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.

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	A		
V _{RRM}		35/45	V		
I _{FSM}	t _p = 5 μs sine	1060	А		
V _F	30 Apk, T _J = 125 °C	0.73	V		
TJ	Range	- 65 to 150	°C		

VOLTAGE RATINGS				
PARAMETER	SYMBOL VS-MBRB2535CTPbF VS-MBR2535CT-1PbF VS-MBRB2545CTPbF VS-MBR2545CT-1PbF UNI'		UNITS	
Maximum DC reverse voltage	V _R	- 35 45 V		V
Maximum working peak reverse voltage	V _{RWM}			v

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average per leg	1	$I_{F(AV)}$ $T_{C} = 130 \text{ °C}, \text{ rated } V_{R}$		15	
forward current per device	IF(AV)			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	Following any rated load condition and with rated V _{RRM} applied	1060	A
		Surge applied at rated single phase, 60 Hz	oad conditions halfwave,	150	
Non-repetitive avalanche energy per leg	E _{AS}	$T_{J} = 25 \text{ °C}, I_{AS} = 2 \text{ A}, L = 8 \text{ mH}$		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 x V _R typical		2	А

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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
	V (1)	30 A	T _J = 25 °C	0.82	v
Maximum forward voltage drop	V _{FM} ⁽¹⁾	50 A	T _J = 125 °C	0.73	
Maximum instantaneous	I _{BM} ⁽¹⁾	$T_J = 25 \ ^\circ C$	Poted DC voltage	0.2	mA
reverse current	IRM (''	T _J = 125 °C	Rated DC voltage	40	ША
Threshold voltage	V _{F(TO)}	$T_J = T_J$ maximum		0.355	V
Forward slope resistance	r _t			12.3	mΩ
Maximum junction capacitance	CT	V_{R} = 5 V_{DC} (test signal range 100 kHz to 1 MHz), 25 °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		10 000	V/µs

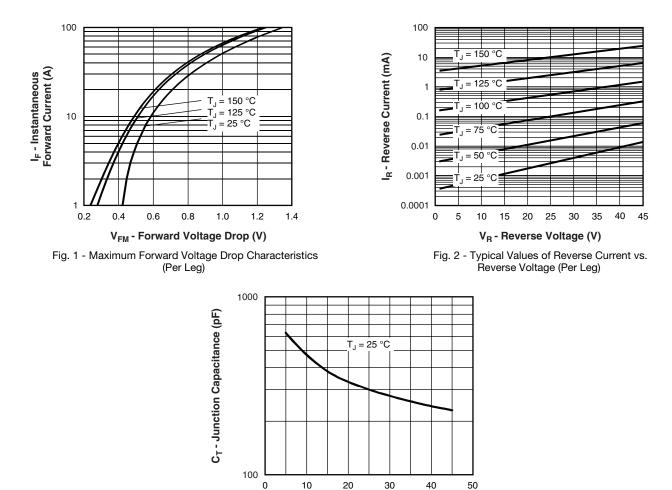
Note

 $^{(1)}\,$ Pulse width < 300 $\mu s,\,duty\,cycle$ < 2 $\,\%$

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction temperature range	TJ		- 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		
Typical thermal resistance, case to heatsink	R _{thCS}	Mounting surface, smooth and greased	0.50	°C/W	
A			2	g	
Approximate weight			0.07	oz.	
Mounting torque		Non-lubricated threads	6 (5)	kgf · cm	
Mounting torque maximum		Non-lubricated threads	12 (10)	(lbf \cdot in)	
Marking davias		Case style D ² PAK	MBRB2	545CT	
Marking device		Case style TO-262	MBR254	15CT-1	



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

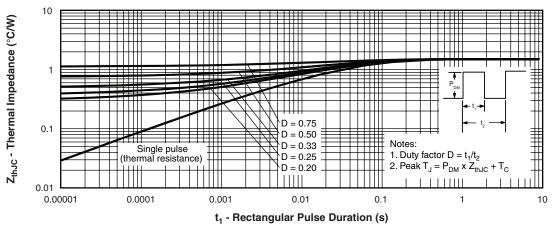
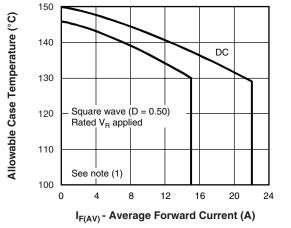
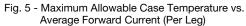


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)



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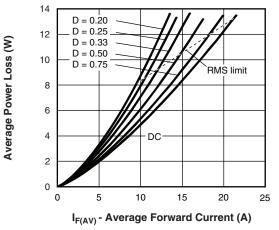
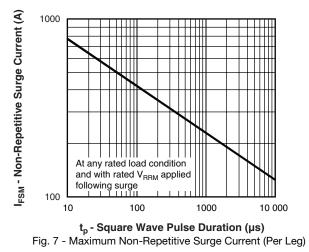


Fig. 6 - Forward Power Loss Characteristics (Per Leg)



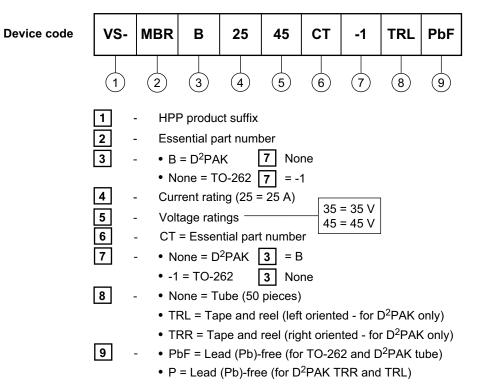
Note

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



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ORDERING INFORMATION TABLE



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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