Vishay High Power Products

Schottky Rectifier, 2 x 15 A



- 150 °C T_J operation
- Center tap configuration
- Very low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- 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

DESCRIPTION

This center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150 °C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	VALUES	UNITS		
I _{F(AV)}	Rectangular waveform	2 x 15	А		
V _{RRM}		30	V		
V _F	15 Apk, T _J = 125 °C (per leg)	0.37	V		
TJ	Range	- 55 to 150	°C		

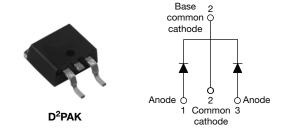
VOLTAGE RATINGS					
PARAMETER	SYMBOL	VS-STPS30L30CGPbF	UNITS		
Maximum DC reverse voltage	V _R	30	V		
Maximum working peak reverse voltage	V _{RWM}	50	v		

ABSOLUTE MAXIMUM RATINGS						
PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average	iximum average per device		50.0/ duty such at T 140.00 yester such such at the		30	
forward current	per leg	I _{F(AV)}	50 % duty cycle at T_C = 140 °C, rectangular waveform		15	
Maximum peak one cycle non-repetitive surge current		I _{FSM}	5 µs sine or 3 µs rect. pulse	Following any rated load condition and with rated V _{RRM} applied	1450	A
			10 ms sine or 6 ms rect. pulse		220	
Non-repetitive avalanche energy per leg		E _{AS}	T _J = 25 °C, I _{AS} = 2 A, L = 7.5 mH		15	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	А

D	RATINGS	CHAR	ACTER	POITP	
					di
					in

2 x 15 A

30 V



PRODUCT SUMMARY

I_{F(AV)}

 V_{R}





RoHS COMPLIANT

HALOGEN

FREE

VS-STPS30L30CGPbF

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ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
	V _{FM} ⁽¹⁾	15 A	- T _J = 25 °C	0.46	V
Maximum forward voltage drep per leg		30 A		0.57	
Maximum forward voltage drop per leg		15 A	- T _J = 125 °C	0.37	
		30 A		0.50	
Maximum reverse leakage current per leg	I _{RM}	T _J = 25 °C	V _R = Rated V _R	1.50	mA
Maximum reverse leakage current per leg		T _J = 125 °C		350	
Maximum junction capacitance per leg	CT	C_T $V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz), 25 °C		1500	pF
Typical series inductance per leg	L _S	Measured lead to lead 5 mm from package body		8.0	nH
Maximum voltage rate of change	dV/dt	Rated V _R 10 000		V/µs	

Note

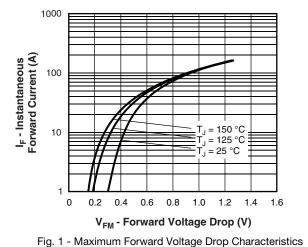
 $^{(1)}\,$ Pulse width < 300 $\mu s,$ duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range		T _J , T _{Stg}		- 55 to 150	°C
Maximum thermal resistance,		R _{thJC}	DC exerction	1.5	°C/W
junction to case per leg	h thJC	DC operation	0.8	0/10	
				2	g
Approximate weight				0.07	oz.
Mounting torque	minimum			6 (5)	kgf ⋅ cm
	maximum			12 (10)	(lbf · in)
Marking device Case		Case style D ² PAK	STPS30	L30CG	



VS-STPS30L30CGPbF

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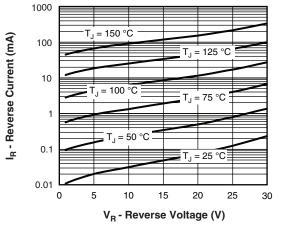


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

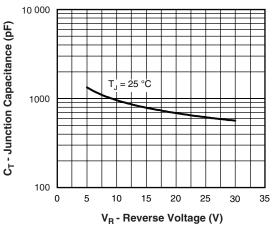


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

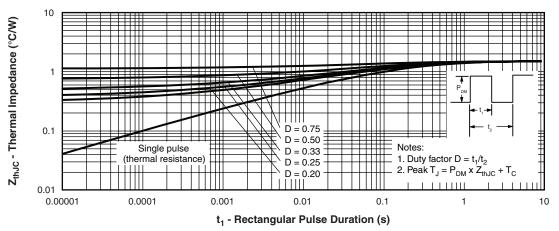
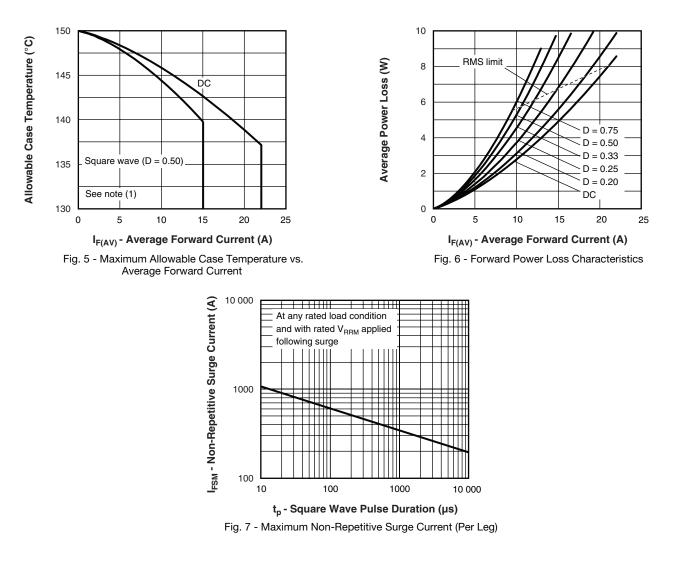


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

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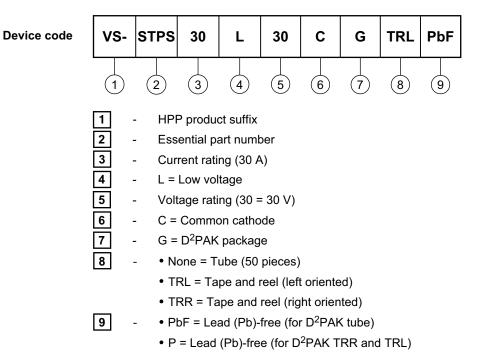
Note

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



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ORDERING INFORMATION TABLE



LINKS TO RELATED DOCUMENTS				
Dimensions www.vishay.com/doc?95046				
Part marking information	www.vishay.com/doc?95054			
Packaging information	www.vishay.com/doc?95032			
SPICE model	www.vishay.com/doc?95287			



Vishay

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