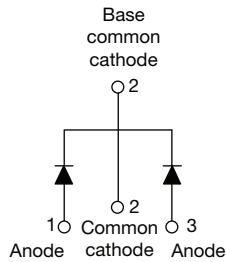


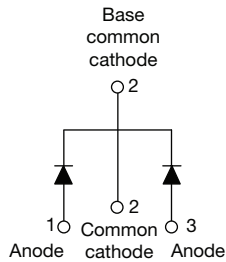
## Schottky Rectifier, 2 x 15 A

VS-30L30CTSPbF



D<sup>2</sup>PAK

VS-30L30CT-1PbF



TO-262

### FEATURES

- 150 °C T<sub>J</sub> operation
- Center tap configuration
- Very 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 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, freewheeling diodes, and reverse battery protection.

### PRODUCT SUMMARY

I <sub>F(AV)</sub>	2 x 15 A
V <sub>R</sub>	30 V

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
I <sub>F(AV)</sub>	Rectangular waveform	30	A
V <sub>R(RM)</sub>		30	V
V <sub>F</sub>	15 Apk, T <sub>J</sub> = 125 °C (per leg)	0.37	
T <sub>J</sub>	Range	- 55 to 150	°C

### VOLTAGE RATINGS

PARAMETER	SYMBOL	VS-30L30CTSPbF VS-30L30CT-1PbF	UNITS
Maximum DC reverse voltage	V <sub>R</sub>	30	V
Maximum working peak reverse voltage	V <sub>R(WM)</sub>		

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	I <sub>F(AV)</sub>	50 % duty cycle at T <sub>C</sub> = 140 °C, rectangular waveform	30	A
			per leg	
Maximum peak one cycle non-repetitive surge current	I <sub>FSM</sub>	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V <sub>R(RM)</sub> applied	1450
		10 ms sine or 6 ms rect. pulse		220
Non-repetitive avalanche energy per leg	E <sub>AS</sub>	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 2 A, L = 7.5 mH	15	mJ
Repetitive avalanche current per leg	I <sub>AR</sub>	Current decaying linearly to zero in 1 μs Frequency limited by T <sub>J</sub> maximum V <sub>A</sub> = 1.5 x V <sub>R</sub> typical	2	A

# VS-30L30CTSPbF, VS-30L30CT-1PbF



Vishay High Power Products Schottky Rectifier, 2 x 15 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop per leg	$V_{FM}^{(1)}$	15 A	$T_J = 25\text{ }^\circ\text{C}$	0.46	V
		30 A		0.57	
		15 A	$T_J = 125\text{ }^\circ\text{C}$	0.37	
		30 A		0.50	
Maximum reverse leakage current per leg	$I_{RM}^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	1.50	mA
		$T_J = 125\text{ }^\circ\text{C}$		350	
Maximum junction capacitance per leg	$C_T$	$V_R = 5 V_{DC}$ (test signal range 100 kHz to 1 MHz), $25\text{ }^\circ\text{C}$		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/ $\mu\text{s}$

**Note**

(1) Pulse width < 300  $\mu\text{s}$ , 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	$^\circ\text{C}$
Maximum thermal resistance, junction to case per leg	$R_{thJC}$	DC operation		1.5	$^\circ\text{C/W}$
Maximum thermal resistance, junction to case per package				0.8	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style D <sup>2</sup> PAK		30L30CTS	
		Case style TO-262		30L30CT-1	



# VS-30L30CTSPbF, VS-30L30CT-1PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

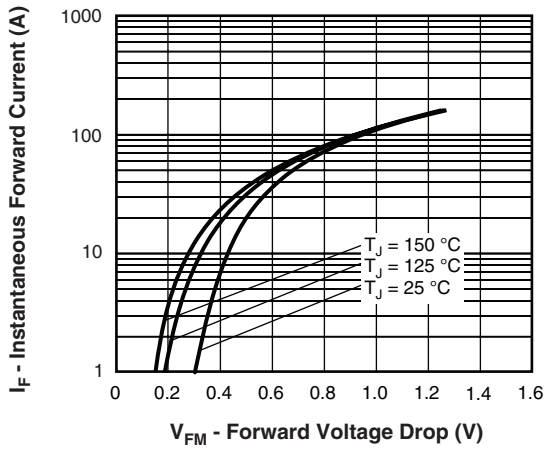


Fig. 1 - Maximum Forward Voltage Drop Characteristics

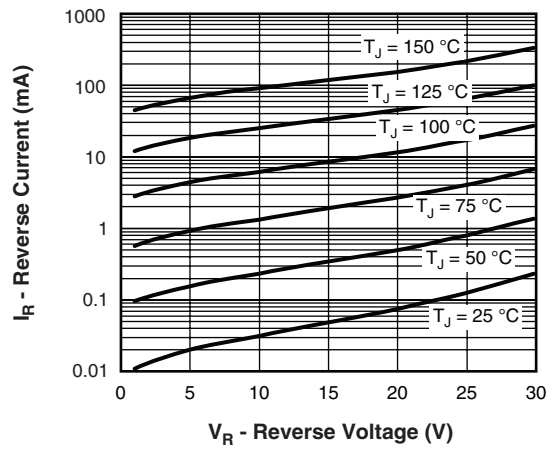


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

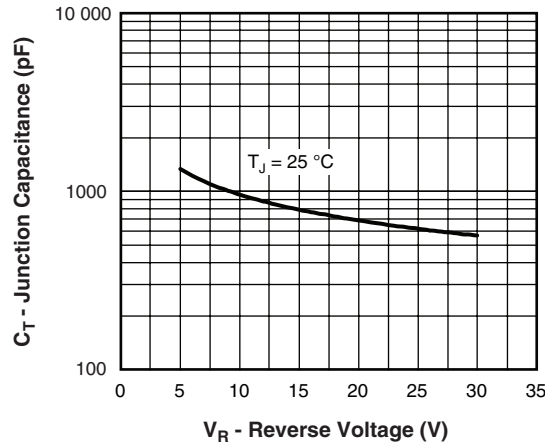


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

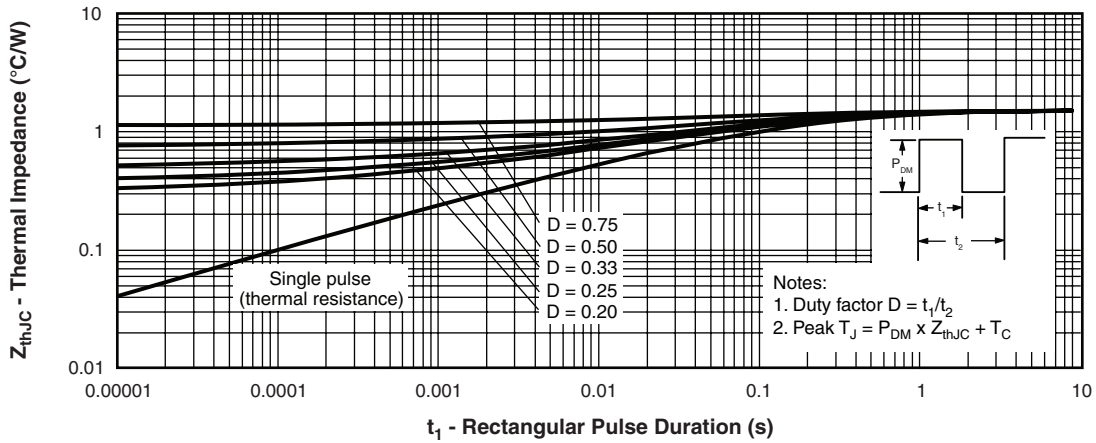


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

# VS-30L30CTSPbF, VS-30L30CT-1PbF



Vishay High Power Products Schottky Rectifier, 2 x 15 A

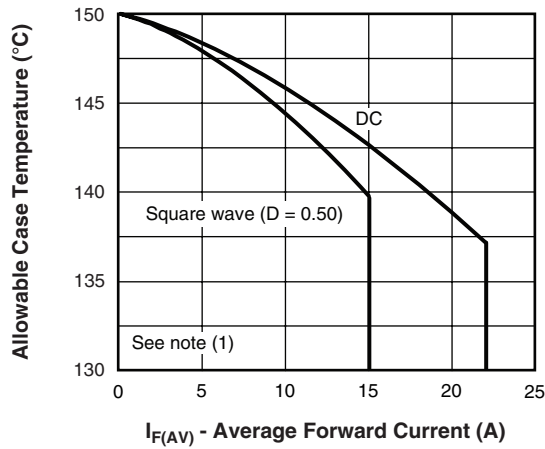


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

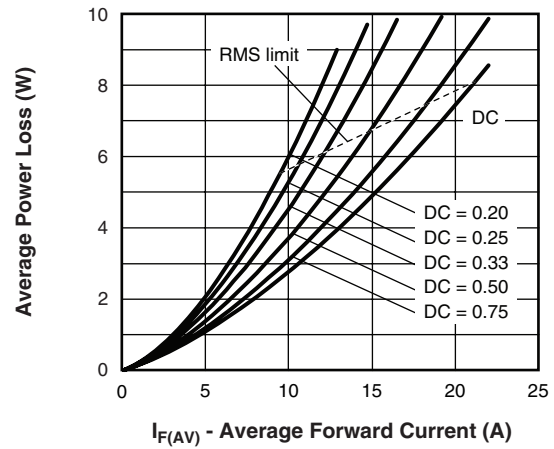


Fig. 6 - Forward Power Loss Characteristics

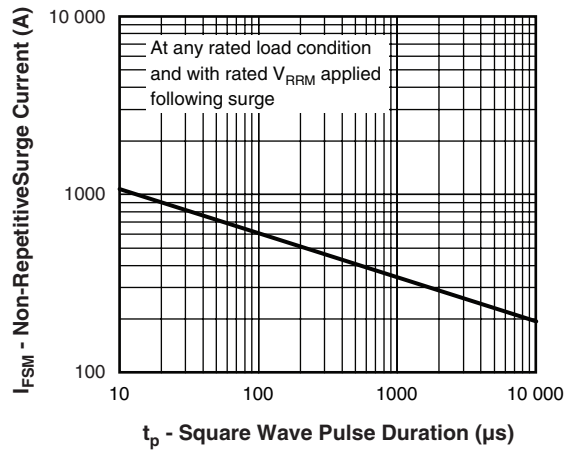


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

**Note**

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



# VS-30L30CTSPbF, VS-30L30CT-1PbF

Schottky Rectifier, 2 x 15 A Vishay High Power Products

## ORDERING INFORMATION TABLE

Device code	<b>VS-</b>	<b>30</b>	<b>L</b>	<b>30</b>	<b>C</b>	<b>T</b>	<b>S</b>	<b>TRL</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥	⑦	⑧	⑨

- 1** - HPP product suffix
- 2** - Current rating (30 A)
- 3** - L = Low  $V_F$
- 4** - Voltage rating (30 = 30 V)
- 5** - Circuit configuration: C = Common cathode
- 6** - T = TO-220
- 7** -
  - S = D<sup>2</sup>PAK
  - -1 = TO-262
- 8** -
  - None = Tube (50 pieces)
  - TRL = Tape and reel (left oriented)
  - TRR = Tape and reel (right oriented)
- 9** - PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95014">www.vishay.com/doc?95014</a>
Part marking information	<a href="http://www.vishay.com/doc?95008">www.vishay.com/doc?95008</a>
Packaging information	<a href="http://www.vishay.com/doc?95032">www.vishay.com/doc?95032</a>
SPICE model	<a href="http://www.vishay.com/doc?95287">www.vishay.com/doc?95287</a>



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