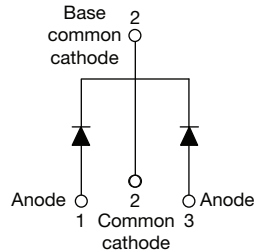


## Schottky Rectifier, 2 x 15 A


**D<sup>2</sup>PAK**

**FEATURES**

- 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


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**
**PRODUCT SUMMARY**

$I_{F(AV)}$	2 x 15 A
$V_R$	30 V

**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	A
$V_{RRM}$		30	V
$V_F$	15 Apk, $T_J = 125$ °C (per leg)	0.37	V
$T_J$	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	$V_{RWM}$		

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current per device per leg	$I_{F(AV)}$	50 % duty cycle at $T_C = 140$ °C, rectangular waveform	30	A
			15	
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	5 $\mu$ s sine or 3 $\mu$ s rect. pulse	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 $\mu$ s Frequency limited by $T_J$ maximum $V_A = 1.5 \times V_R$ typical	2	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	$I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_R$	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	$^\circ\text{C/W}$
				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		STPS30L30CG	

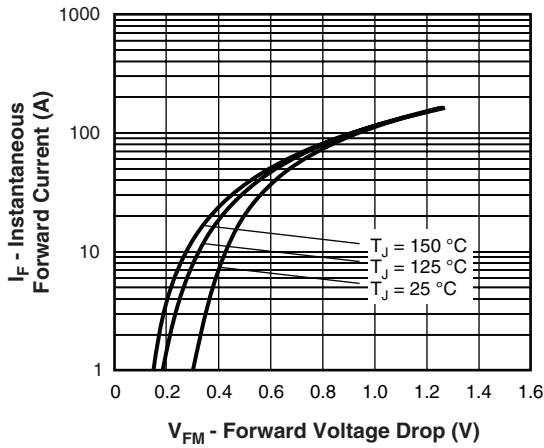


Fig. 1 - Maximum Forward Voltage Drop Characteristics

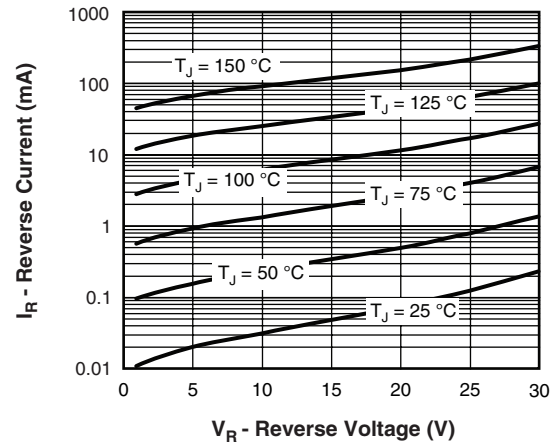


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

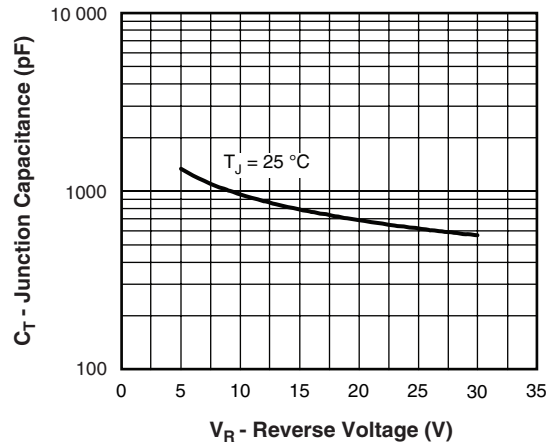


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

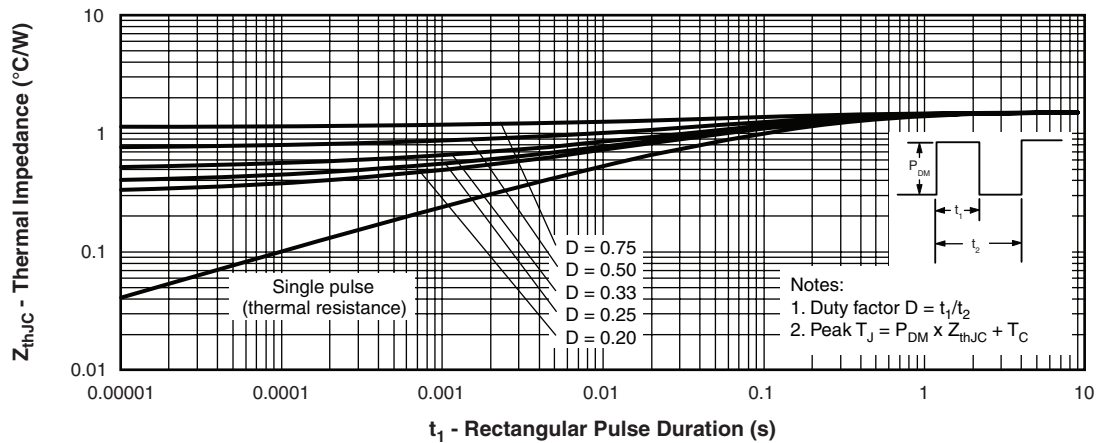


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

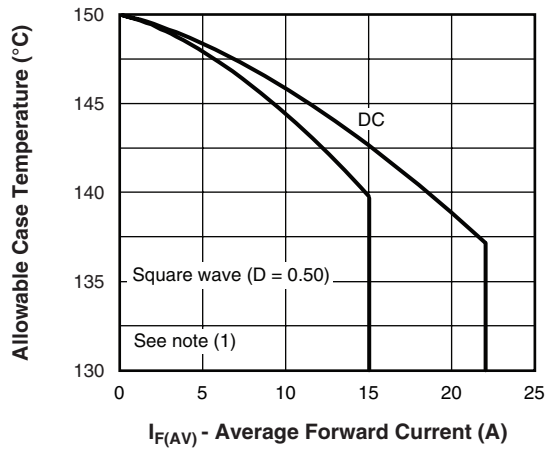


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

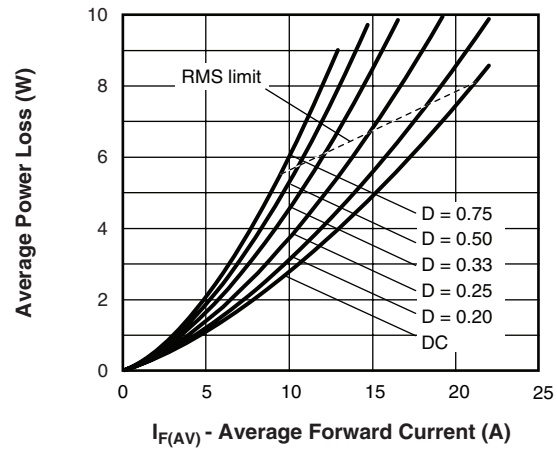


Fig. 6 - Forward Power Loss Characteristics

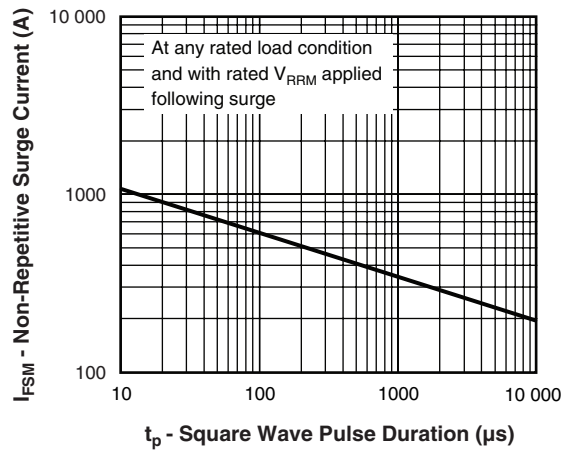


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

**Note**

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



### ORDERING INFORMATION TABLE

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

- 1** - HPP product suffix
- 2** - Essential part number
- 3** - Current rating (30 A)
- 4** - L = Low voltage
- 5** - Voltage rating (30 = 30 V)
- 6** - C = Common cathode
- 7** - G = D<sup>2</sup>PAK package
- 8** -
  - None = Tube (50 pieces)
  - TRL = Tape and reel (left oriented)
  - TRR = Tape and reel (right oriented)
- 9** -
  - PbF = Lead (Pb)-free (for D<sup>2</sup>PAK tube)
  - P = Lead (Pb)-free (for D<sup>2</sup>PAK TRR and TRL)

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95046">www.vishay.com/doc?95046</a>
Part marking information	<a href="http://www.vishay.com/doc?95054">www.vishay.com/doc?95054</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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