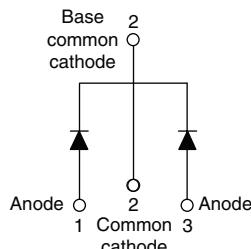


Schottky Rectifier, 2 x 15 A


D²PAK


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
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition
- AEC-Q101 qualified


RoHS*
COMPLIANT

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	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	I _{F(AV)}	50 % duty cycle at T _C = 140 °C, rectangular waveform	30	A
per leg			15	
Maximum peak one cycle non-repetitive surge current	I _{FSM}	5 µs sine or 3 µs rect. pulse	1450	
		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	A

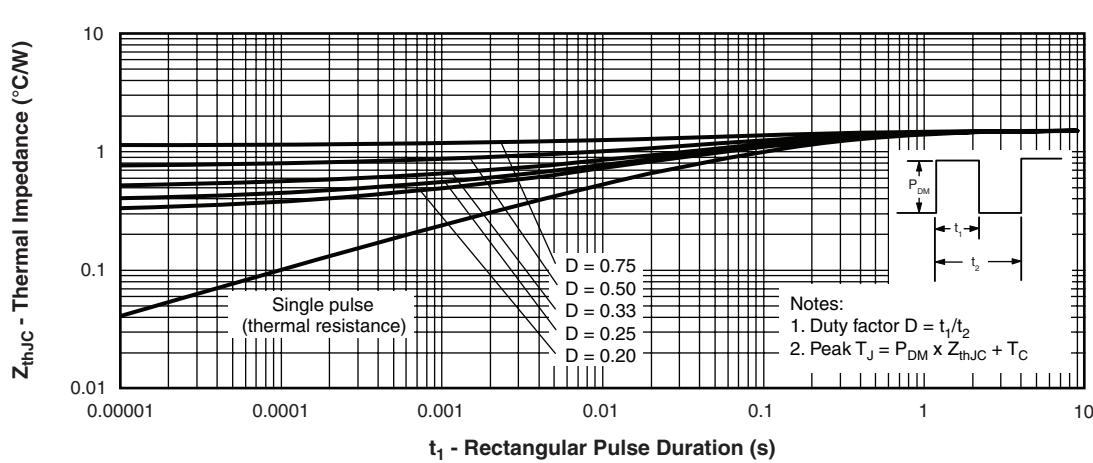
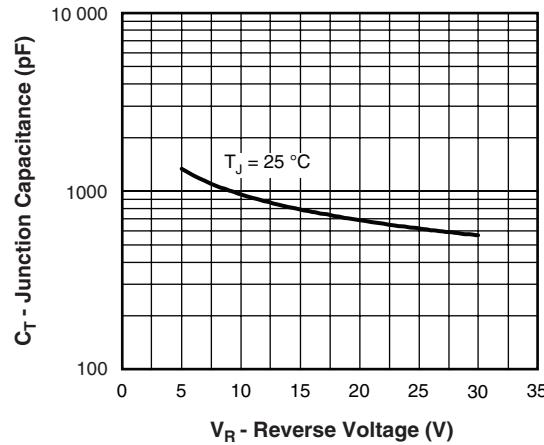
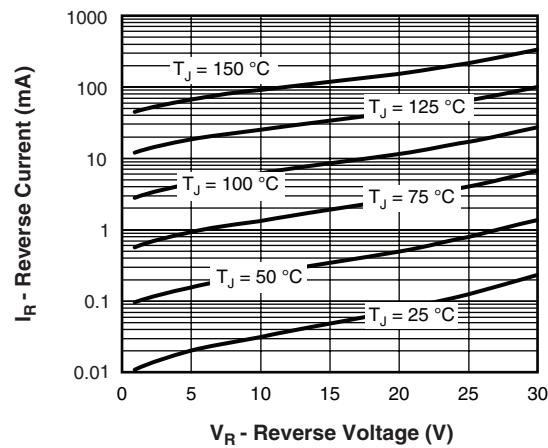
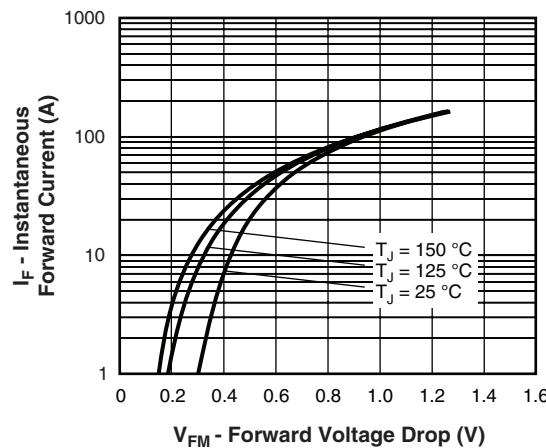
* Pb containing terminations are not RoHS compliant, exemptions may apply

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	$V_R = 5 \text{ V}_{\text{DC}}$ (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/ μ s	

Note(1) Pulse width < 300 μ 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	$^\circ\text{C}/\text{W}$
				0.8	
Approximate weight				2	g
				0.07	
Mounting torque	minimum			6 (5)	$\text{kgf} \cdot \text{cm}$ (lbf · in)
	maximum			12 (10)	
Marking device		Case style D ² PAK		STPS30L30CG	



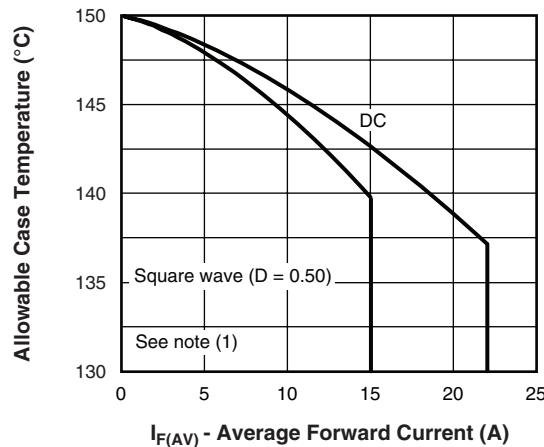


Fig. 5 - Maximum Allowable Case Temperature vs.
Average Forward Current

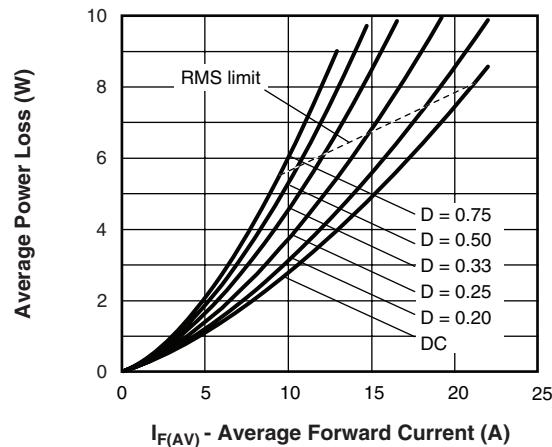


Fig. 6 - Forward Power Loss Characteristics

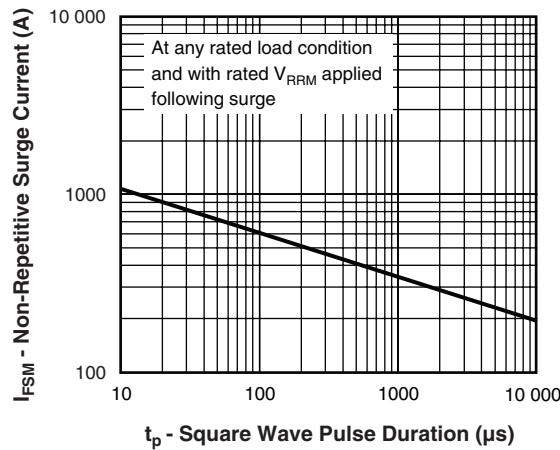


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

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

ORDERING INFORMATION TABLE

Device code	STPS	30	L	30	C	G	TRL	PbF
	1	2	3	4	5	6	7	8

1 - Essential part number
2 - Current rating (30 A)
3 - L = Low voltage
4 - Voltage rating (30 = 30 V)
5 - C = Common cathode
6 - G = D²PAK package
7 -

- None = Tube (50 pieces)
- TRL = Tape and reel (left oriented)
- TRR = Tape and reel (right oriented)

8 -

- None = Standard production
- PbF = Lead (Pb)-free (for D²PAK tube)
- P = Lead (Pb)-free (for D²PAK TRR and TRL)

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

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