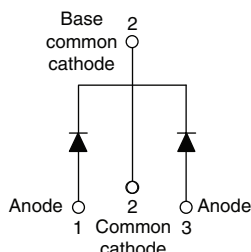


Schottky Rectifier, 2 x 15 A


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
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	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 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	$V_R = 5\text{ V}_{DC}$ (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	°C
Maximum thermal resistance, junction to case per leg		R _{thJC}	DC operation	1.5	°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 ² PAK	STPS30L30CG	

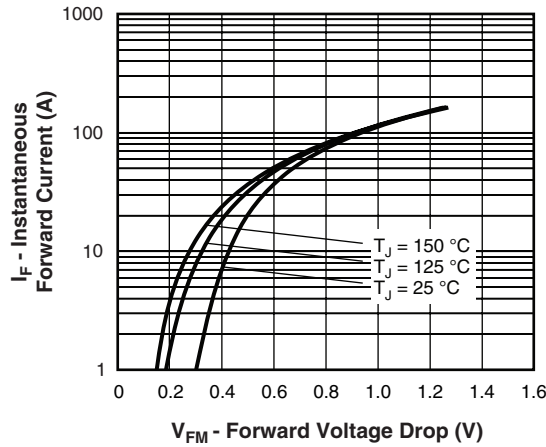


Fig. 1 - Maximum Forward Voltage Drop Characteristics

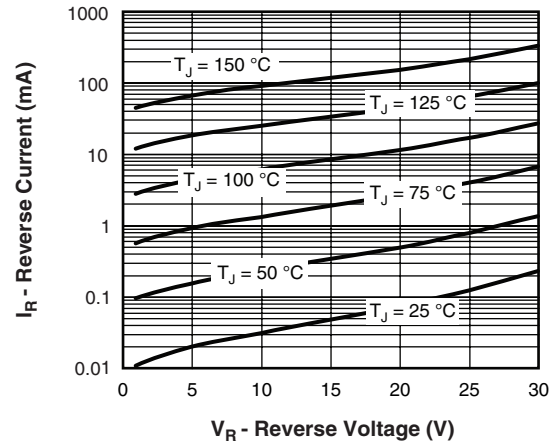


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

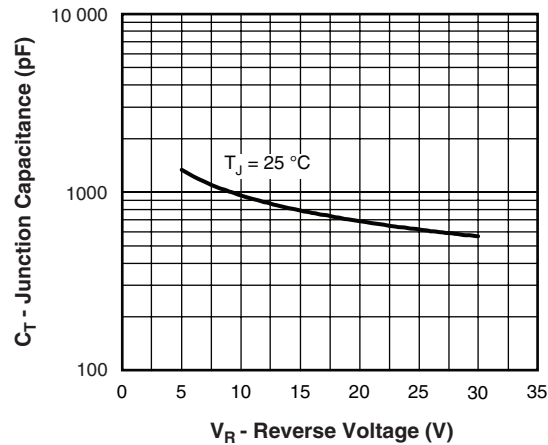


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

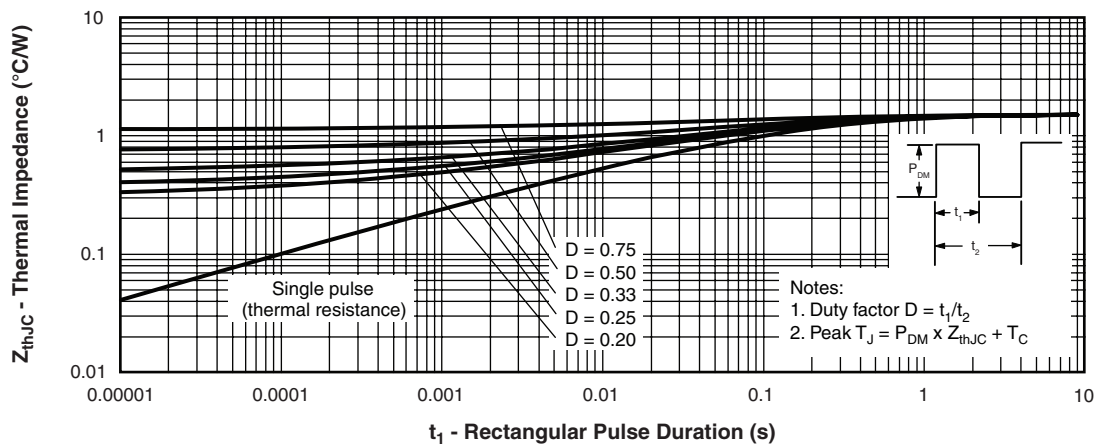


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

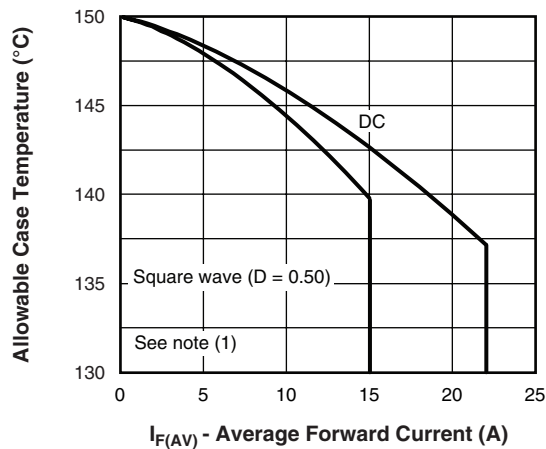


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

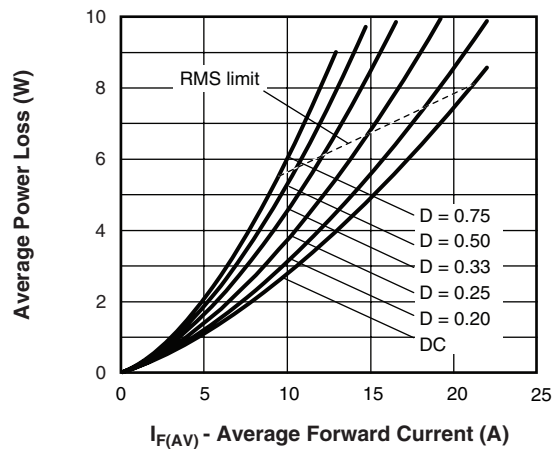


Fig. 6 - Forward Power Loss Characteristics

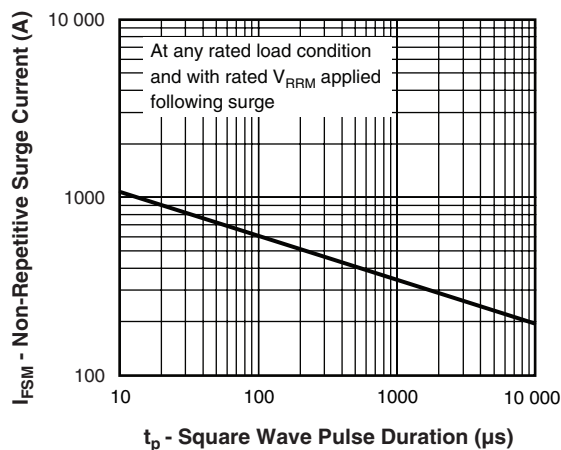


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

- (1) Formula used: $T_C = T_J - P_d + R_{thJC}$
 P_d = 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 = D ² PAK package |
| 7 | - | <ul style="list-style-type: none">• None = Tube (50 pieces)• TRL = Tape and reel (left oriented)• TRR = Tape and reel (right oriented) |
| 8 | - | <ul style="list-style-type: none">• 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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