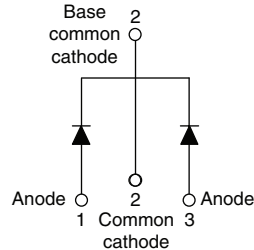


Schottky Rectifier, 2 x 15 A


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
- Designed and qualified for Q101 level

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.

PRODUCT SUMMARY

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

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, $T_J = 125\text{ °C}$ (per leg)	0.37	V
T_J	Range	- 55 to 150	°C

VOLTAGE RATINGS

PARAMETER	SYMBOL	STPS30L30CG	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 $T_C = 140\text{ °C}$, rectangular waveform	30	A
			15	
Maximum peak one cycle non-repetitive surge current	I_{FSM}	5 μ s sine or 3 μ s rect. pulse	1450	
		10 ms sine or 6 ms rect. pulse	220	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25\text{ °C}$, $I_{AS} = 2\text{ A}$, $L = 7.5\text{ mH}$	15	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μ 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/ μs

Note(1) Pulse width < 300 μs , 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 ² PAK		STPS30L30CG	

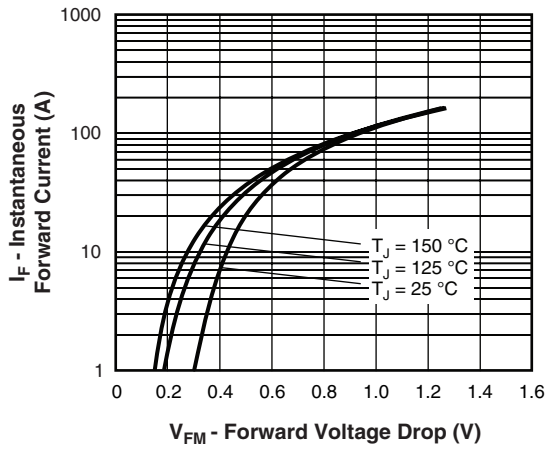


Fig. 1 - Maximum Forward Voltage Drop Characteristics

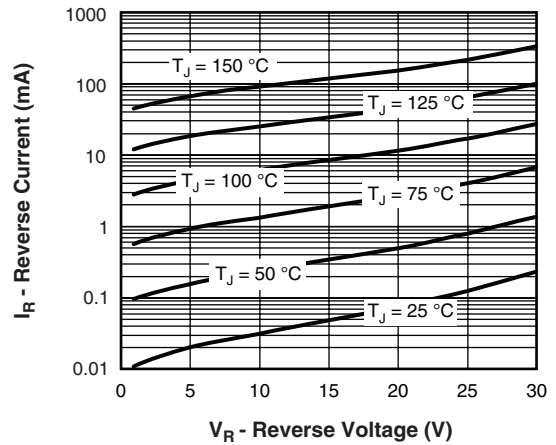


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

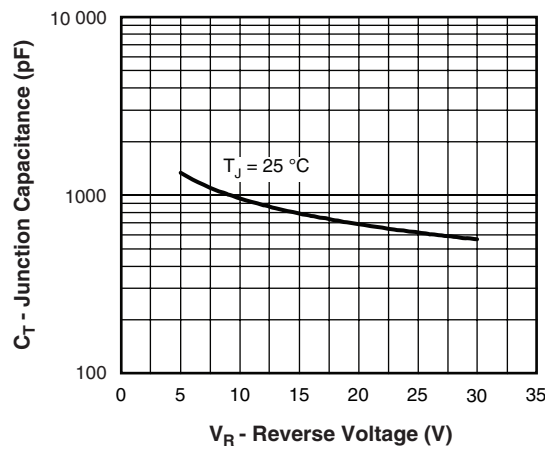


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

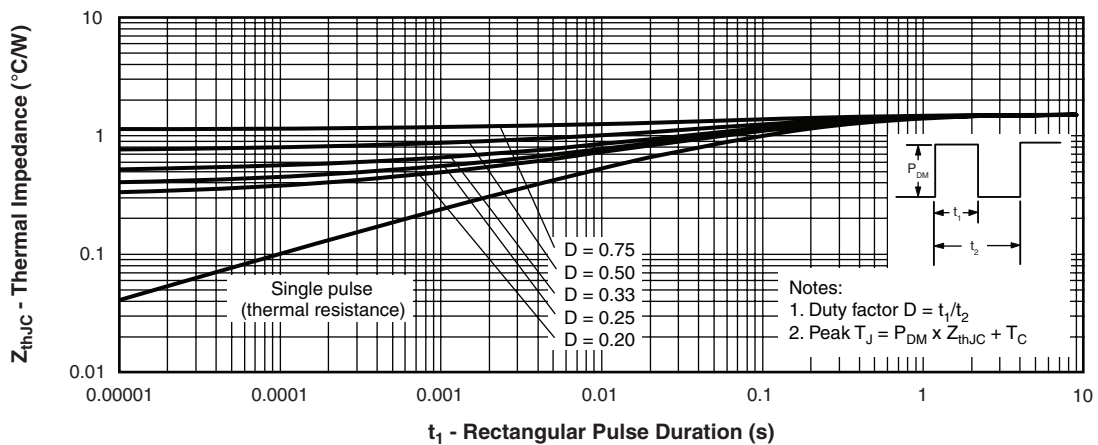


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

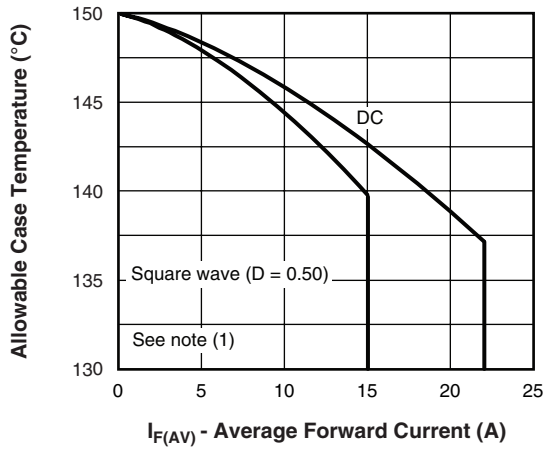


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

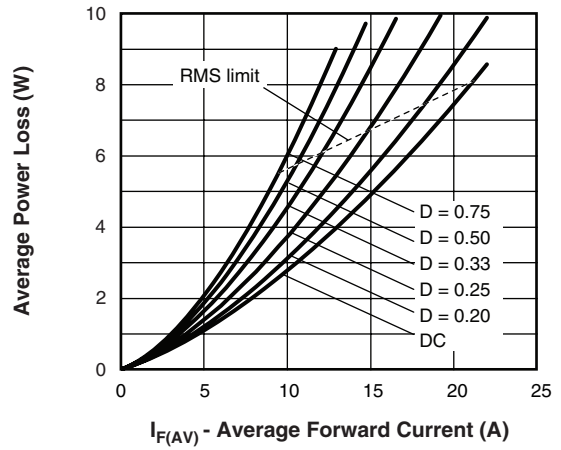


Fig. 6 - Forward Power Loss Characteristics

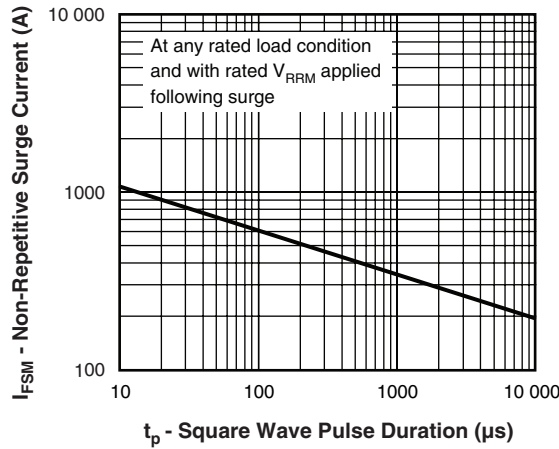


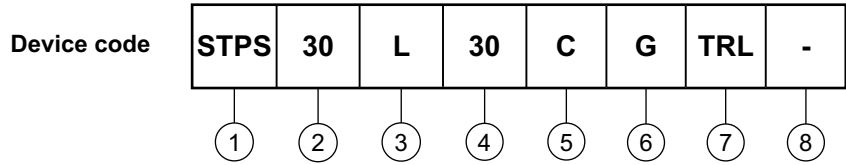
Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

Note

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



ORDERING INFORMATION TABLE



- 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	http://www.vishay.com/doc?95046
Part marking information	http://www.vishay.com/doc?95054
Packaging information	http://www.vishay.com/doc?95032
SPIICE model	http://www.vishay.com/doc?95287



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