

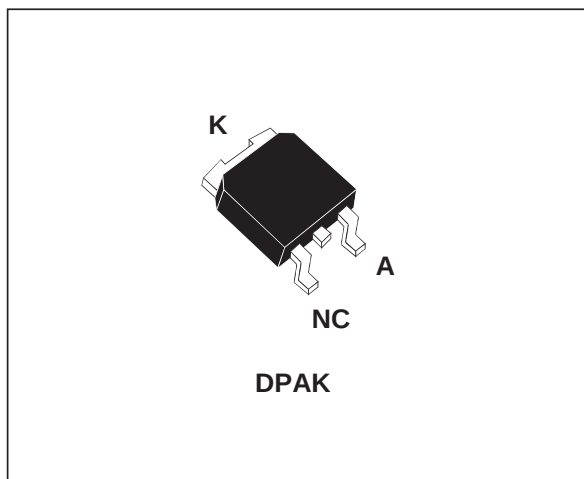
LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	8 A
V_{RRM}	30 V
T_j (max)	150 °C
V_F (max)	0.40 V

FEATURES AND BENEFITS

- LOW COST DEVICE WITH LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION/REVERSE LOSSES TRADE-OFF WHICH LEADS TO THE HIGHEST YIELD IN THE APPLICATIONS
- AVALANCHE CAPABILITY SPECIFIED



DESCRIPTION

Single Schottky rectifier suited to Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in DPAK, this device is especially intended for use as a Rectifier at the secondary of 3.3V SMPS or DC/DC units.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		30	V
$I_{F(RMS)}$	RMS forward current		7	A
$I_{F(AV)}$	Average forward current	$T_c = 135^\circ\text{C} \quad \delta = 0.5$	8	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal	75	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ $F = 1\text{kHz}$ square	1	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100\mu\text{s}$ square	2	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1\mu\text{s}$ $T_j = 25^\circ\text{C}$		W
T_{stg}	Storage temperature range		- 65 to + 150	°C
T_j	Maximum junction temperature		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/ μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th}(j - a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	2.5	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$		1	mA
		$T_j = 100^\circ\text{C}$		15	40	
V_F *	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$		0.49	V
		$T_j = 125^\circ\text{C}$		0.35	0.4	
		$T_j = 25^\circ\text{C}$	$I_F = 16\text{ A}$		0.63	
		$T_j = 125^\circ\text{C}$		0.48	0.57	

Pulse test : * $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

$$P = 0.23 \times I_{F(AV)} + 0.021 I_{F(RMS)}^2$$

Fig. 1: Average forward power dissipation versus average forward current.

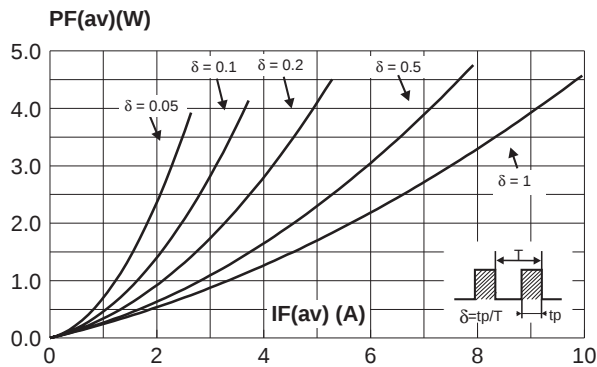


Fig. 3: Normalized avalanche power derating versus pulse duration.

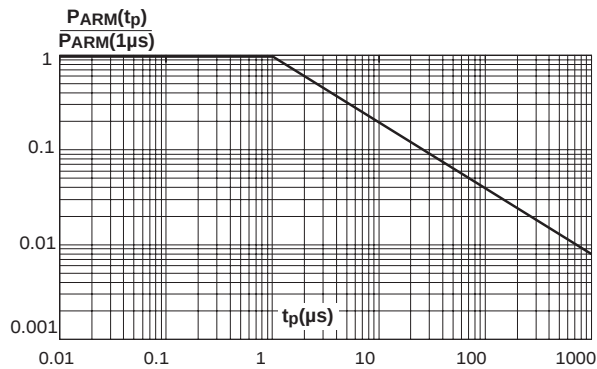


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

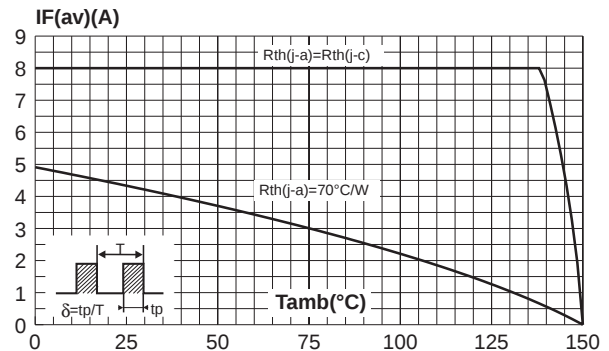


Fig. 4: Normalized avalanche power derating versus junction temperature.

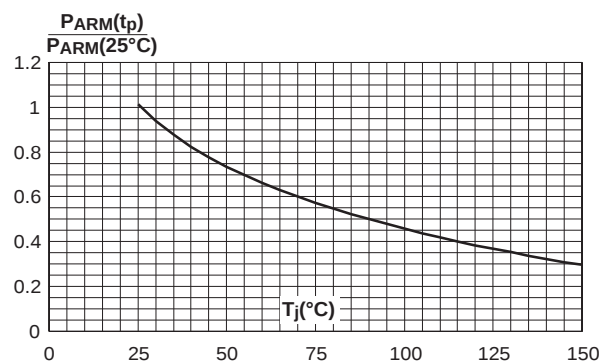


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

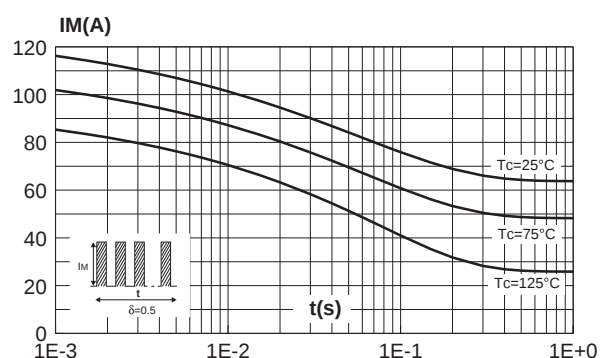


Fig. 6: Relative variation of thermal impedance junction to ambient versus pulse duration.

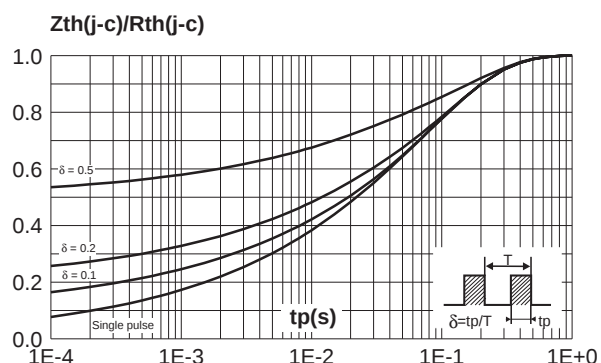


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

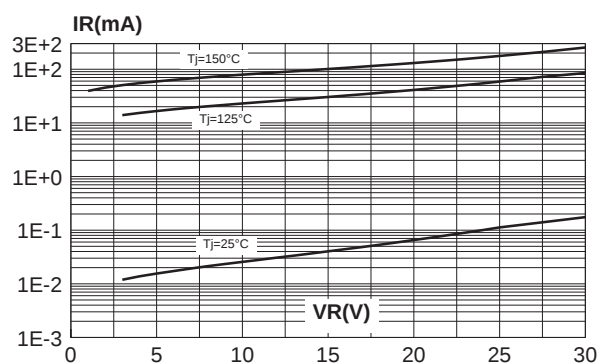


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

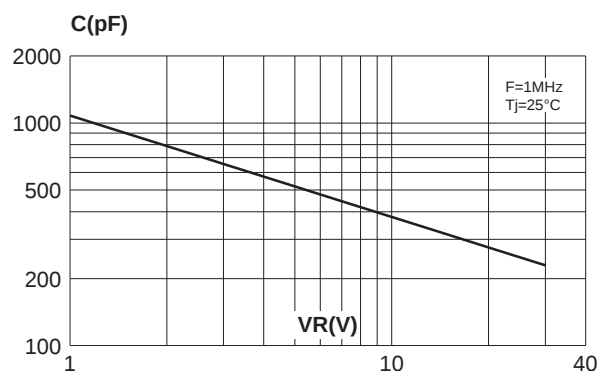
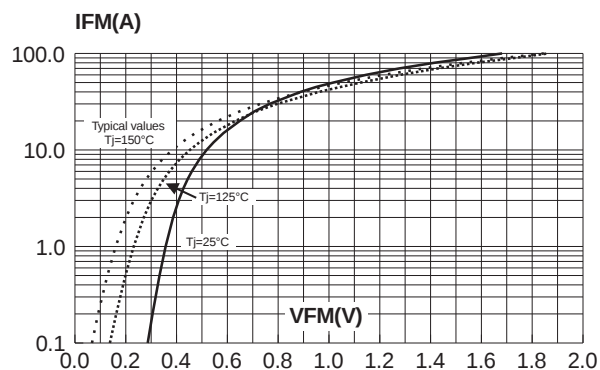


Fig. 9: Forward voltage drop versus forward current (maximum values).



STPS8L30B

PACKAGE MECHANICAL DATA DPAK

The image shows three views of the STPS8L30B DPAK package: a top view, a side view, and a detail view of the lead profile.

- Top View:** Shows the package footprint with dimensions E (total width), B2 (lead spacing), L2 (lead length), L4 (lead thickness), G (pitch), and H (total height).
- Side View:** Shows the package profile with dimensions A (total width), C2 (lead thickness), D (package height), and C (lead thickness).
- Detail View:** Shows the lead profile with dimensions A1 (lead thickness), A2 (lead thickness), V2 (lead angle), and a minimum thickness of 0.60 mm.

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max	Min.	Max.
A	2.20	2.40	0.086	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
B	0.64	0.90	0.025	0.035
B2	5.20	5.40	0.204	0.212
C	0.45	0.60	0.017	0.023
C2	0.48	0.60	0.018	0.023
D	6.00	6.20	0.236	0.244
E	6.40	6.60	0.251	0.259
G	4.40	4.60	0.173	0.181
H	9.35	10.10	0.368	0.397
L2	0.80 typ.		0.031 typ.	
L4	0.60	1.00	0.023	0.039
V2	0°	8°	0°	8°

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS8L30B	ST LS30	DPAK	0.30g	75	Tube

- EPOXY MEETS UL94,V0

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