

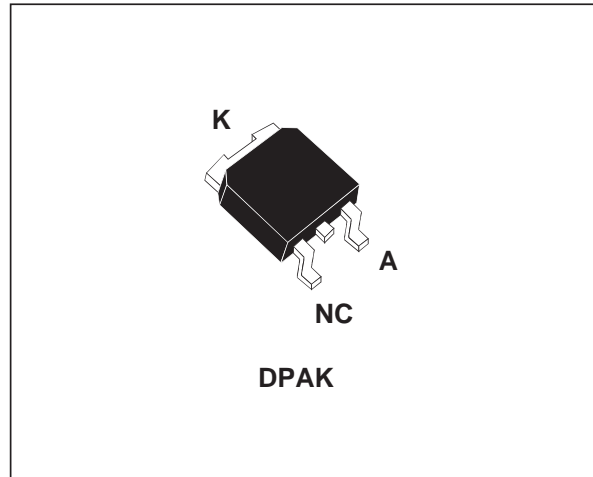
## LOW DROP POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	8 A
$V_{RRM}$	30 V
$T_j(\text{max})$	150 °C
$V_F(\text{max})$	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	$T_c = 135^\circ\text{C} \delta = 0.5$ 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/ $\mu\text{s}$

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

# STPS8L30B

## THERMAL RESISTANCES

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

## STATIC ELECTRICAL CHARACTERISTICS

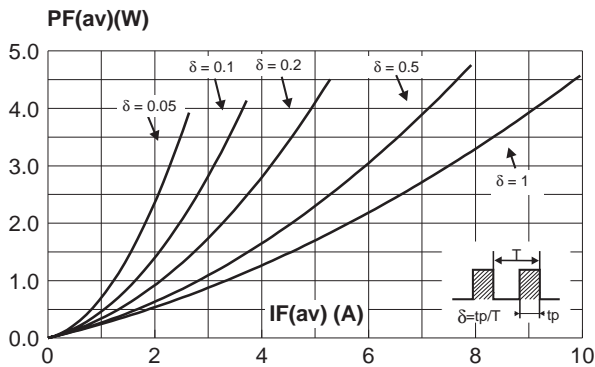
Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$		1	mA
		$T_j = 100^\circ\text{C}$		15	40	
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$		0.49	V
		$T_j = 125^\circ\text{C}$		0.35	0.4	
		$T_j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

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

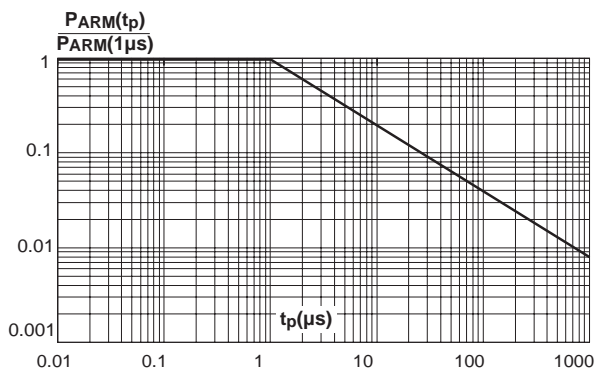
To evaluate the maximum conduction losses use the following equation :

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

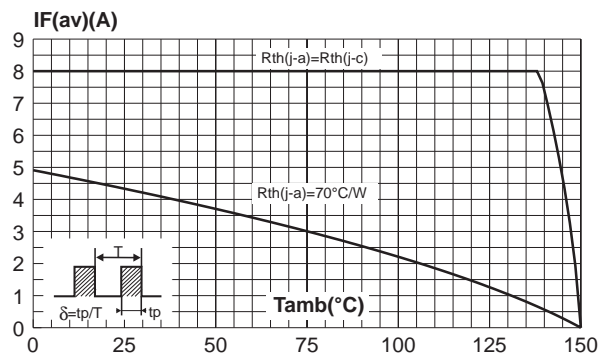
**Fig. 1:** Average forward power dissipation versus average forward current.



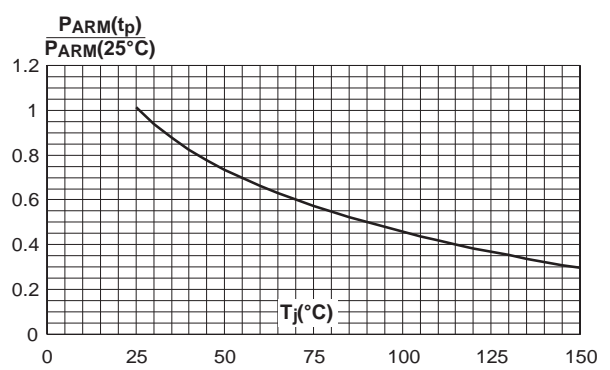
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



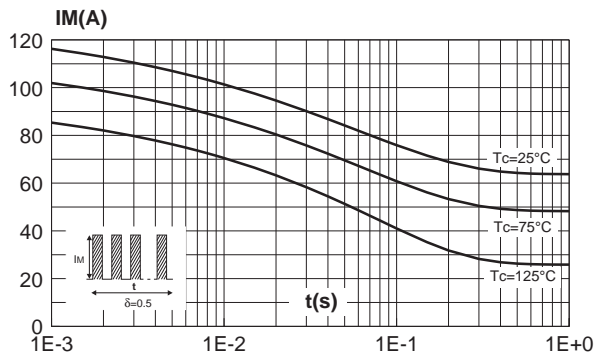
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



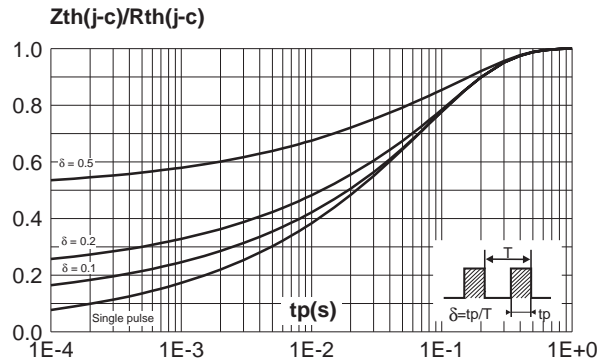
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



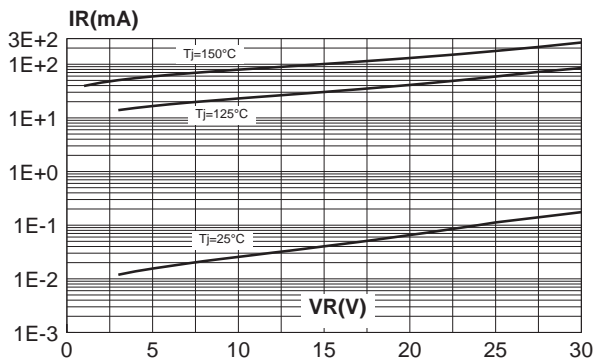
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values).



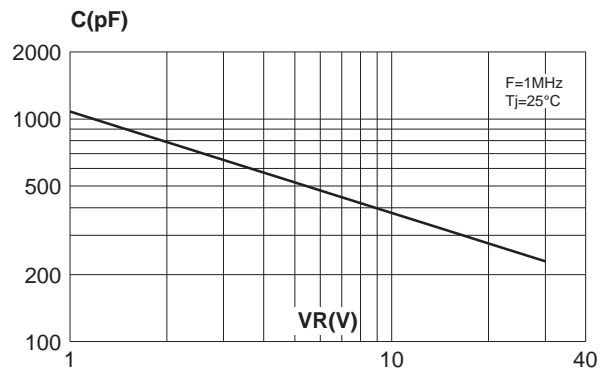
**Fig. 6:** Relative variation of thermal impedance junction to ambient versus pulse duration.



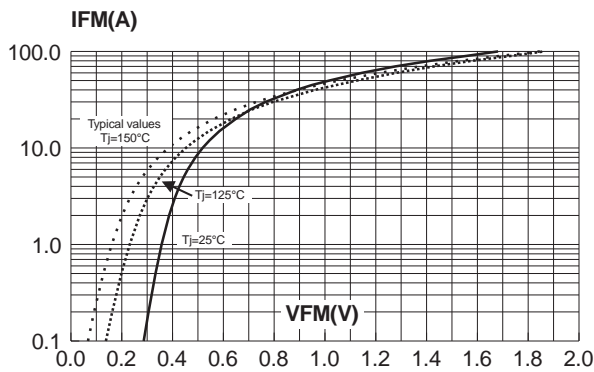
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



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

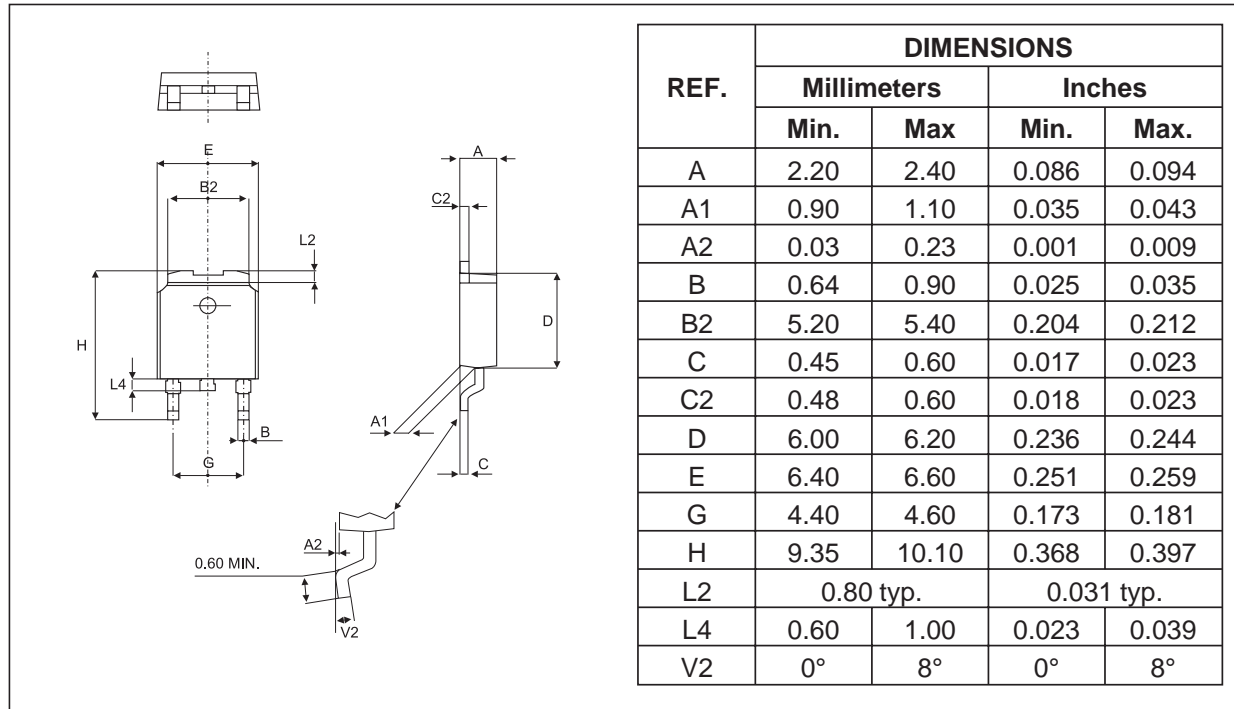


**Fig. 9:** Forward voltage drop versus forward current (maximum values).



# STPS8L30B

## PACKAGE MECHANICAL DATA DPAK



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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