

## LOW DROP POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

<b>I<sub>F(AV)</sub></b>	<b>8 A</b>
<b>V<sub>RRM</sub></b>	<b>30 V</b>
<b>T<sub>j</sub> (max)</b>	<b>150 °C</b>
<b>V<sub>F</sub> (max)</b>	<b>0.40 V</b>

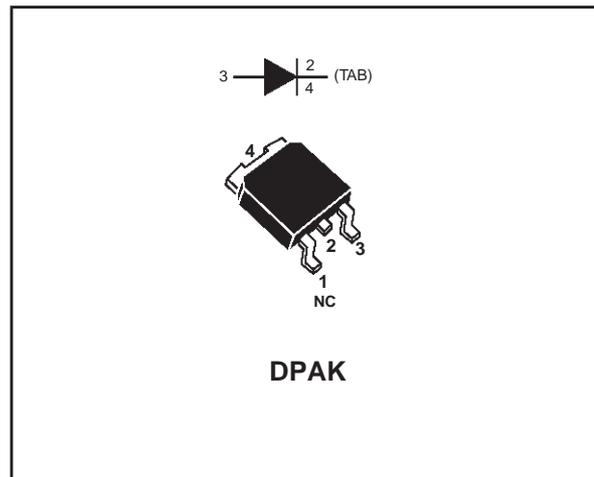
### FEATURES AND BENEFITS

- 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
- HIGH POWER SURFACE MOUNT MINIATURE PACKAGE

### 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 <sub>RRM</sub>	Repetitive peak reverse voltage		30	V
I <sub>F(RMS)</sub>	RMS forward current		7	A
I <sub>F(AV)</sub>	Average forward current	T <sub>c</sub> = 135°C δ = 0.5	8	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms Sinusoidal	75	A
I <sub>R(RM)</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs F = 1kHz square	1	A
I <sub>R(SM)</sub>	Non repetitive peak reverse current	t <sub>p</sub> = 100μs square	2	A
T <sub>stg</sub>	Storage temperature range		- 65 to + 150	°C
T <sub>j</sub>	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

# STPS8L30B

## THERMAL RESISTANCES

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

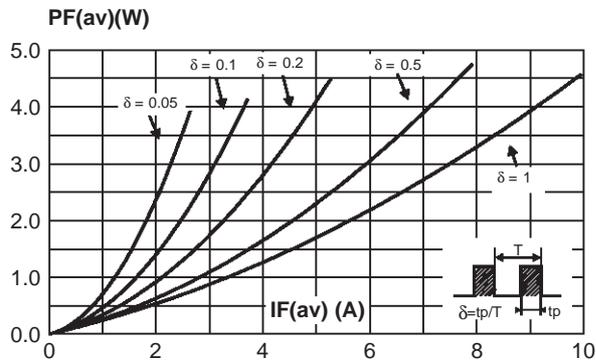
## STATIC ELECTRICAL CHARACTERISTICS

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	

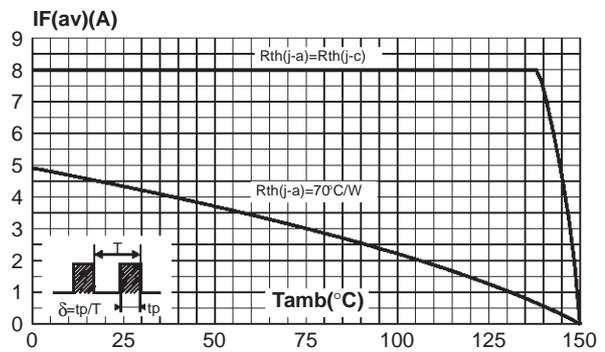
Pulse test : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.23 \times I_{F(AV)} + 0.021 I_{F(RMS)}^2$

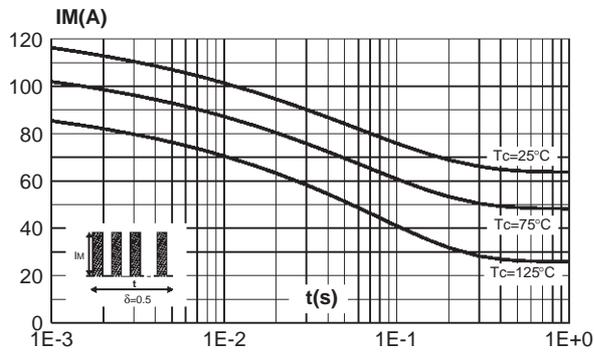
**Fig. 1:** Average forward power dissipation versus average forward current.



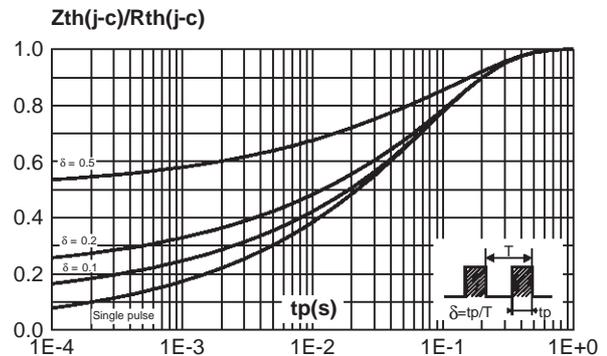
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



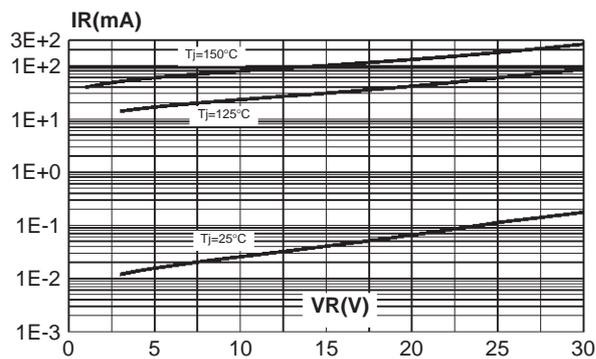
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).



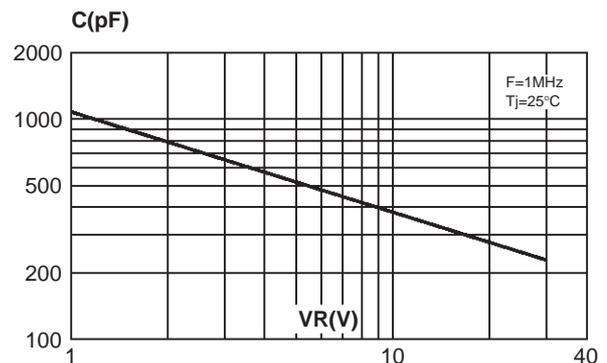
**Fig. 4:** Relative variation of thermal impedance junction to ambient versus pulse duration.



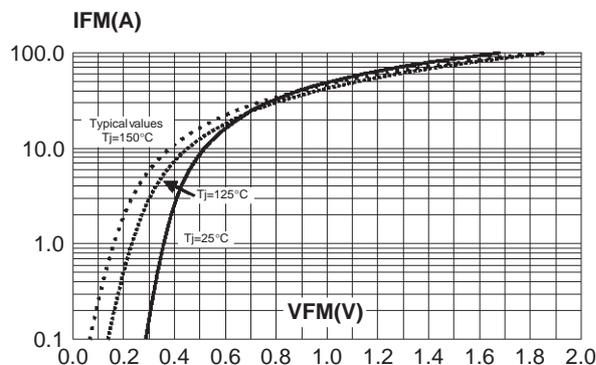
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



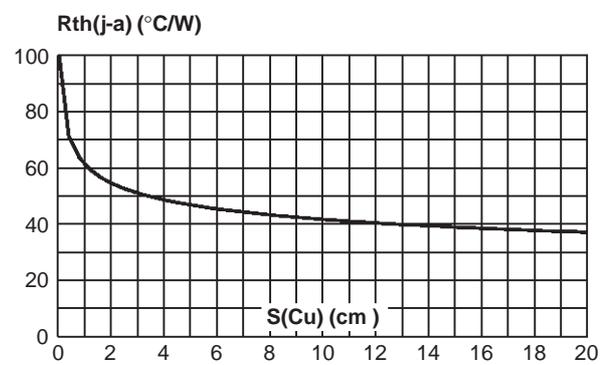
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).



**Fig. 7:** Forward voltage drop versus forward current (maximum values).

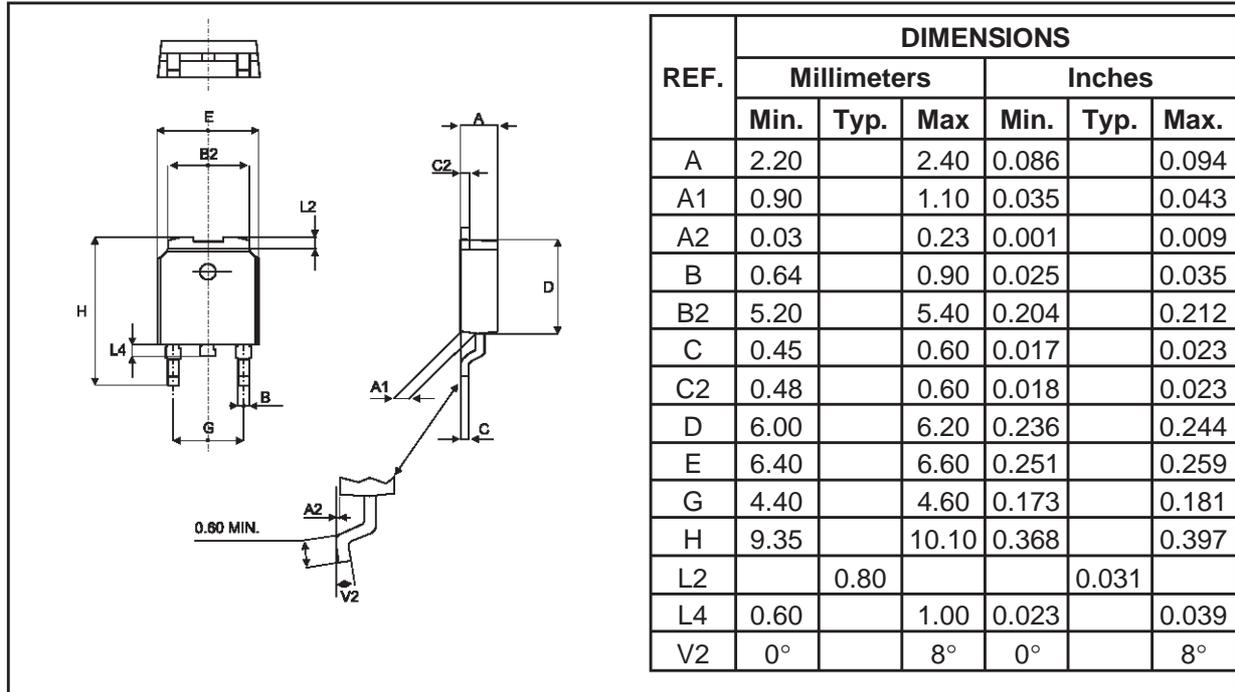


**Fig. 8:** Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).

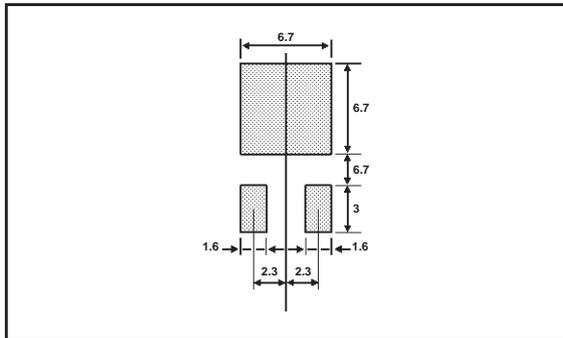


# STPS8L30B

## PACKAGE MECHANICAL DATA DPAK



### FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS8L30B	STPS8L30B	DPAK	0.3g	75	Tube
STPS8L30B-TR	STPS8L30B	DPAK	0.3g	2500	Tape & reel

■ Epoxy meets UL94,V0

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