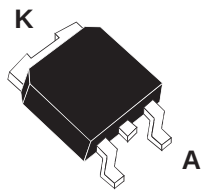
STPS8L30B

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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



DPAK

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	Tc = 135°C δ = 0.5	8	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	75	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs F = 1kHz square	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100µs square	2	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C		W
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum junction temperature		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ 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	Tj = 25°C	$V_R = V_{RRM}$			1	mA
		Tj = 100°C			15	40	
V_F *	Forward voltage drop	Tj = 25°C	I_F = 8 A			0.49	V
		Tj = 125°C			0.35	0.4	
		Tj = 25°C	I_F = 16 A			0.63	
		Tj = 125°C			0.48	0.57	

Pulse test : * tp = 380 µs, δ < 2%

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

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

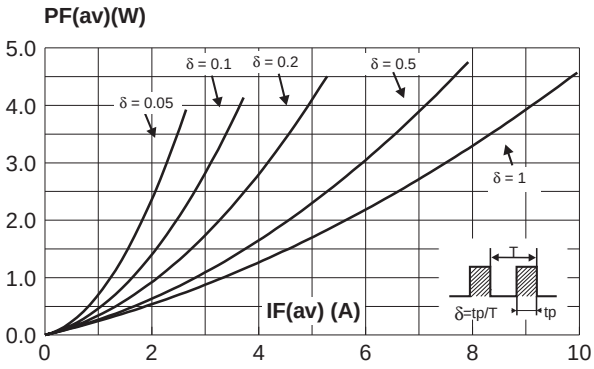


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

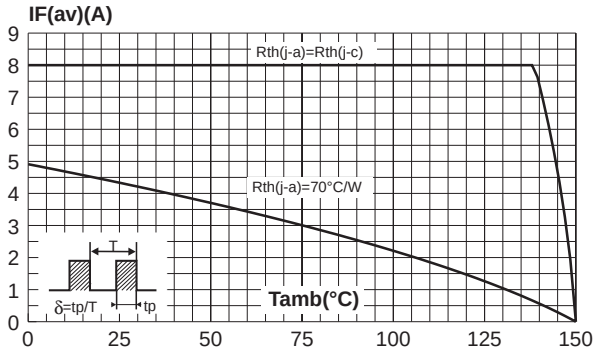


Fig. 3: Normalized avalanche power derating versus pulse duration.

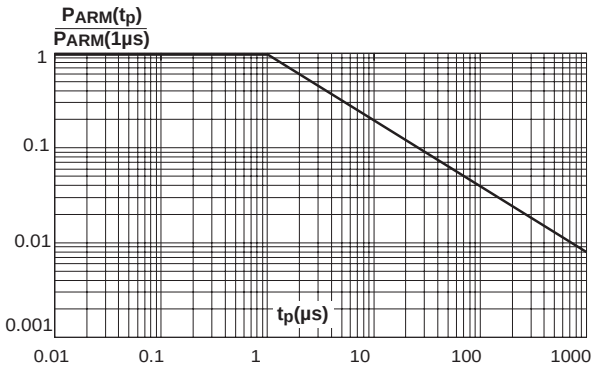


Fig. 4: Normalized avalanche power derating versus junction temperature.

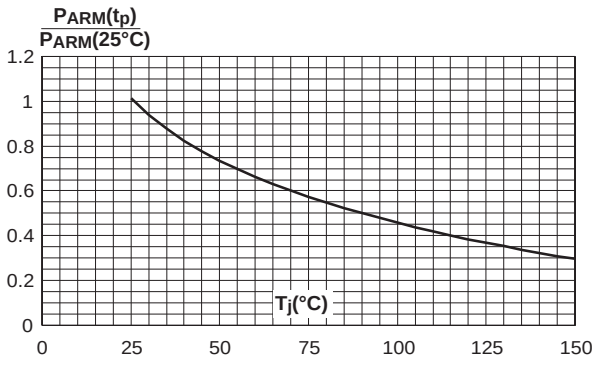


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

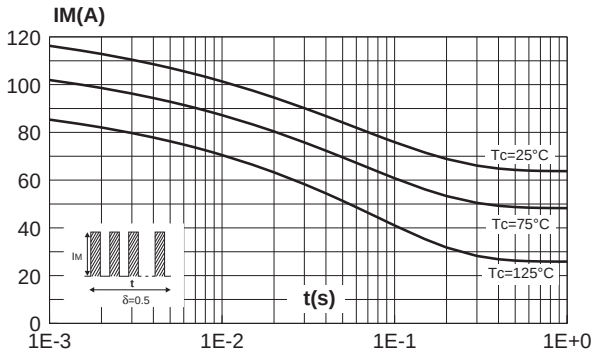


Fig. 6: Relative variation of thermal impedance junction to ambient versus pulse duration.

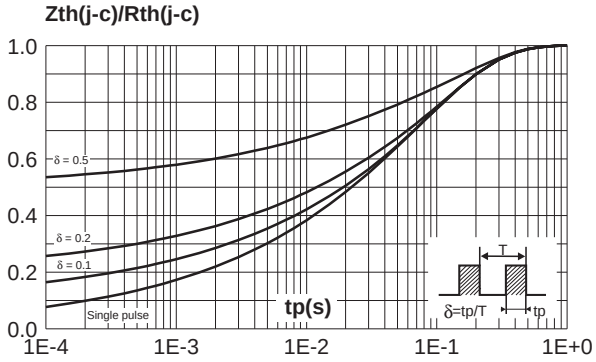


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

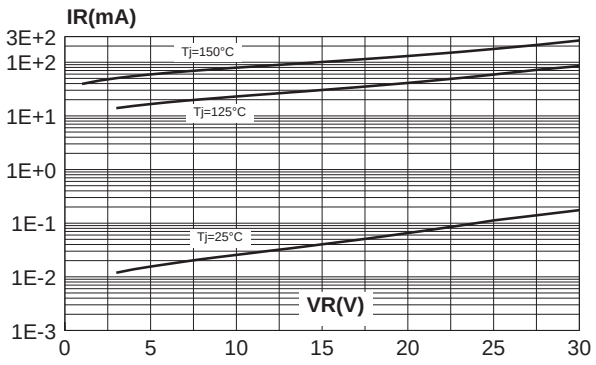


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

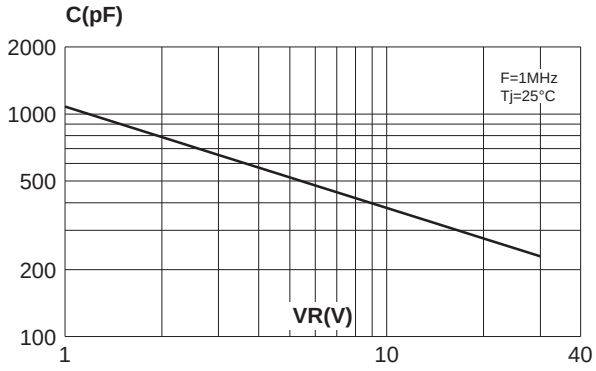
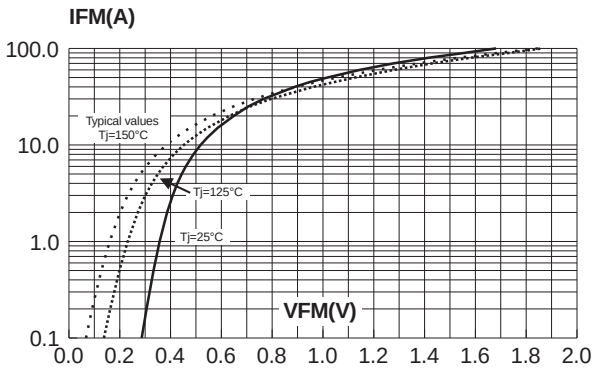
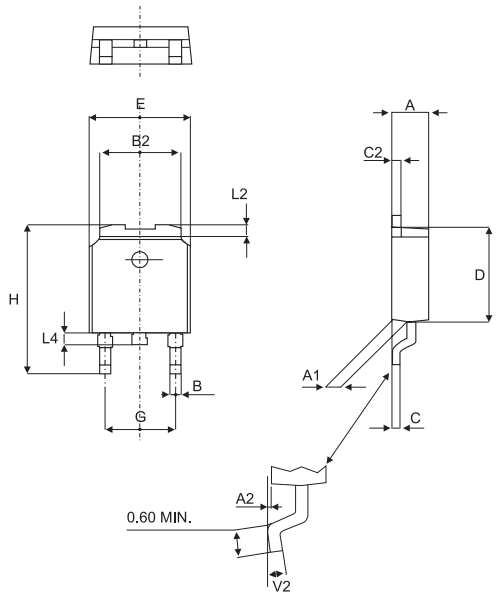


Fig. 9: Forward voltage drop versus forward current (maximum values).



PACKAGE MECHANICAL DATA

DPAK



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