

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	5 A
V_{RRM}	25 V
$T_j \text{ (max)}$	150°C
$V_F \text{ (max)}$	0.35 V

FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION/REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY IN THE APPLICATIONS
- HIGH POWER SURFACE MOUNT MINIATURE PACKAGE
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

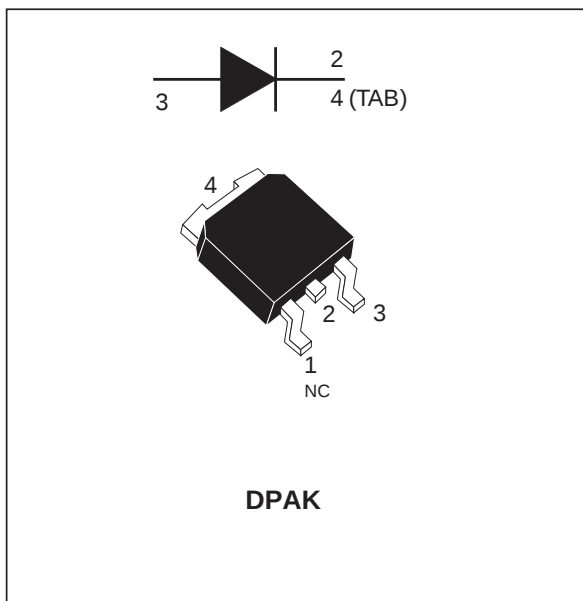
Single Schottky rectifier suited to Switched Mode Power Supplies and high frequency DC to DC converters.

This device is especially intended for use as a Rectifier at the secondary of 3.3V SMPS units.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		25	V
$I_{F(RMS)}$	RMS forward current		7	A
$I_{F(AV)}$	Average forward current	$T_c = 145^\circ\text{C} \quad \delta = 0.5$	5	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms Sinusoidal}$	75	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s square } F = 1\text{kHz}$	1	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100 \mu\text{s square}$	2	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu\text{s } T_j = 25^\circ\text{C}$	3000	W
T_{stg}	Storage temperature range		- 65 to + 150	°C
T_j	Maximum operating 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



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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	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$		350	μA
		$T_j = 125^{\circ}\text{C}$		55	115	mA
V_F *	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 5\text{ A}$		0.47	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 5\text{ A}$	0.31	0.35	
		$T_j = 25^{\circ}\text{C}$	$I_F = 10\text{ A}$		0.59	
		$T_j = 125^{\circ}\text{C}$	$I_F = 10\text{ A}$	0.41	0.50	

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

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

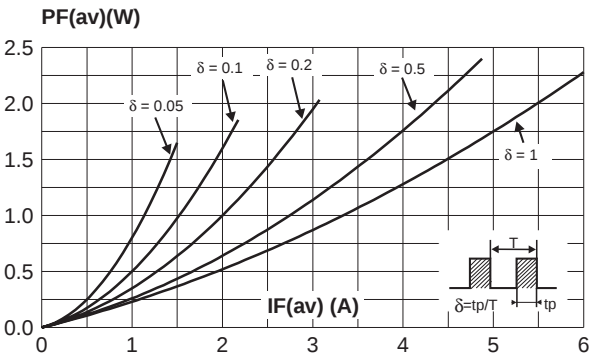


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

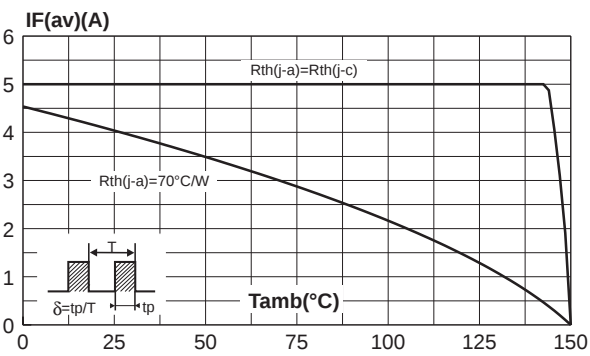


Fig. 3: Normalized avalanche power derating versus pulse duration.

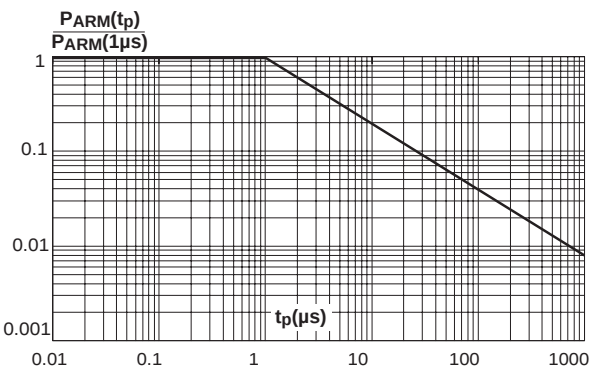
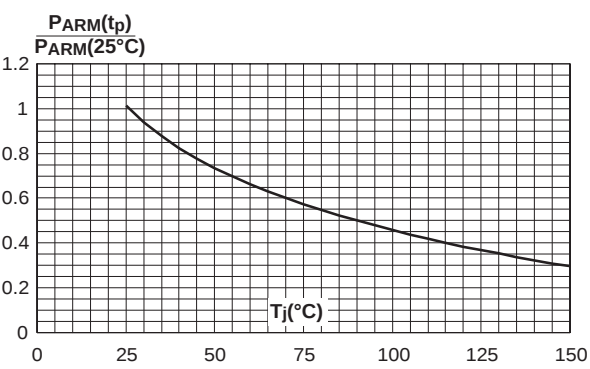
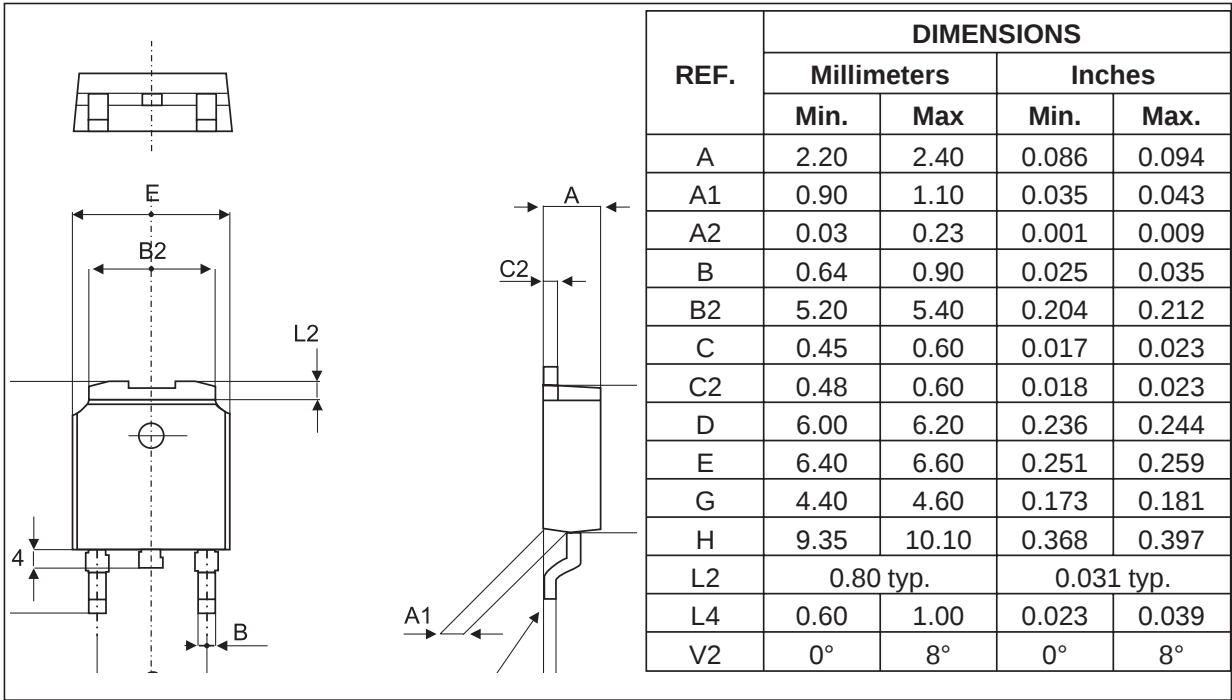


Fig. 4: Normalized avalanche power derating versus junction temperature.

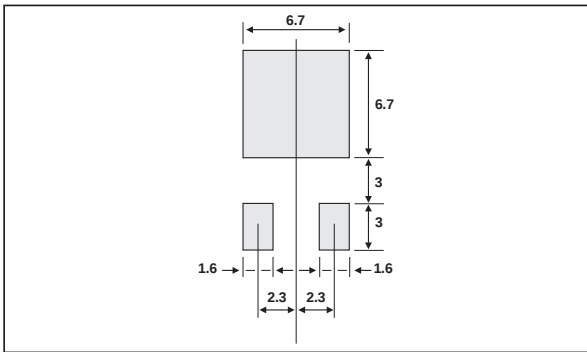


STPS5L25B

PACKAGE MECHANICAL DATA
DPAK



FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS5L25B	STPS5L25B	DPAK	0.30g	75	Tube
STPS15LB-TR	STPS5L25B	DPAK	0.30g	2500	Tape & reel

- Epoxy meets UL94,V0