

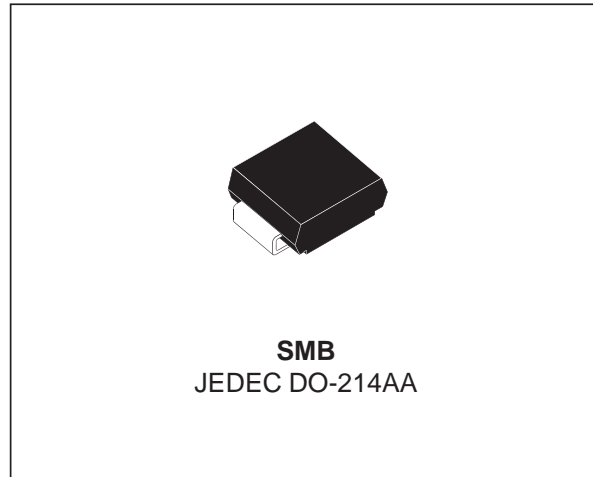
## LOW DROP POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

<b>I<sub>F(AV)</sub></b>	<b>2 A</b>
<b>V<sub>RRM</sub></b>	<b>25 V</b>
<b>T<sub>j (max)</sub></b>	<b>150 °C</b>
<b>V<sub>F (max)</sub></b>	<b>0.375 V</b>

### FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION
- OPTIMIZED CONDUCTION/REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY 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 SMB (JEDEC DO214-AA), this device is especially intended for use in parallel with MOSFETs in synchronous rectification.

### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		25	V
I <sub>F(RMS)</sub>	RMS forward current		10	A
I <sub>F(AV)</sub>	Average forward current	T <sub>L</sub> = 125°C δ = 0.5	2	A
I <sub>FSM</sub>	Surge non repetitive forward current	tp = 10 ms Sinusoidal	75	A
I <sub>RRM</sub>	Repetitive peak reverse current	tp=2 μs square F=1kHz	1	A
I <sub>RSM</sub>	Non repetitive peak reverse current	tp = 100 μs square	1	A
P <sub>ARM</sub>	Repetitive peak avalanche power	tp = 1μs T <sub>j</sub> = 25°C	1500	W
T <sub>stg</sub>	Storage temperature range		- 65 to + 150	°C
T <sub>j</sub>	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

# STPS2L25U

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead	25	°C/W

## STATIC ELECTRICAL CHARACTERISTICS

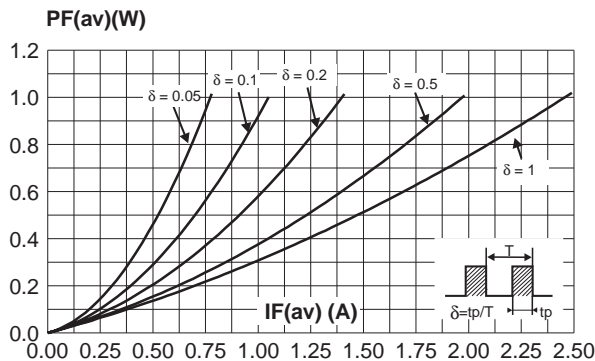
Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$			90	$\mu\text{A}$
		$T_j = 125^\circ\text{C}$				15
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 2\text{ A}$		0.45	V
		$T_j = 125^\circ\text{C}$				
		$T_j = 25^\circ\text{C}$	$I_F = 4\text{ A}$		0.53	
		$T_j = 125^\circ\text{C}$				

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

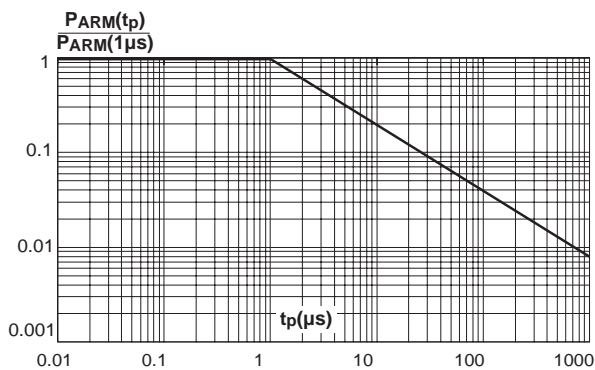
To evaluate the maximum conduction losses use the following equation :

$$P = 0.24 \times I_{F(AV)} + 0.068 I_{F(RMS)}^2$$

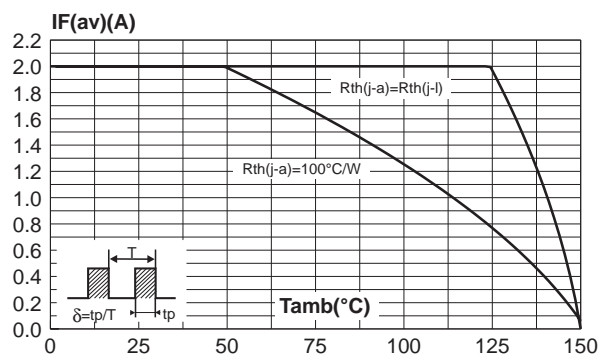
**Fig. 1:** Average forward power dissipation versus average forward current.



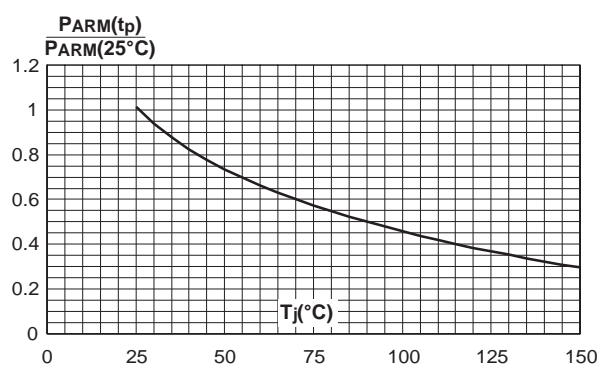
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



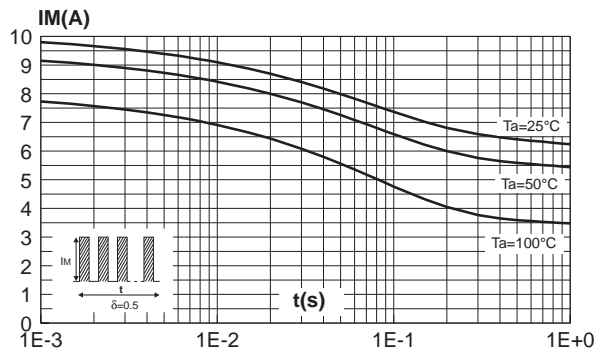
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



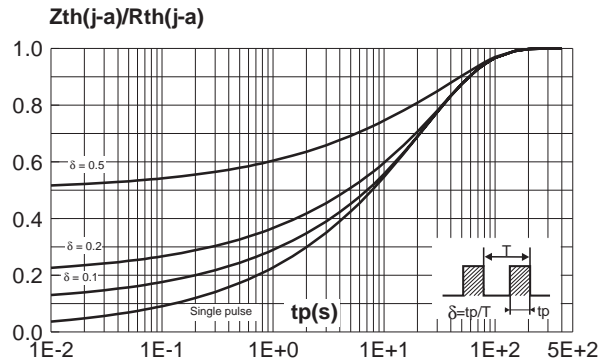
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



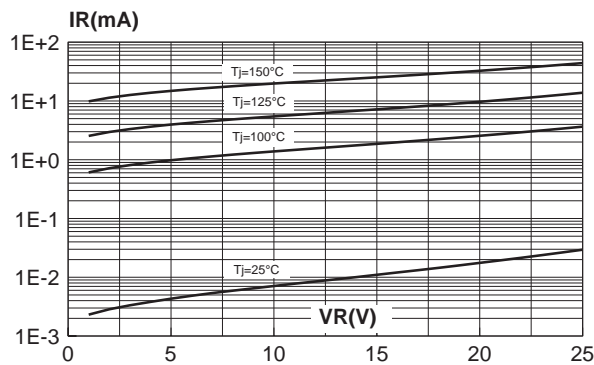
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values).



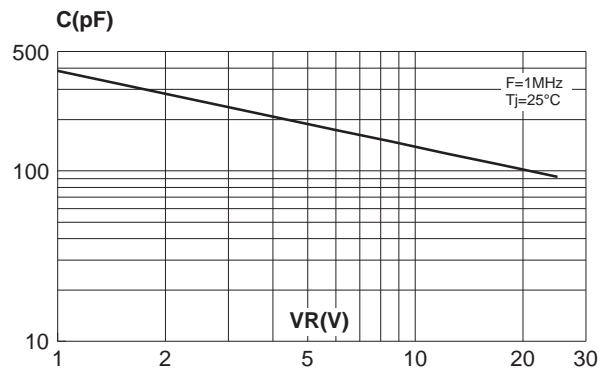
**Fig. 6:** Relative variation of thermal impedance junction to ambient versus pulse duration.



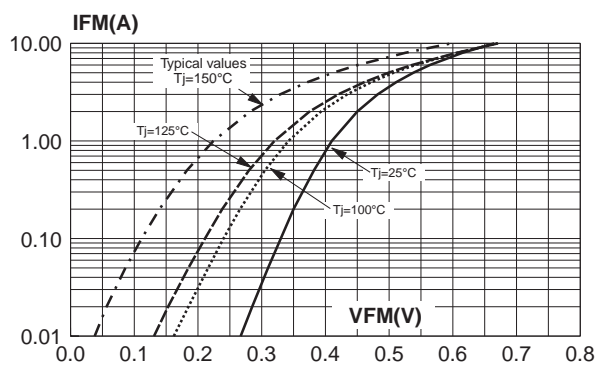
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



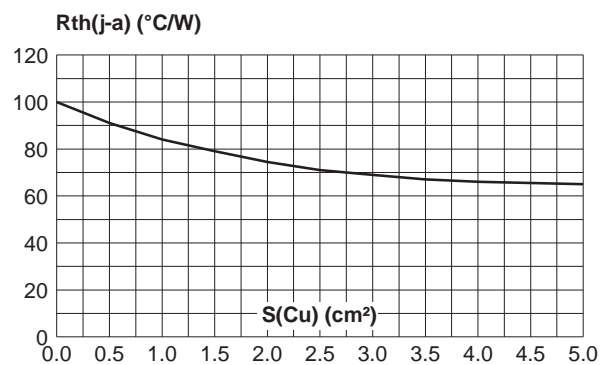
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



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



**Fig. 10:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness:

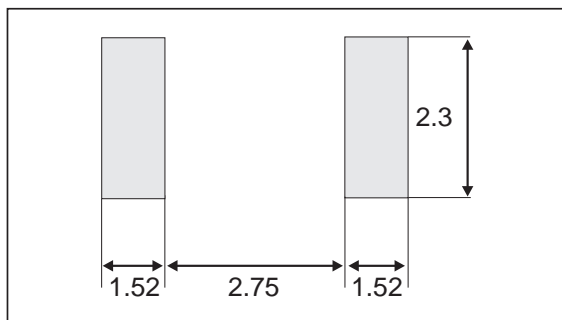


# STPS2L25U

## PACKAGE MECHANICAL DATA SMB

	DIMENSIONS				
	REF.	Millimeters		Inches	
		Min.	Max.	Min.	Max.
	A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008	
b	1.95	2.20	0.077	0.087	
c	0.15	0.41	0.006	0.016	
E	5.10	5.60	0.201	0.220	
E1	4.05	4.60	0.159	0.181	
D	3.30	3.95	0.130	0.156	
L	0.75	1.60	0.030	0.063	

### FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2L25U	G23	SMB	0.107g	2500	Tape & reel

- BAND INDICATES CATHODE
- EPOXY MEETS UL94,V0

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