



# STPS1H100A/U

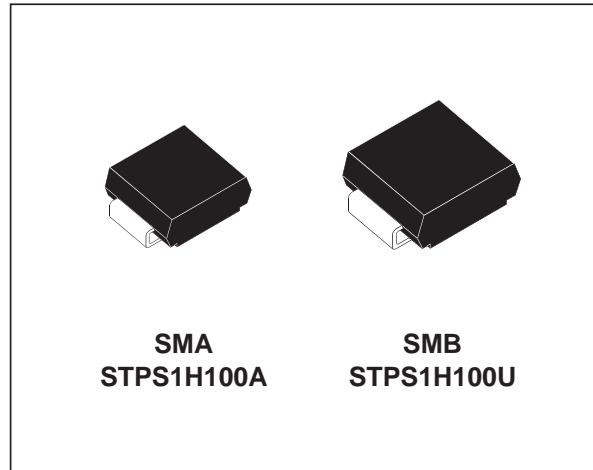
## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1 A
$V_{RRM}$	100 V
$T_j(\text{max})$	175 °C
$V_F(\text{max})$	0.62 V

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- AVALANCHE CAPABILITY SPECIFIED



### DESCRIPTION

Schottky rectifier designed for high frequency miniature Switched Mode Power Supplies such as adaptators and on board DC/DC converters.

Packaged in SMA or SMB.

### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	100	V
$I_{F(RMS)}$	RMS forward current	10	A
$I_{F(AV)}$	Average forward current	$T_L = 160^\circ\text{C} \quad \delta = 0.5$	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms sinusoidal}$	A
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2 \mu\text{s square } F = 1\text{kHz}$	A
$I_{RSM}$	Non repetitive peak reverse current	$t_p = 100 \mu\text{s square}$	A
$P_{ARM}$	Repetitive peak avalanche power	$t_p = 1 \mu\text{s} \quad T_j = 25^\circ\text{C}$	W
$T_{stg}$	Storage temperature range	- 65 to + 175	°C
$T_j$	Maximum operating junction temperature *	175	°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

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## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to lead	SMA	30	$^{\circ}\text{C/W}$
		SMB	25	

## STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			1	$\mu\text{A}$
		$T_j = 125^{\circ}\text{C}$			0.2	0.5	$\text{mA}$
$V_F^{**}$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 1\text{ A}$			0.77	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 1\text{ A}$		0.58	0.62	
		$T_j = 25^{\circ}\text{C}$	$I_F = 2\text{ A}$			0.86	
		$T_j = 125^{\circ}\text{C}$	$I_F = 2\text{ A}$		0.65	0.7	

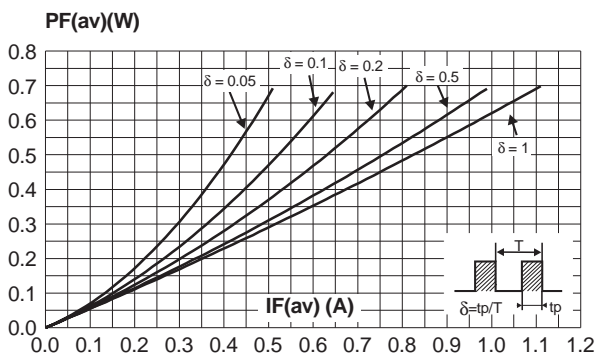
Pulse test : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$

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

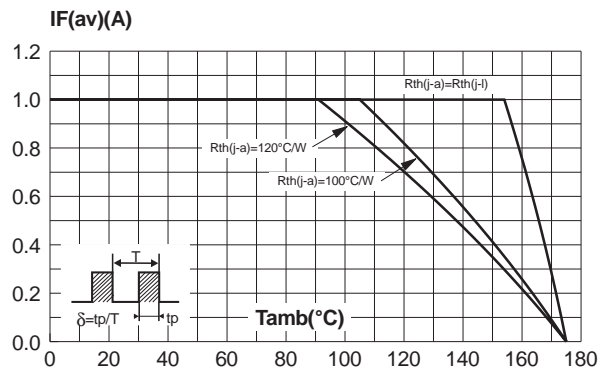
To evaluate the maximum conduction losses use the following equation :

$$P = 0.54 I_{F(AV)} + 0.08 I_{F(RMS)}^2$$

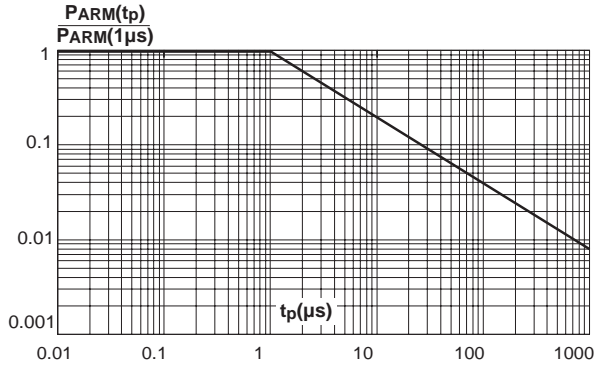
**Fig. 1:** Average forward power dissipation versus average forward current.



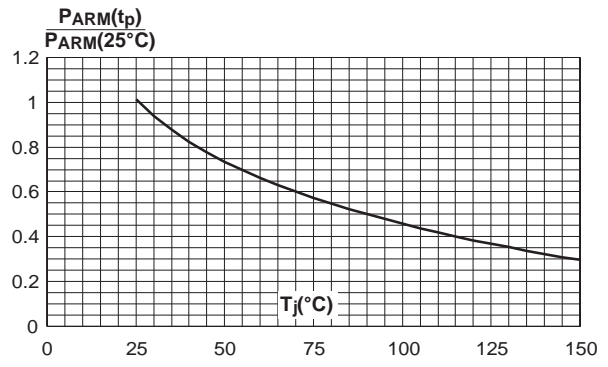
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



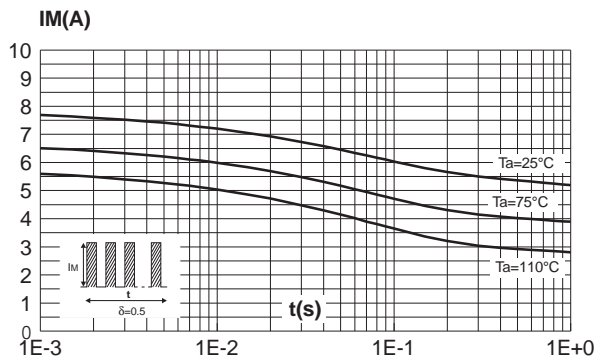
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



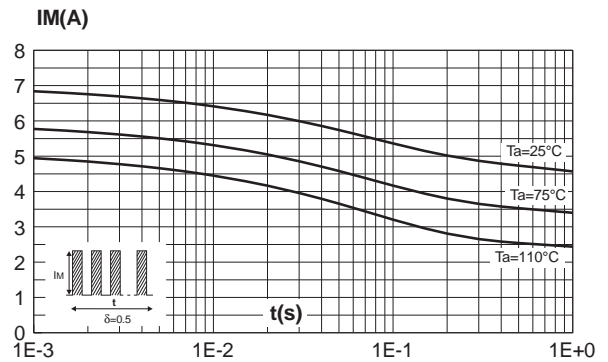
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



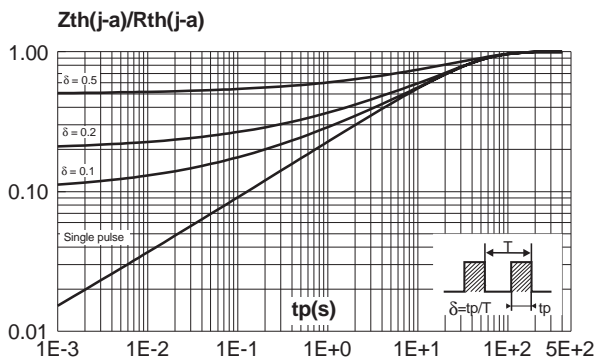
**Fig. 5-1:** Non repetitive surge peak forward current versus overload duration (maximum values) (SMB).



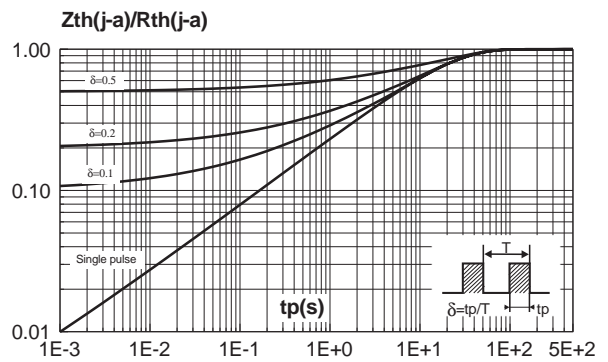
**Fig. 5-2:** Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).



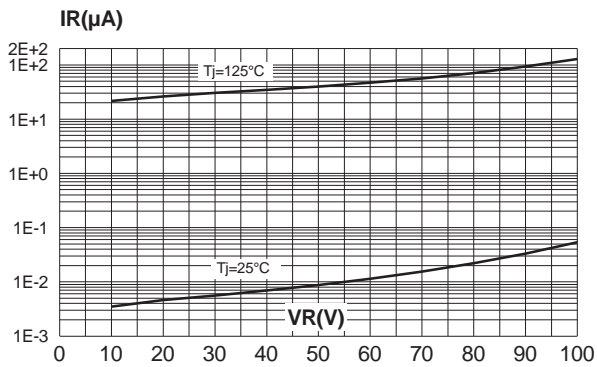
**Fig. 6-1:** Relative variation of thermal impedance junction to ambient versus pulse duration (SMB).



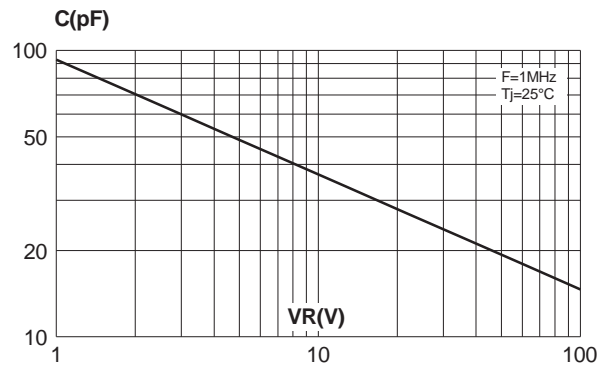
**Fig. 6-2:** Relative variation of thermal impedance junction to ambient versus pulse duration (SMA).



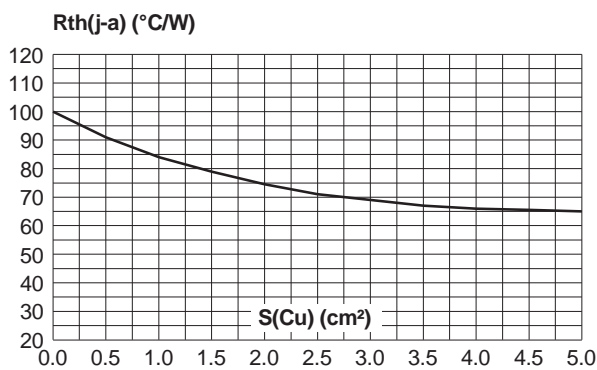
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



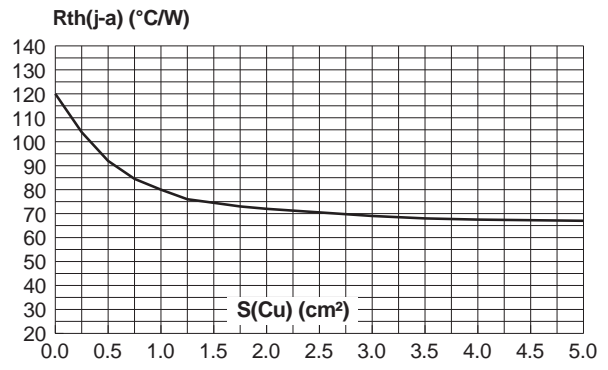
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



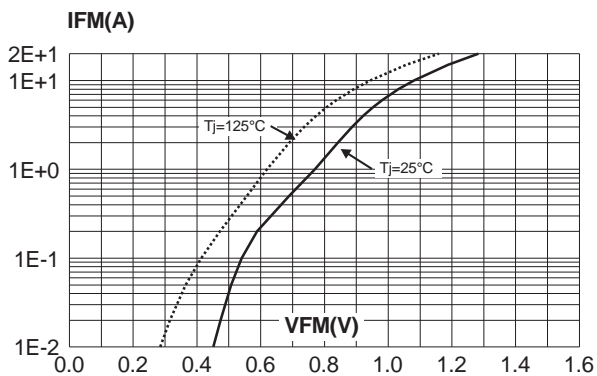
**Fig. 9-1:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35μm) (SMB).



**Fig. 9-2:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35μm) (SMA).



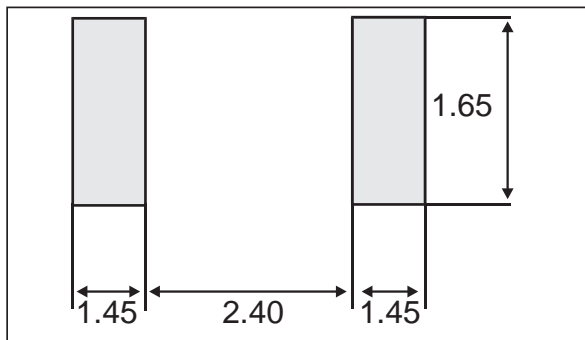
**Fig. 10:** Forward voltage drop versus forward current (maximum values).



**PACKAGE MECHANICAL DATA**  
SMA

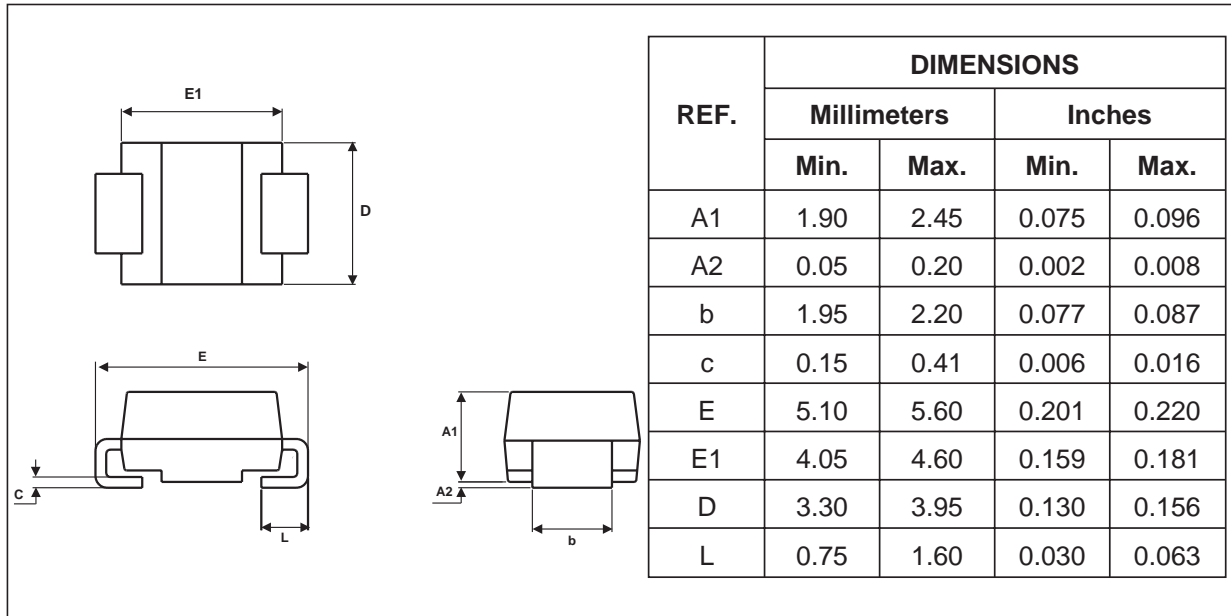
REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.70	0.075	0.106
A2	0.05	0.20	0.002	0.008
b	1.25	1.65	0.049	0.065
c	0.15	0.41	0.006	0.016
E	4.80	5.60	0.189	0.220
E1	3.95	4.60	0.156	0.181
D	2.25	2.95	0.089	0.116
L	0.75	1.60	0.030	0.063

**FOOT PRINT (in millimeters)**

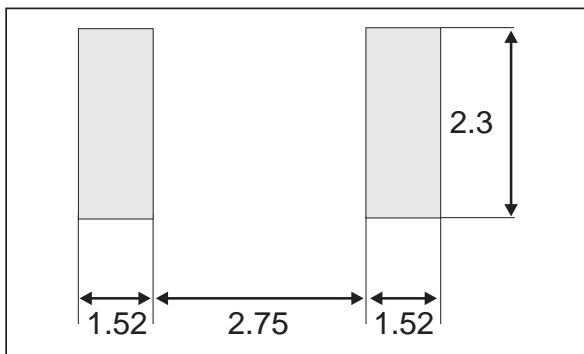


# STPS1H100A/U

## PACKAGE MECHANICAL DATA SMB



### FOOT PRINT (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS1H100A	S11	SMA	0.068g	5000	Tape & reel
STPS1H100U	G11	SMB	0.107g	2500	Tape & reel

- BAND INDICATES CATHODE
- EPOXY MEETS UL94,V0

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