



# STPS130A/U

## SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_F(AV)$	1 A
$V_{RRM}$	30 V
$V_F(max)$	0.46 V

### FEATURES AND BENEFITS

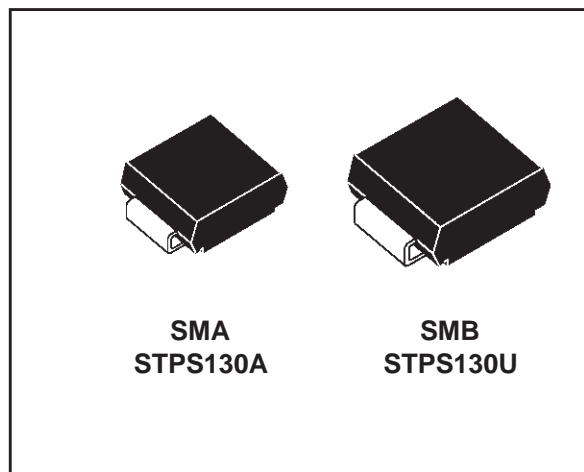
- LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND LOW LEAKAGE
- OPTIMIZED CONDUCTION / REVERSE LOSSES TRADE-OFF ALLOWING THE HIGHEST EFFICIENCY IN APPLICATION
- SURFACE MOUNT MINIATURE PACKAGE

### DESCRIPTION

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

Packaged in SMA or SMB(\*), this device is especially intended for use in parallel with MOSFETs in synchronous rectification and low voltage secondary rectification.

(\*) in accordance with DO214AA and DO214AC JEDEC



### 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	$T_L = 135^\circ\text{C}$ $\delta = 0.5$	1	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ ms}$ Sinusoidal	45	A
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2\text{ }\mu\text{s}$ $F = 1\text{ kHz}$	1	A
$I_{RSM}$	Non repetitive peak reverse current	$t_p = 100\text{ }\mu\text{s}$ square	1	A
$T_{stg}$	Storage temperature range		- 65 to + 150	$^\circ\text{C}$
$T_j$	Maximum junction temperature		150	
$dV/dt$	Critical rate of rise of reverse voltage		10000	V/ $\mu\text{s}$

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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	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = 30\text{V}$			10	$\mu\text{A}$
		$T_j = 125^{\circ}\text{C}$			1.5	10	mA
$V_F^{**}$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 1\text{A}$			0.55	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 1\text{A}$		0.37	0.46	
		$T_j = 25^{\circ}\text{C}$	$I_F = 2\text{A}$			0.63	
		$T_j = 125^{\circ}\text{C}$	$I_F = 2\text{A}$		0.45	0.55	

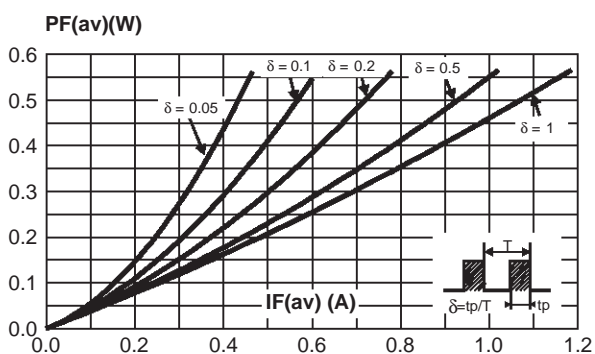
Pulse test : \*  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

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

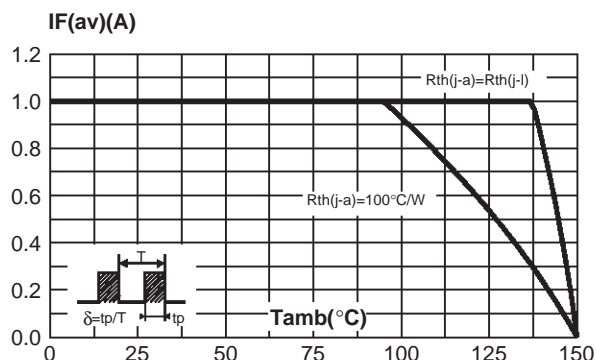
To evaluate the maximum conduction losses use the following equation :

$$P = 0.37 \times I_{F(AV)} + 0.090 \times I_{F(RMS)}^2$$

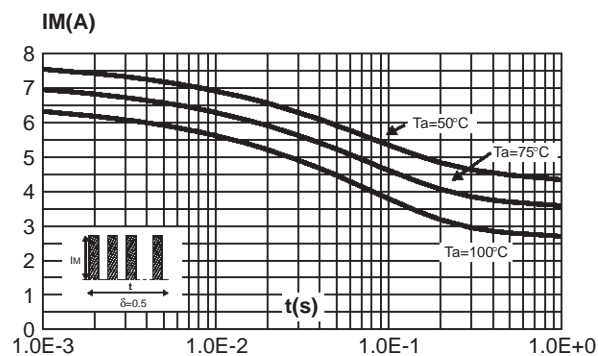
**Fig. 1:** Average forward power dissipation versus average forward current.



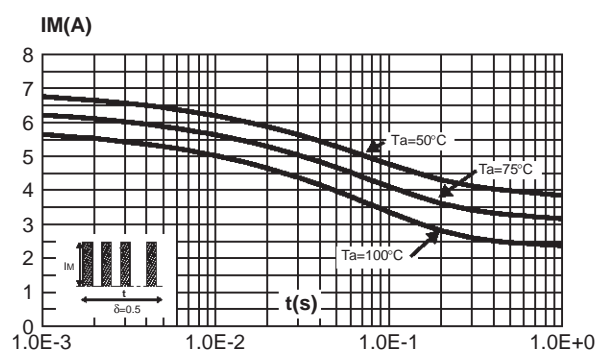
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



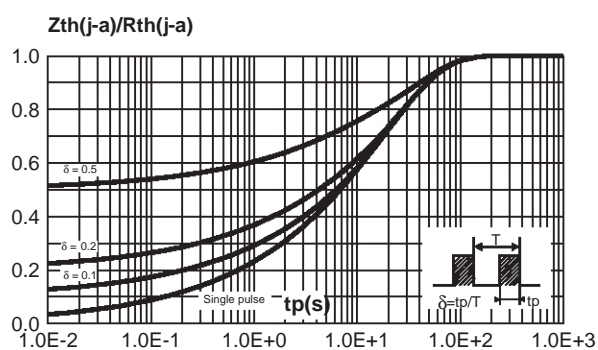
**Fig. 3-1:** Non repetitive surge peak forward current versus overload duration (maximum values) (SMB).



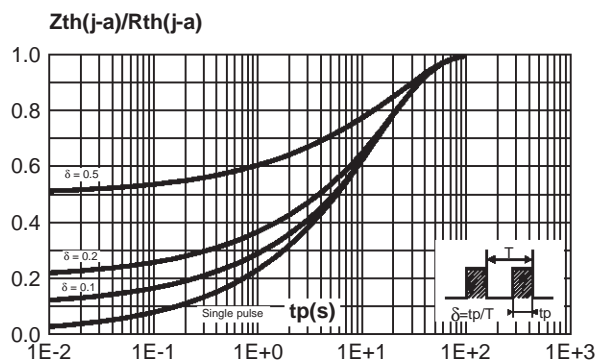
**Fig. 3-2:** Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).



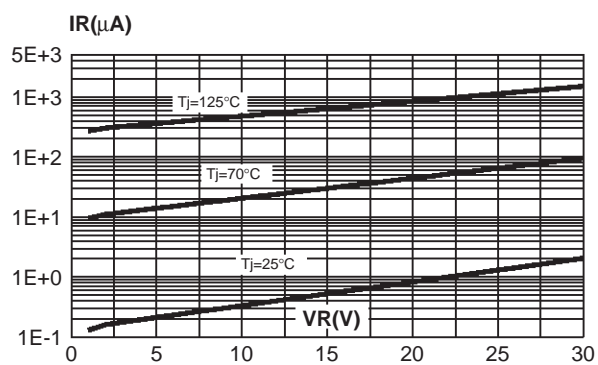
**Fig. 4-1:** Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMB)



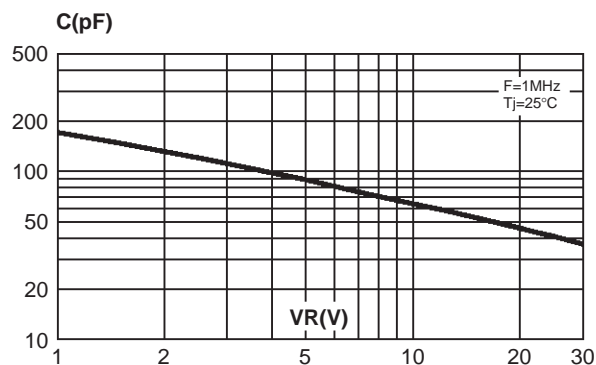
**Fig. 4-2:** Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMA)



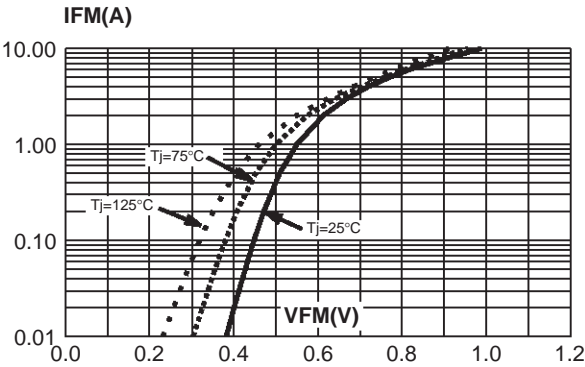
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



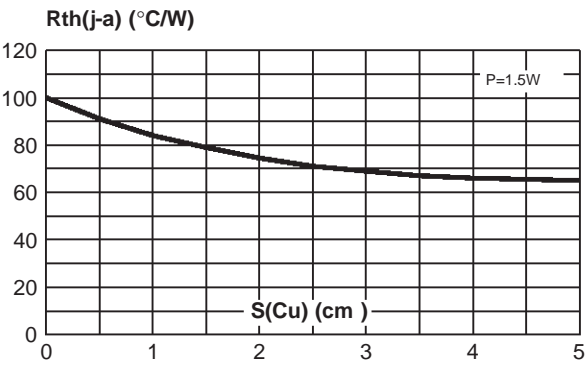
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).



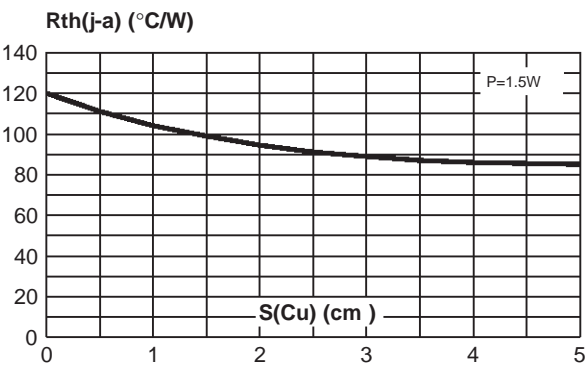
**Fig. 7:** Forward voltage drop versus forward current (maximum values).



**Fig. 8-1:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness:  $35\mu\text{m}$ ). (SMB)

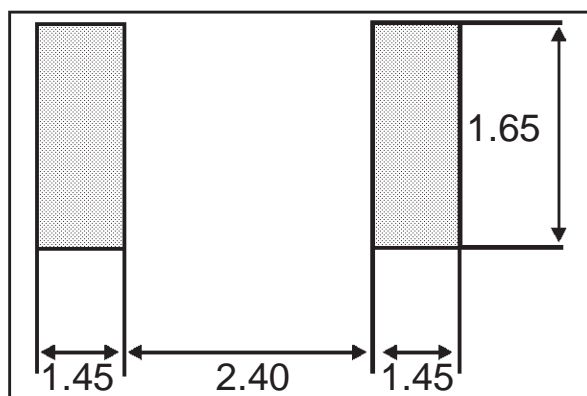


**Fig. 8-2:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness:  $35\mu\text{m}$ ). (SMA)



**PACKAGE MECHANICAL DATA**  
 SMA

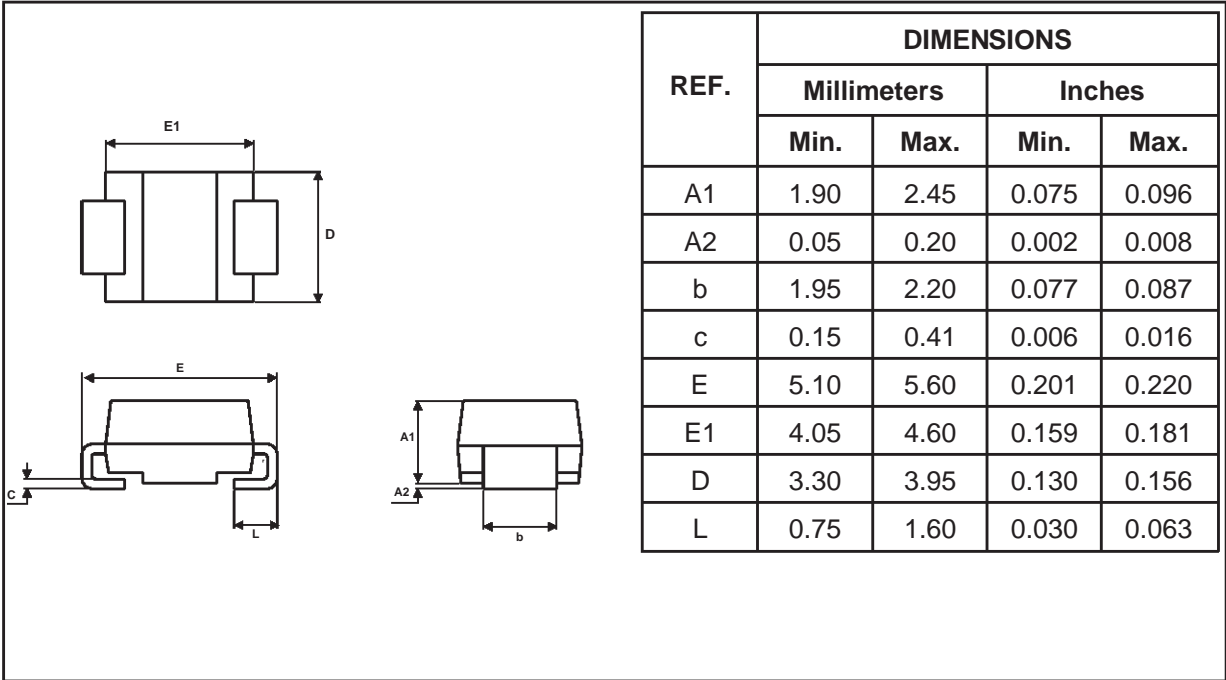
REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.70	0.075	0.106
A2	0.05	0.20	0.002	0.008
b	1.25	1.65	0.049	0.065
c	0.15	0.41	0.006	0.016
E	4.80	5.60	0.189	0.220
E1	3.95	4.60	0.156	0.181
D	2.25	2.95	0.089	0.116
L	0.75	1.60	0.030	0.063

**FOOT PRINT** (in millimeters)


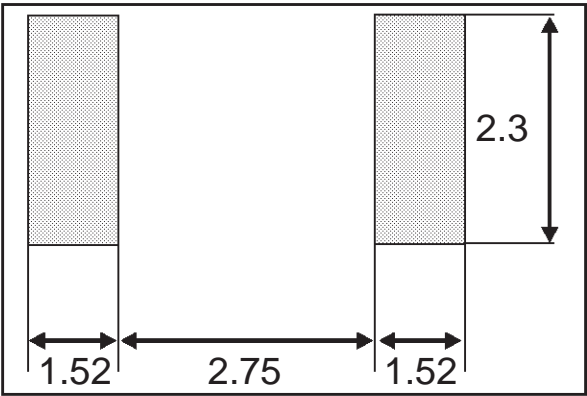
- **Marking:** S130
- Cathode band indicates cathode

STPS130A/U

PACKAGE MECHANICAL DATA  
SMB



FOOT PRINT (in millimeters)



- **Marking:** G12
- Cathode band indicates cathode

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