



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

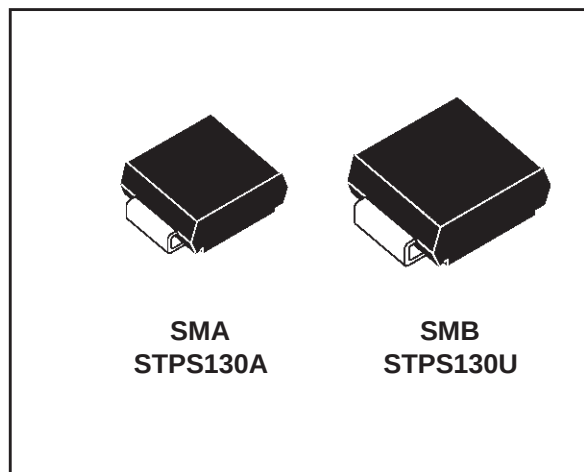
- LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND LOW LEAKAGE
- OPTIMIZED CONDUCTION / REVERSE LOSSES TRADE-OFF ALLOWING THE HIGHEST EFFICIENCY IN APPLICATION
- SURFACE MOUNT MINIATURE PACKAGE

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	$t_p = 2 \mu\text{s}$ $F = 1\text{kHz}$	1	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100 \mu\text{s}$ 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/ μs

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	μA
		$T_j = 125^{\circ}\text{C}$			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.

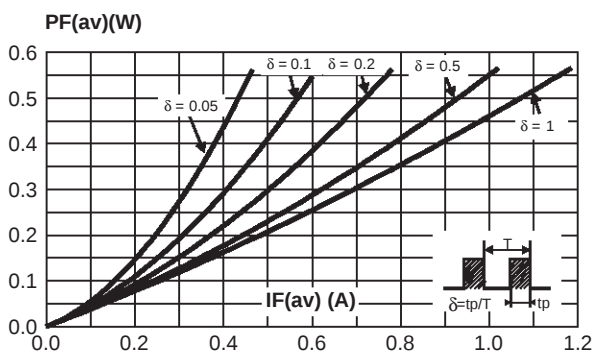


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

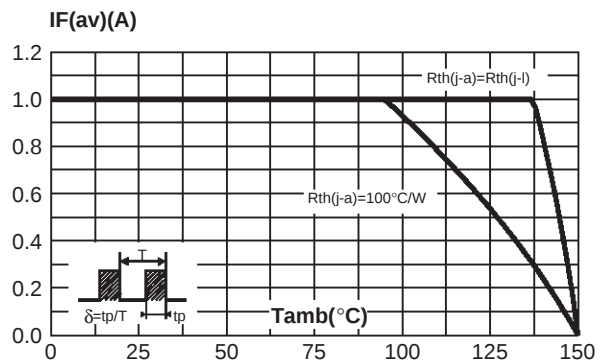


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (SMB).

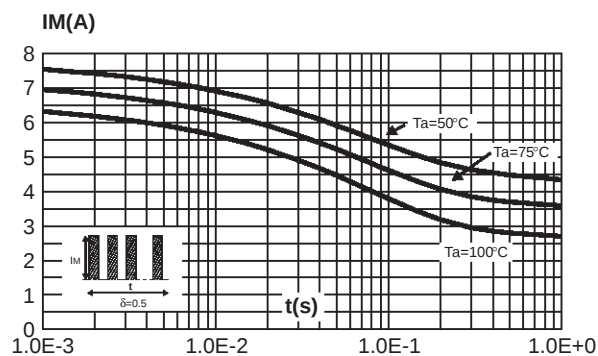


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).

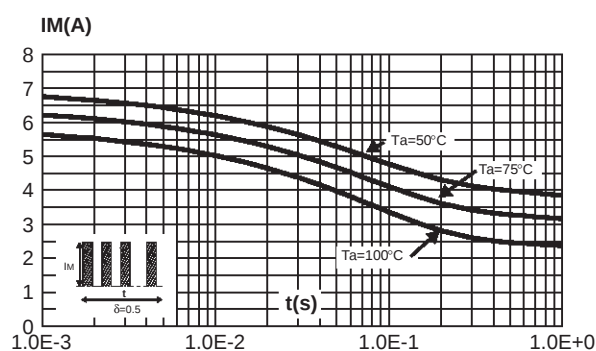


Fig. 4-1: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMB)

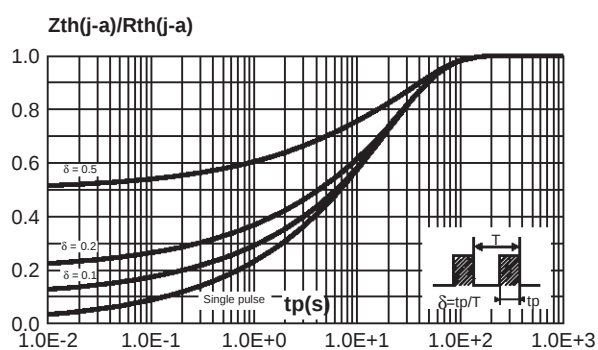


Fig. 4-2: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMA)

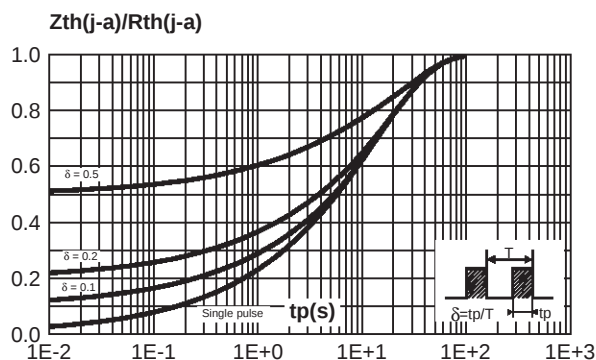


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

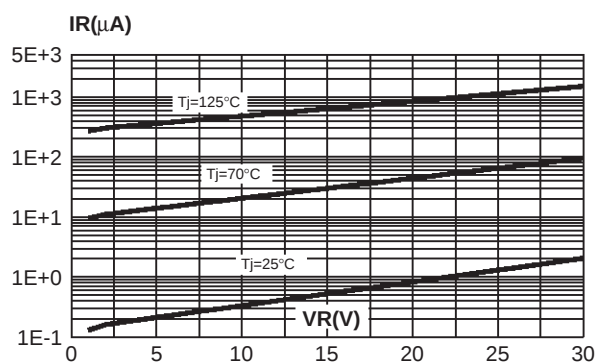


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

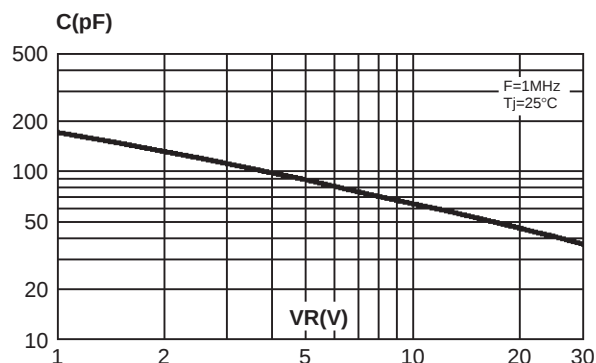


Fig. 7: Forward voltage drop versus forward current (maximum values).

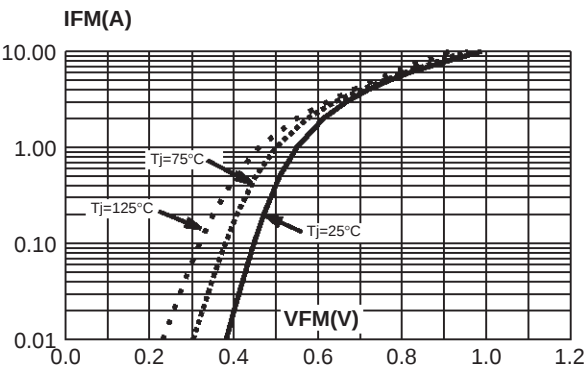


Fig. 8-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: $35\mu\text{m}$). (SMB)

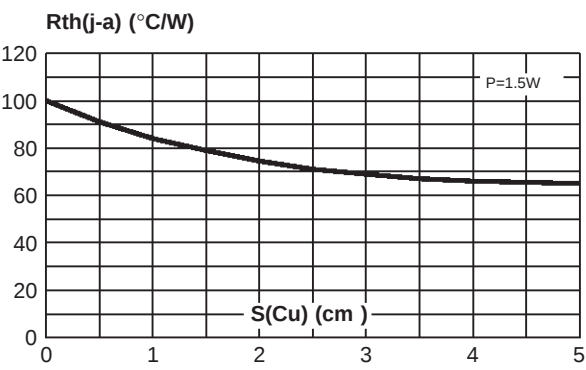
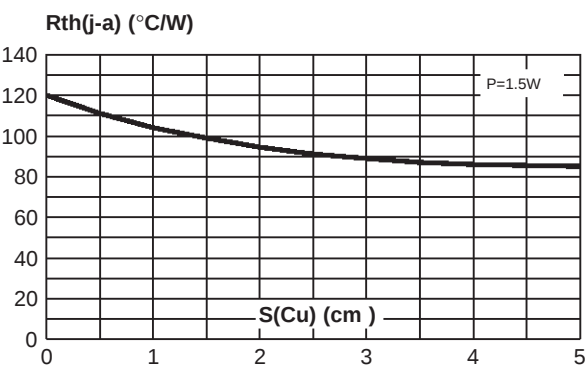
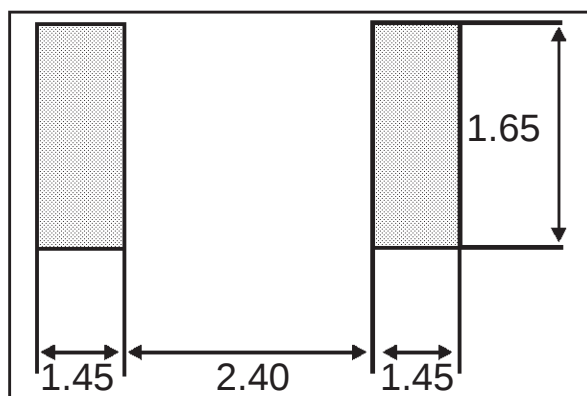


Fig. 8-2: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: $35\mu\text{m}$). (SMA)



PACKAGE MECHANICAL DATA
 SMA

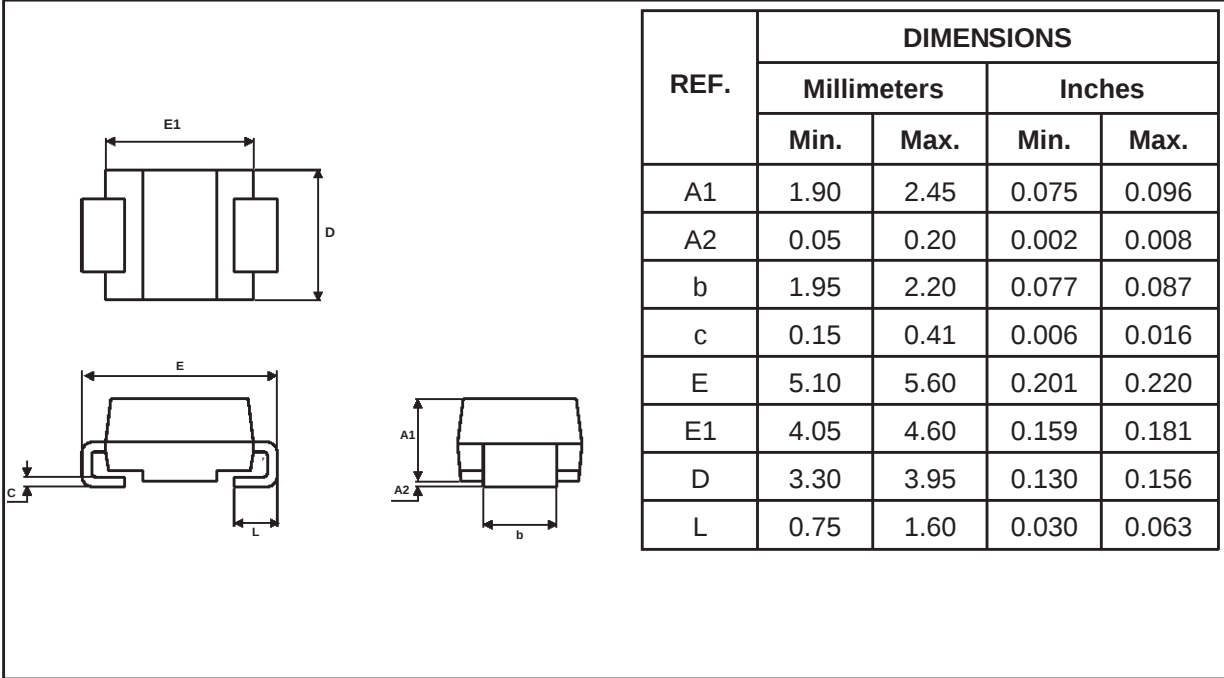
REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.70	0.075	0.106
A2	0.05	0.20	0.002	0.008
b	1.25	1.65	0.049	0.065
c	0.15	0.41	0.006	0.016
E	4.80	5.60	0.189	0.220
E1	3.95	4.60	0.156	0.181
D	2.25	2.95	0.089	0.116
L	0.75	1.60	0.030	0.063

FOOT PRINT (in millimeters)


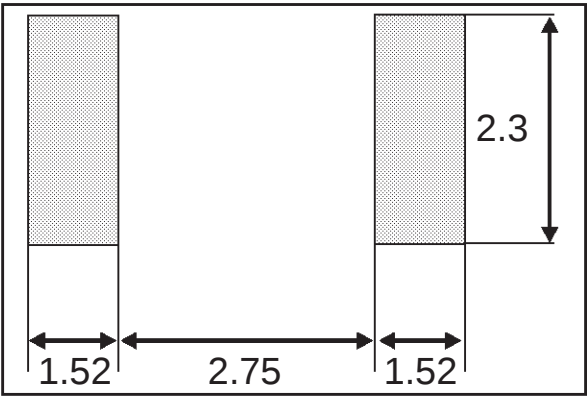
- **Marking:** S130
- Cathode band indicates cathode

STPS130A/U

PACKAGE MECHANICAL DATA
SMB



FOOT PRINT (in millimeters)



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

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