

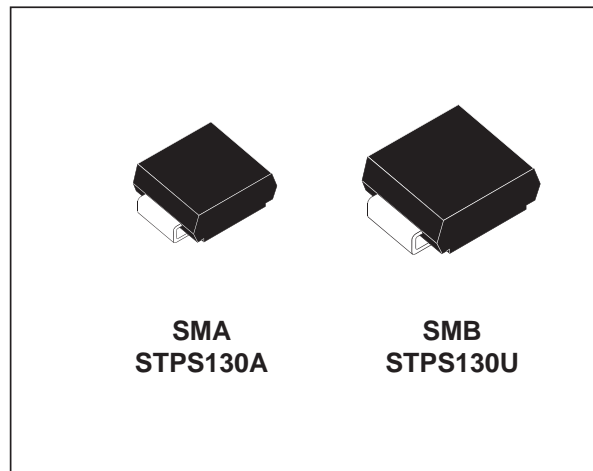
SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1 A
V_{RRM}	30 V
$T_j(\text{max})$	150 °C
$V_F(\text{max})$	0.46 V

FEATURES AND BENEFITS

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



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	$T_{Lead} = 130^{\circ}\text{C}$ $\delta = 0.5$	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	$t_p = 100 \mu\text{s}$	1	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu\text{s}$ $T_j = 25^{\circ}\text{C}$	1200	W
T_{stg}	Storage temperature range		- 65 to + 150	°C
T_j	Maximum junction temperature		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/ μs

STPS130A/U

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-l)}	Junction to lead	SMA	30	°C/W
		SMB	23	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
I _R *	Reverse Leakage Current	T _j = 25°C	V _R = 30V		10	μA
		T _j = 125°C		1.5	10	mA
V _F **	Forward Voltage drop	T _j = 25°C	I _F = 1 A		0.55	V
		T _j = 125°C	I _F = 1 A	0.37	0.46	
		T _j = 25°C	I _F = 2 A		0.63	
		T _j = 125°C	I _F = 2 A	0.45	0.55	

Pulse test : * tp = 380 μs, δ < 2%
 ** tp = 5ms, δ < 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.

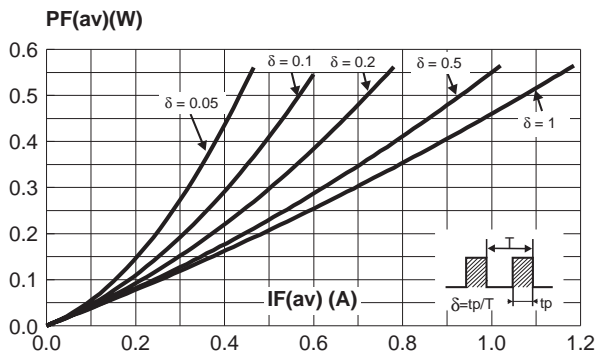


Fig. 3: Normalized avalanche power derating versus pulse duration.

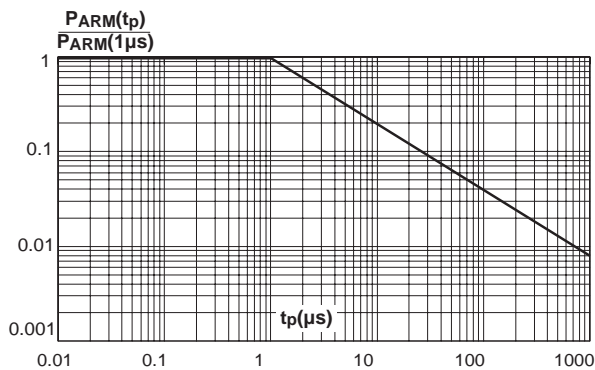


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

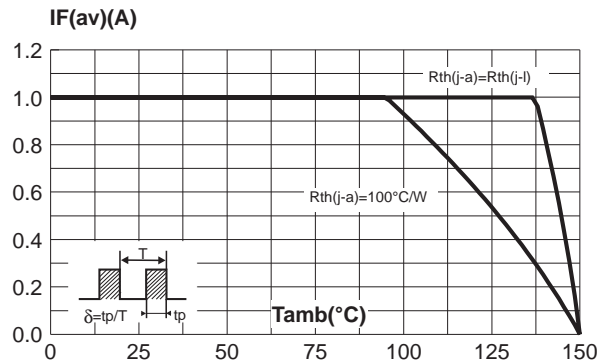


Fig. 4: Normalized avalanche power derating versus junction temperature.

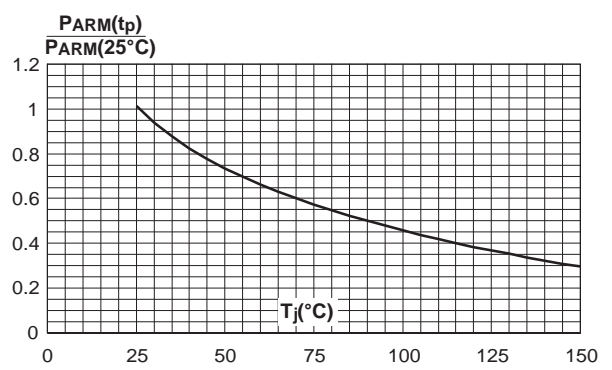


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (maximum values).

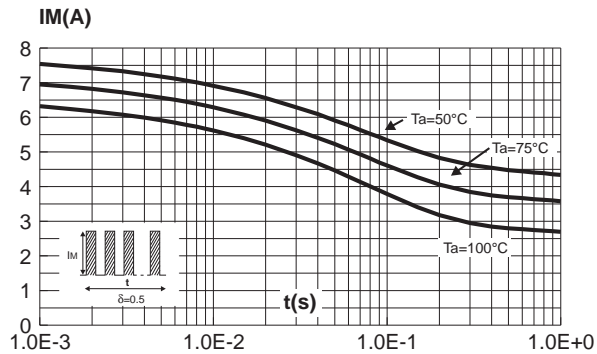


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (maximum values).

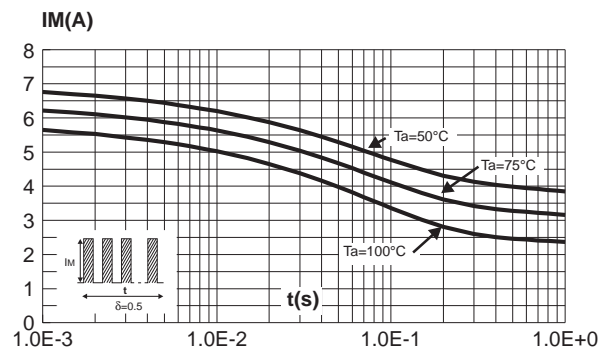


Fig. 6-1: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMB)

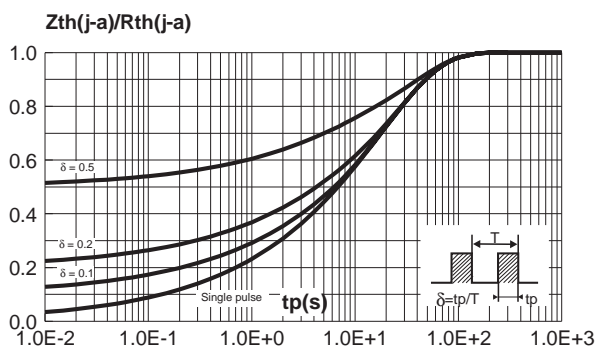


Fig. 6-2: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMA)

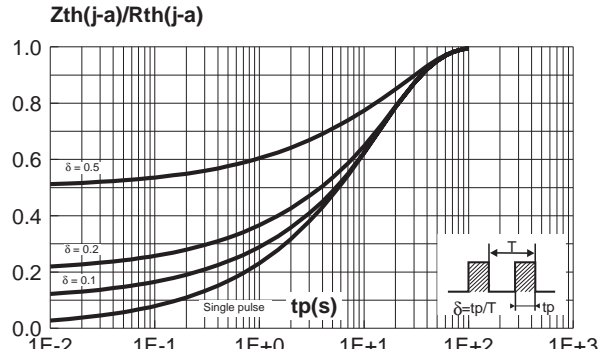


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

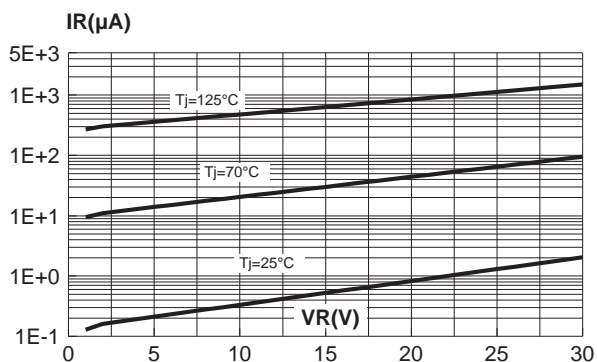


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

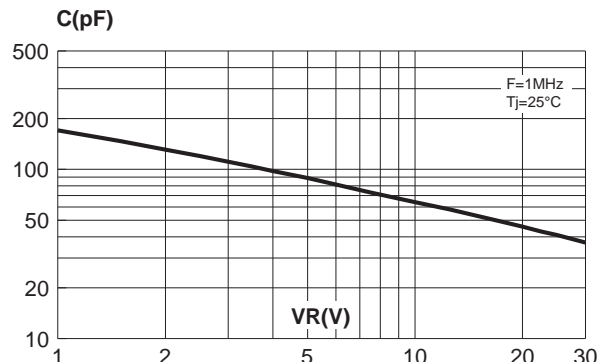


Fig. 9: Forward voltage drop versus forward current (maximum values).

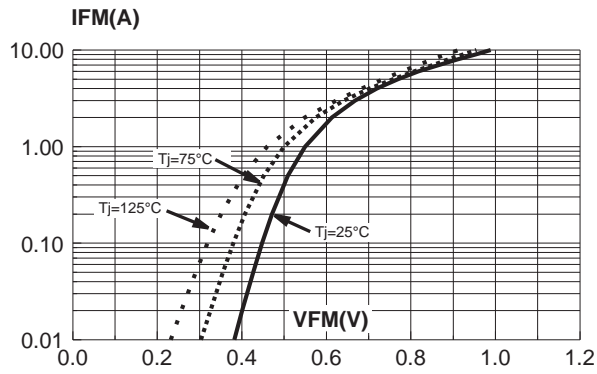


Fig. 10-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMB)

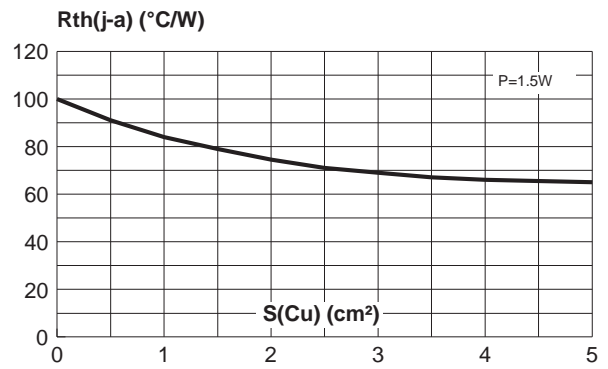
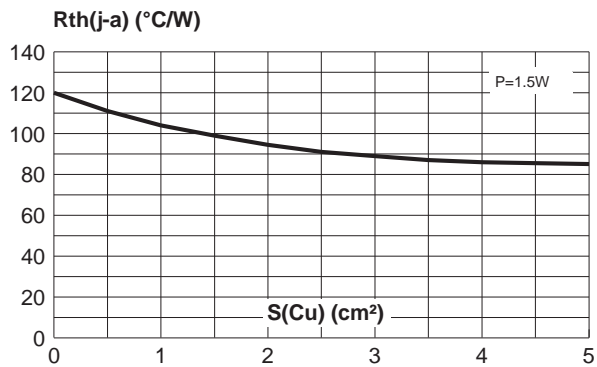


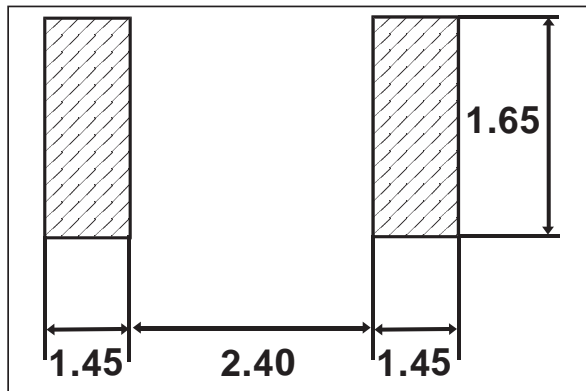
Fig. 10-2: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMA)



PACKAGE MECHANICAL DATA
SMA

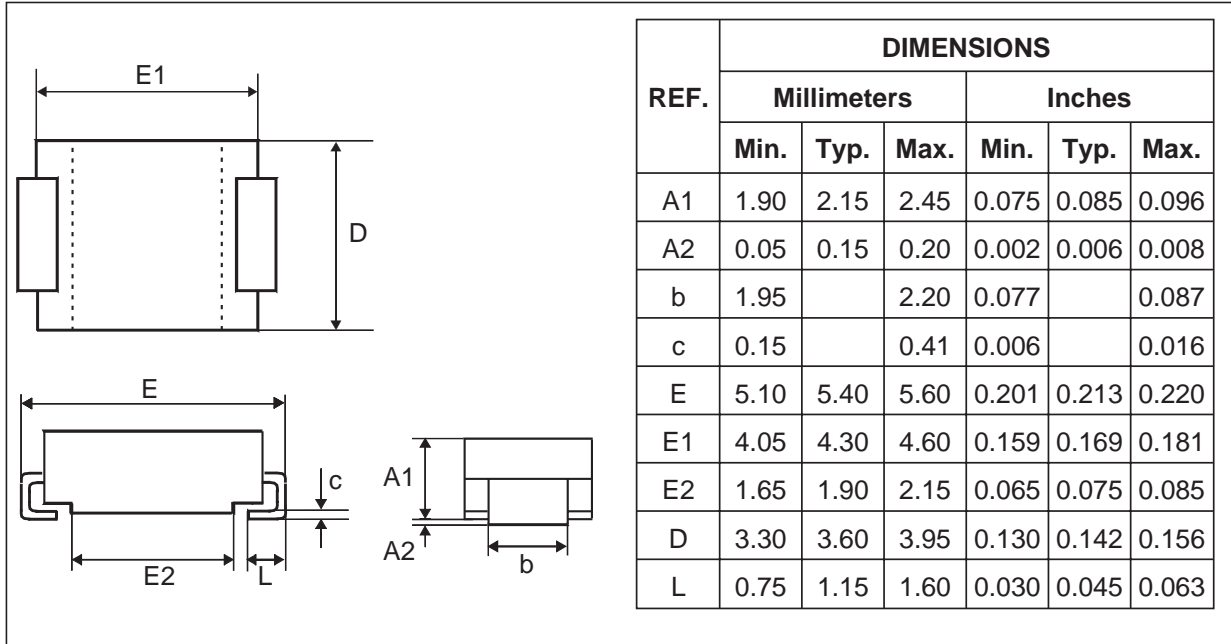
REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A1	1.90	2.30	2.70	0.075	0.091	0.106
A2	0.05	0.15	0.20	0.002	0.006	0.008
b	1.25		1.65	0.049		0.065
c	0.15		0.41	0.006		0.016
E	4.80	5.20	5.60	0.189	0.205	0.220
E1	3.95	4.30	4.60	0.156	0.169	0.181
E2	1.40	1.65	1.90	0.055	0.065	0.075
D	2.25	2.60	2.95	0.089	0.102	0.116
L	0.75	1.15	1.60	0.030	0.045	0.063

FOOT PRINT (in millimeters)

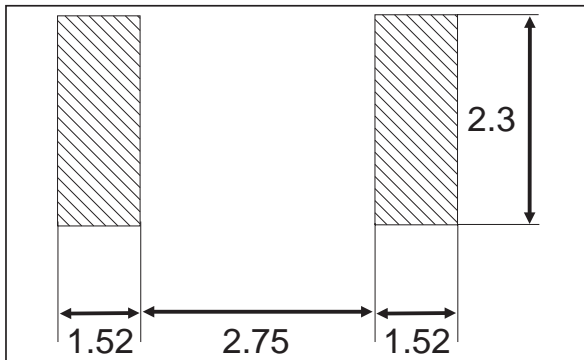


STPS130A/U

PACKAGE MECHANICAL DATA SMB



FOOT PRINT (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS130U	G12	SMB	0.107g	2500	Tape & reel
STPS130A	S130	SMA	0.068g	5000	Tape & reel

- Band indicates cathode
- Epoxy meets UL94,V0

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics
 © 2003 STMicroelectronics - Printed in Italy - All rights reserved.
 STMicroelectronics GROUP OF COMPANIES
 Australia - Brazil - Canada - China - Finland - France - Germany
 Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore
 Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

