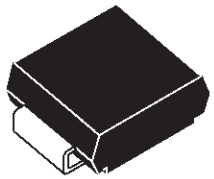
STPS130A/U

SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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

SMA
STPS130A



SMB
STPS130U

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°C δ = 0.5	1	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	45	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs F = 1kHz	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100µs square	1	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	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	°C/W
		SMB	25	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	V_R = 30V			10	µA
		Tj = 125°C			1.5	10	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 1 A			0.55	V
		Tj = 125°C	I_F = 1 A		0.37	0.46	
		Tj = 25°C	I_F = 2 A			0.63	
		Tj = 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 :
$P = 0.37 \times I_{F(AV)} + 0.090 \times I_{F}{}^{2}{}_{(RMS)}$

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

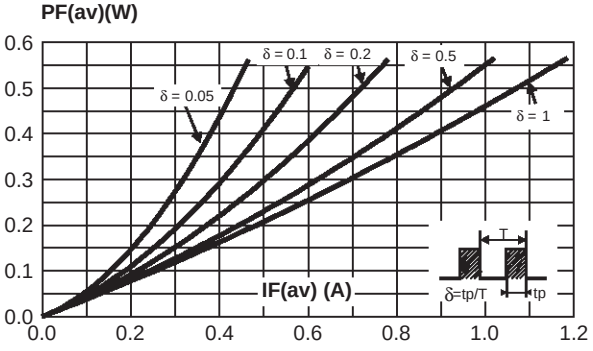


Fig. 2: Average forward current versus ambient temperature (δ=0.5) .

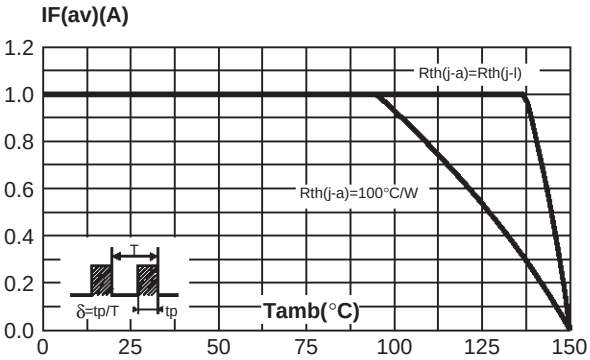


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (SMB).

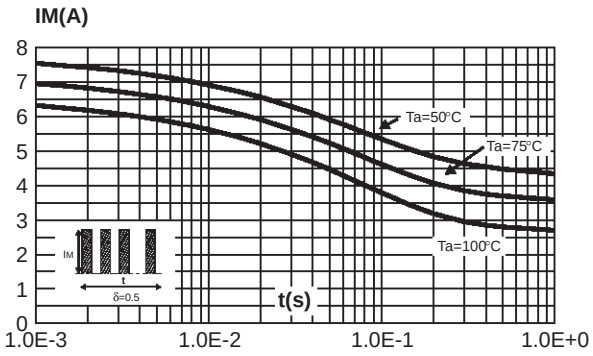


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).

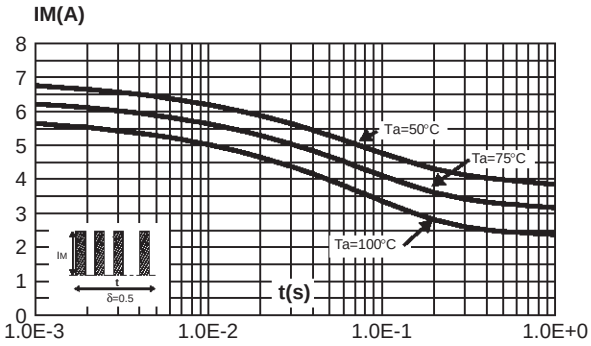


Fig. 4-1: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMB)

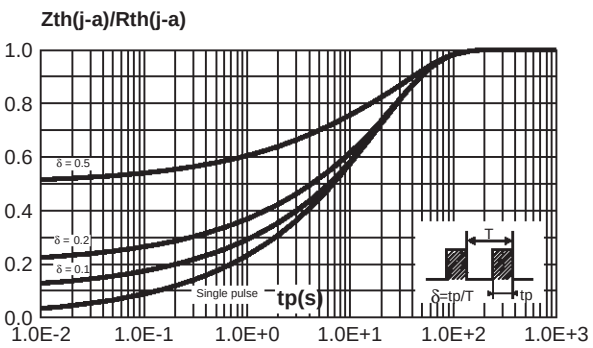


Fig. 4-2: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMA)

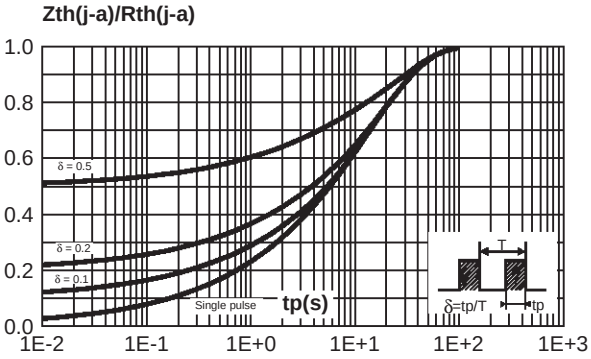


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

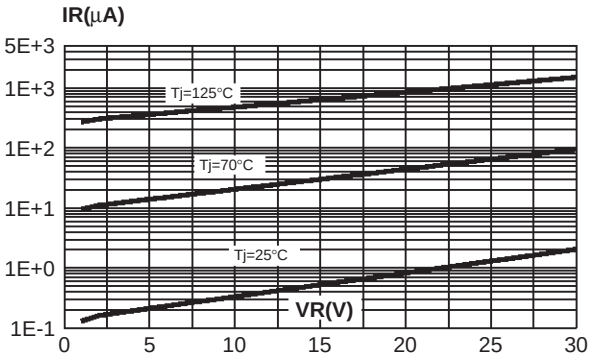


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

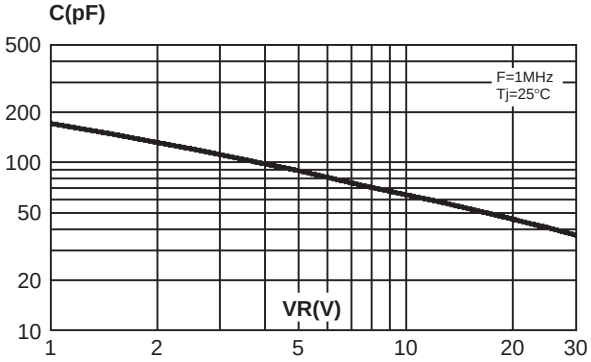


Fig. 7: Forward voltage drop versus forward current (maximum values).

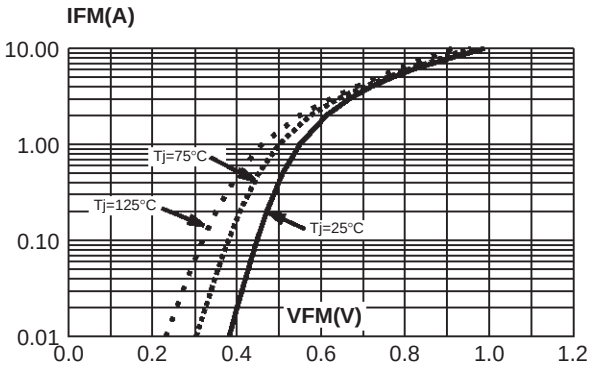


Fig. 8-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMB)

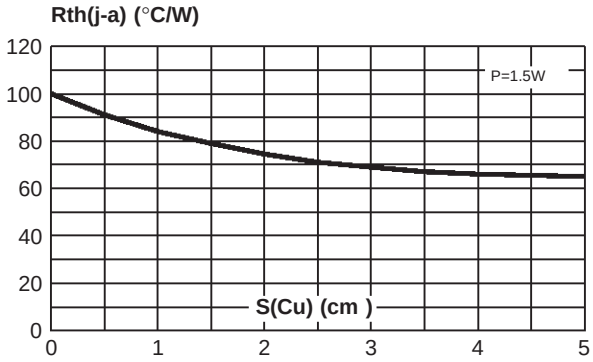
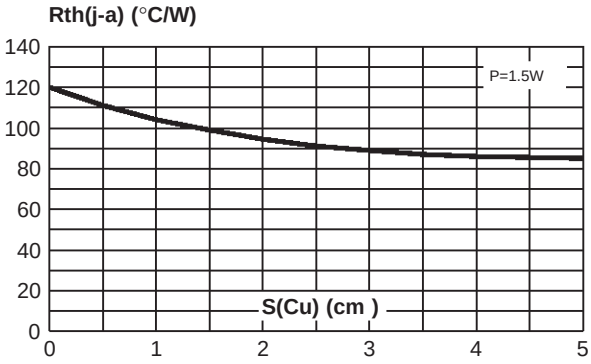
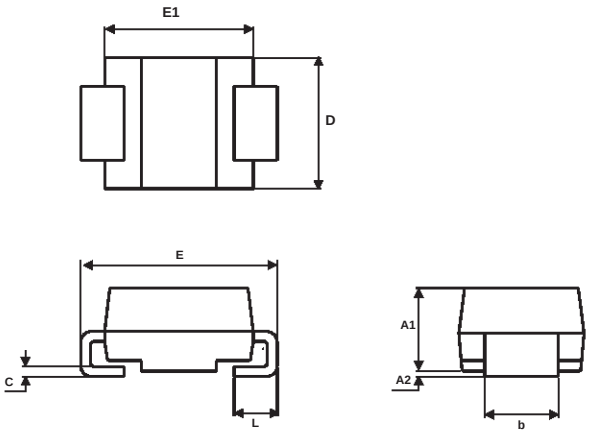


Fig. 8-2: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMA)



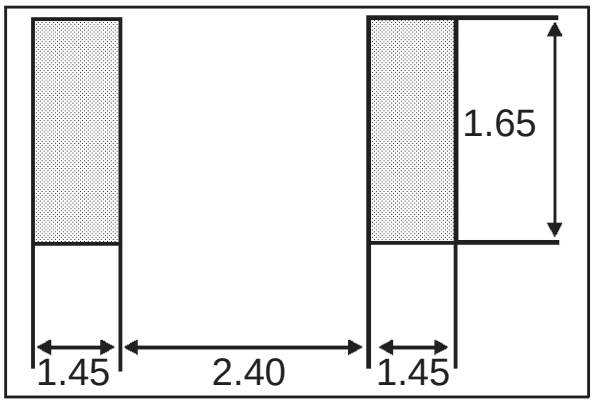
PACKAGE MECHANICAL DATA

SMA



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	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

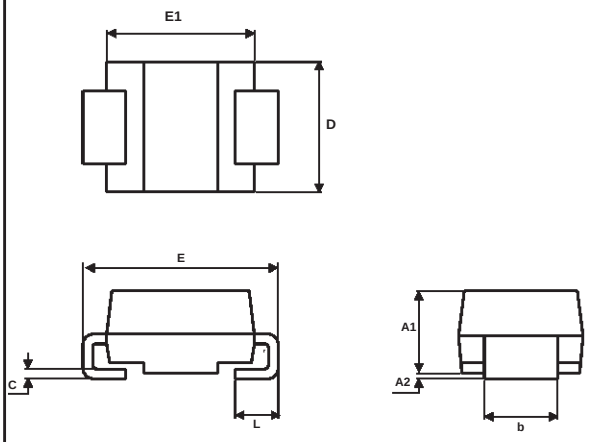
FOOT PRINT (in millimeters)



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

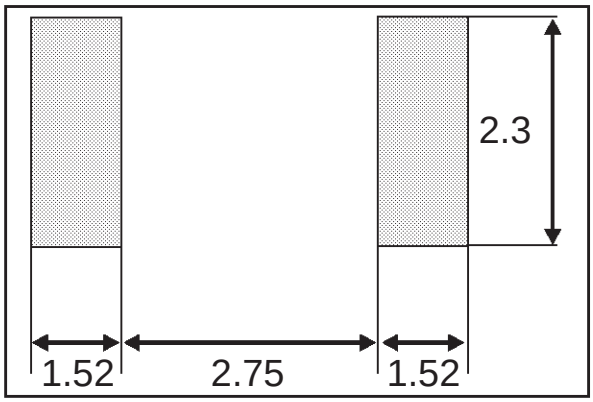
PACKAGE MECHANICAL DATA

SMB



REF.	DIMENSIONS			
	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 (in millimeters)



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

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

© 1998 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.