



STPS130A/U

SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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

FEATURES AND BENEFITS

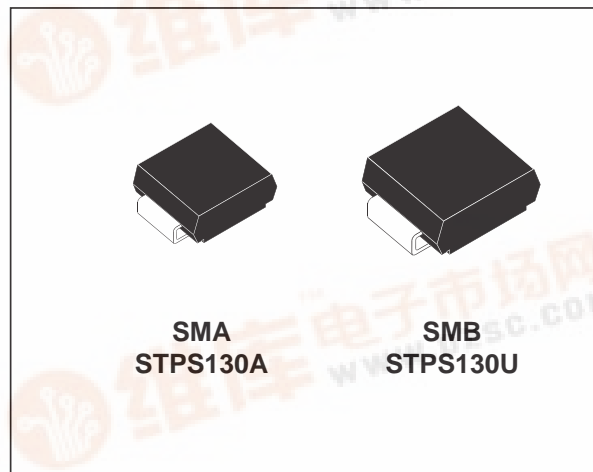
- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION
- OPTIMIZED CONDUCTION / REVERSE LOSSES TRADE-OFF ALLOWING THE HIGHEST EFFICIENCY IN APPLICATION
- SURFACE MOUNT MINIATURE PACKAGE
- AVALANCHE CAPABILITY SPECIFIED

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	$T_{Lead} = 130^{\circ}C$ $\delta = 0.5$	1	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\ ms$ Sinusoidal	45	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\ \mu s$ $F = 1\ KHz$	1	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100\ \mu s$	1	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1\ \mu s$ $T_j = 25^{\circ}C$	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



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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-l)}	Junction to lead	SMA	30
		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.

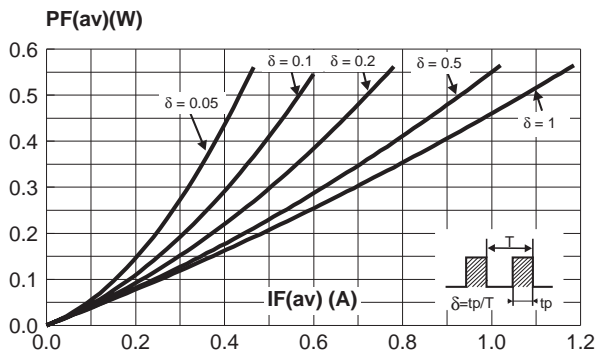


Fig. 3: Normalized avalanche power derating versus pulse duration.

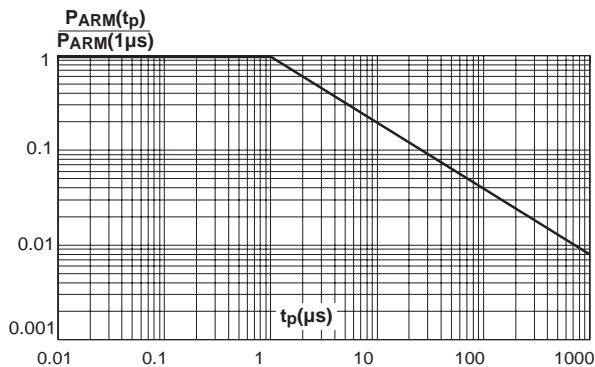


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

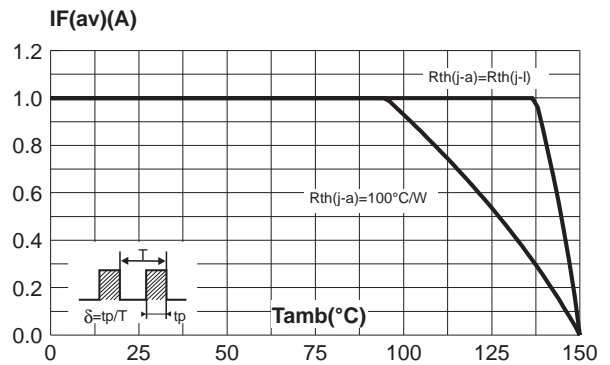


Fig. 4: Normalized avalanche power derating versus junction temperature.

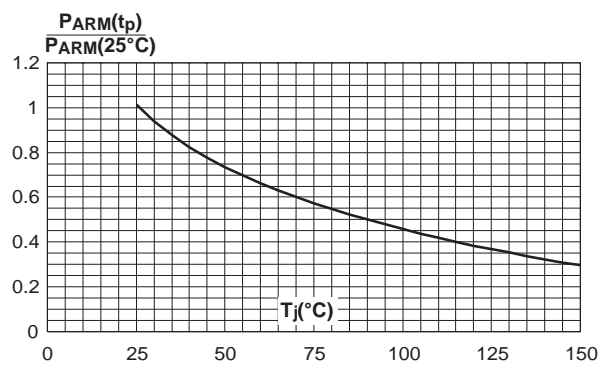


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (maximum values).

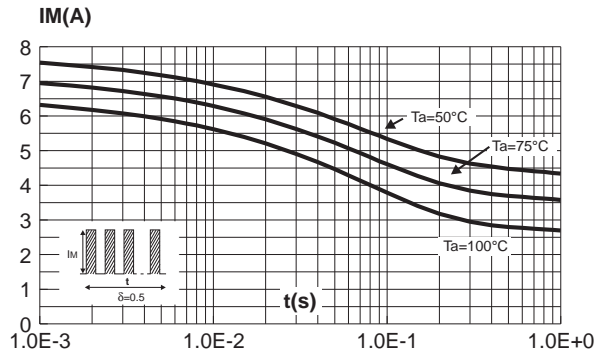


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (maximum values).

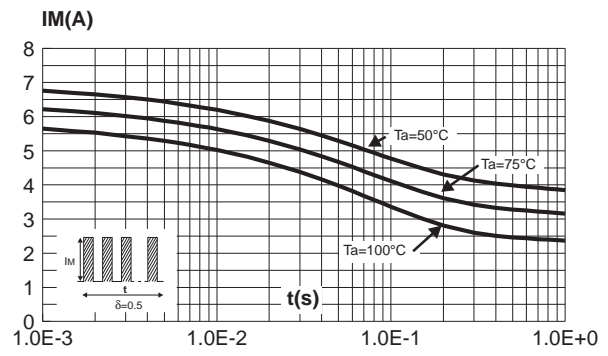


Fig. 6-1: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMB)

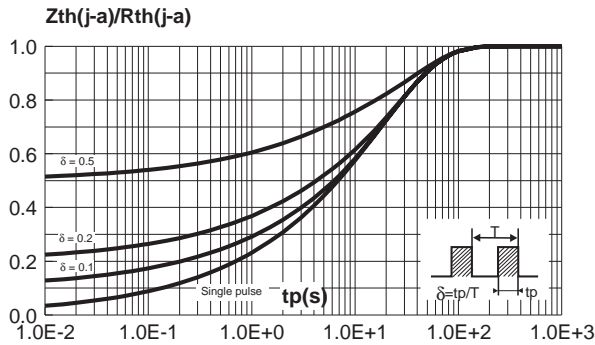


Fig. 6-2: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, S(Cu)=35mm, recommended pad layout). (SMA)

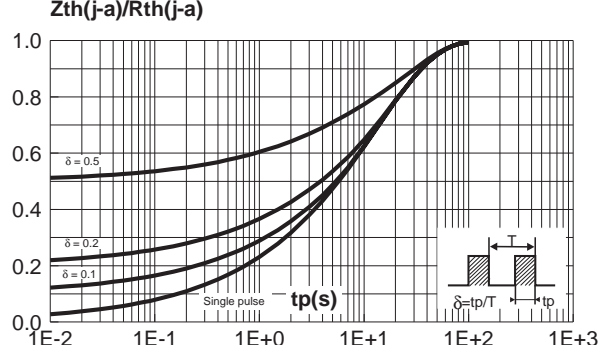


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

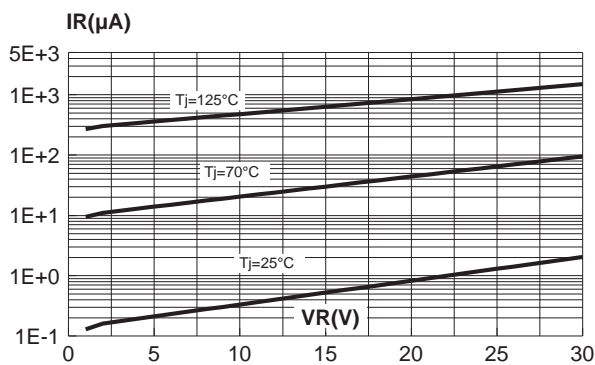


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

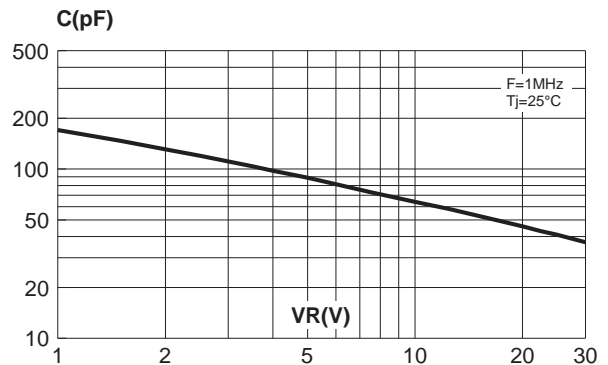


Fig. 9: Forward voltage drop versus forward current (maximum values).

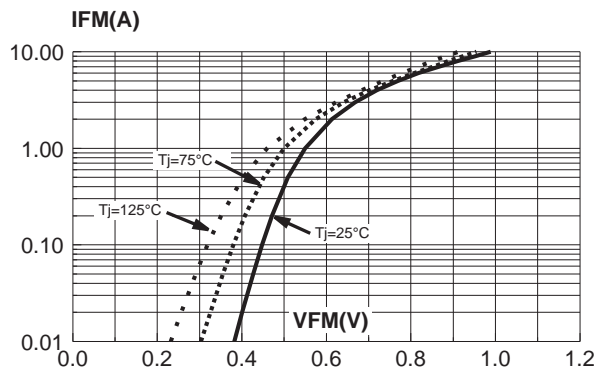


Fig. 10-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMB)

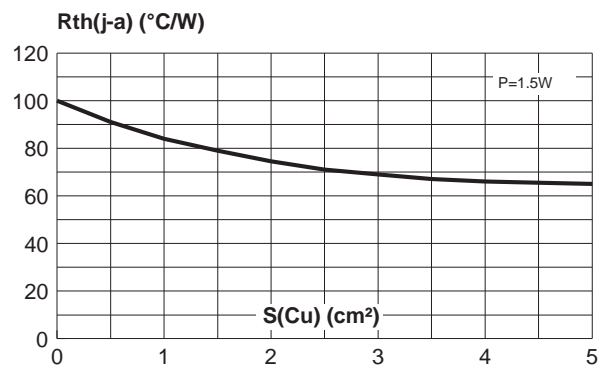
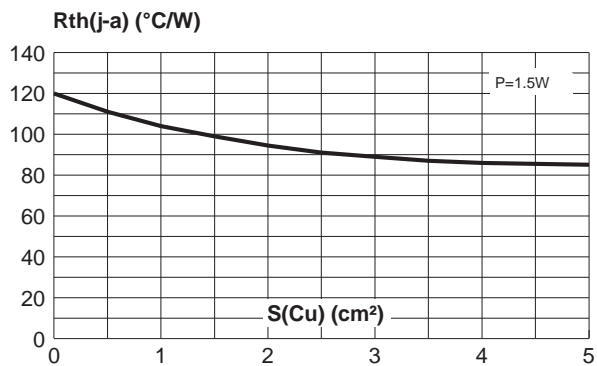


Fig. 10-2: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35µm).(SMA)

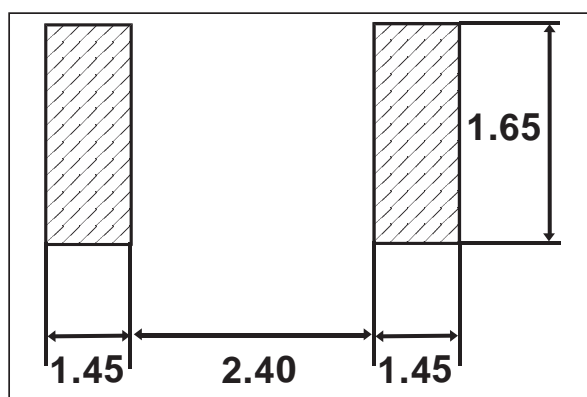


PACKAGE MECHANICAL DATA

SMA

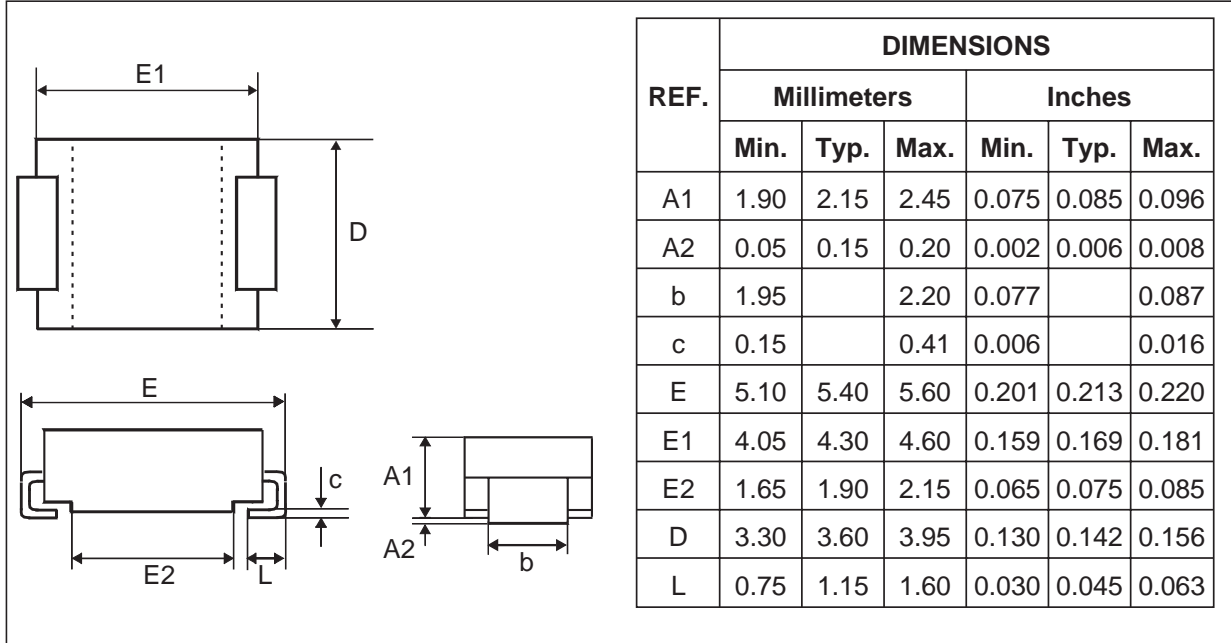
REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A1	1.90	2.30	2.70	0.075	0.091	0.106
A2	0.05	0.15	0.20	0.002	0.006	0.008
b	1.25		1.65	0.049		0.065
c	0.15		0.41	0.006		0.016
E	4.80	5.20	5.60	0.189	0.205	0.220
E1	3.95	4.30	4.60	0.156	0.169	0.181
E2	1.40	1.65	1.90	0.055	0.065	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)

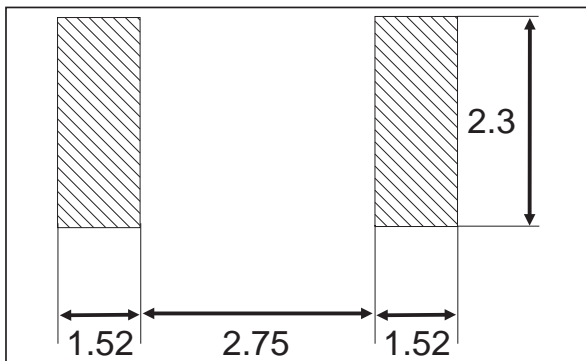


STPS130A/U

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

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