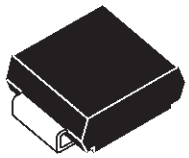
STPS2H100A/U

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	100 V
Tj (max)	175 °C
V_F (max)	0.65 V



SMA
STPS2H100A

SMB
STPS2H100U

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- AVALANCHE RATED

DESCRIPTION

Schottky rectifier designed for high frequency miniature Switched Mode Power Supplies such as adaptators and on board DC/DC converters.

Packaged in SMA or SMB.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		100	V
$I_{F(RMS)}$	RMS forward current		10	A
$I_{F(AV)}$	Average forward current	T_L = 130°C δ = 0.5	2	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal	75	A
I_{RRM}	Repetitive peak reverse current	tp=2 µs F=1kHz square	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square	1	A
T_{stg}	Storage temperature range		- 65 to + 175	°C
Tj	Maximum operating junction temperature		175	°C
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	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			1	µA
		Tj = 125°C			0.4	1	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 2 A			0.79	V
		Tj = 125°C	I_F = 2 A		0.6	0.65	
		Tj = 25°C	I_F = 4 A			0.88	
		Tj = 125°C	I_F = 4 A		0.69	0.74	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.56\ I_{F(AV)} + 0.045\ I_F{}^2{}_{(RMS)}$

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

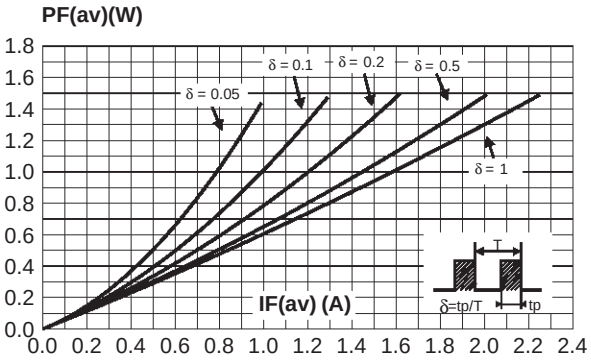


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

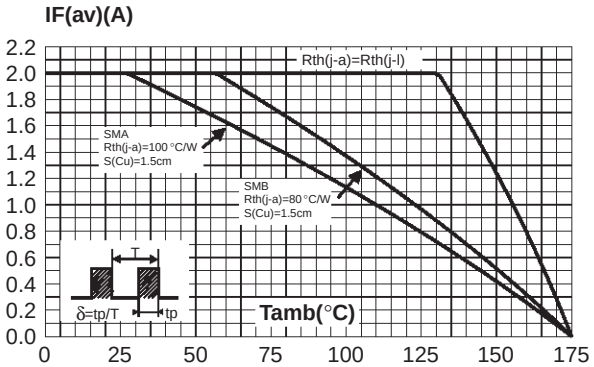


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (SMB).

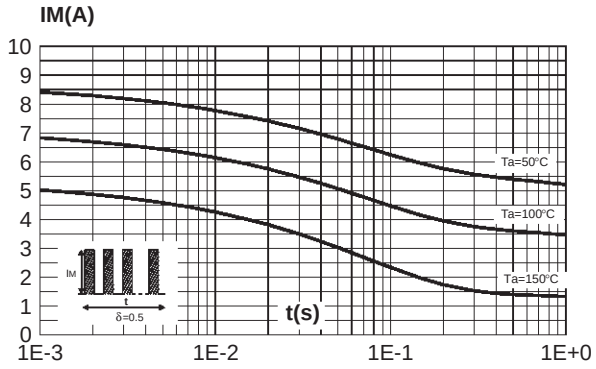


Fig. 4: Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).

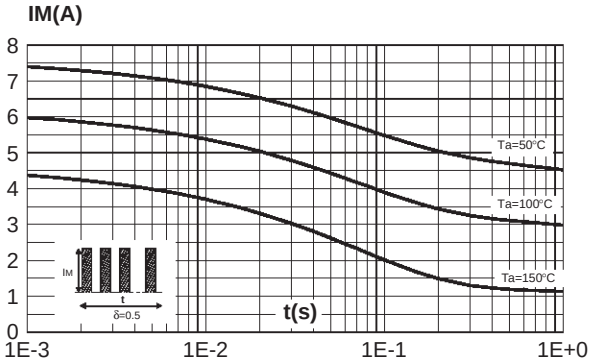


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (SMB).

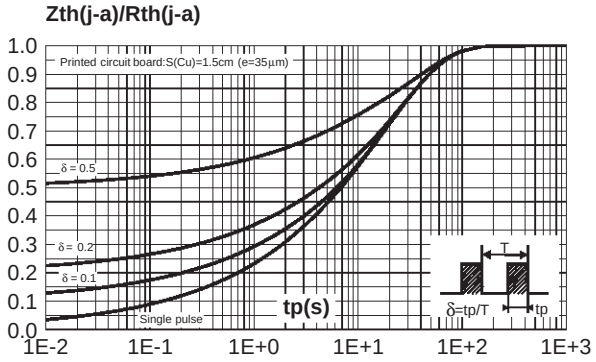


Fig. 6: Relative variation of thermal impedance junction to ambient versus pulse duration (SMA).

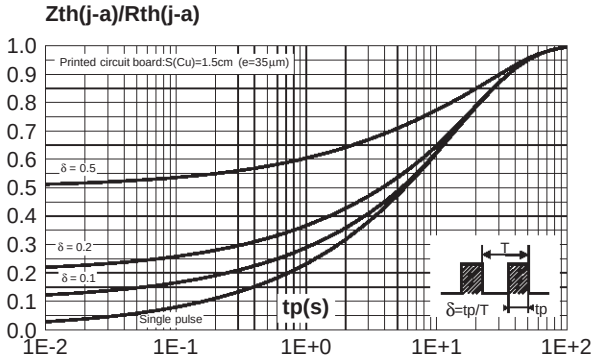


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

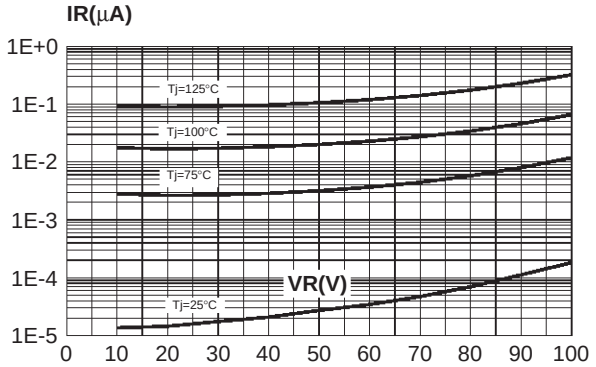


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

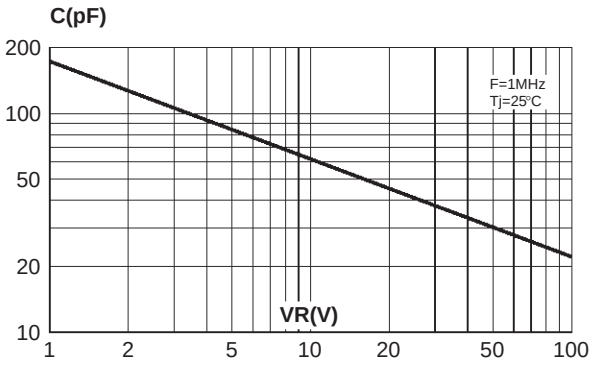


Fig. 9: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm) (SMB).

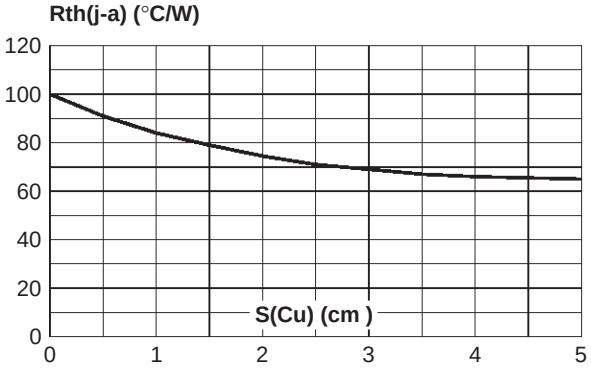


Fig. 10: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm) (SMA).

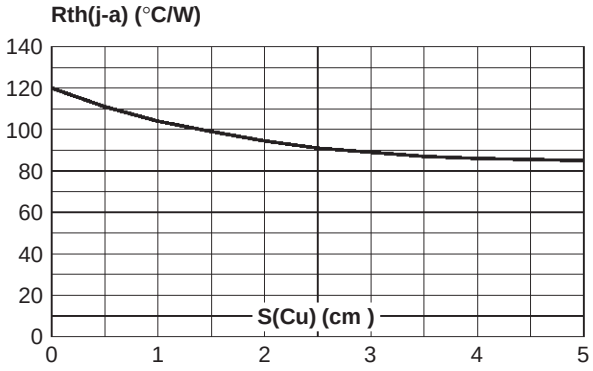
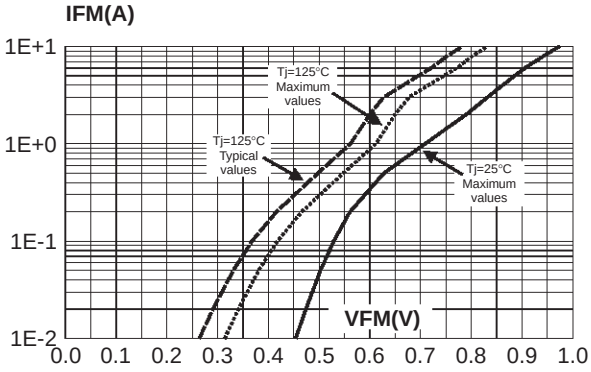
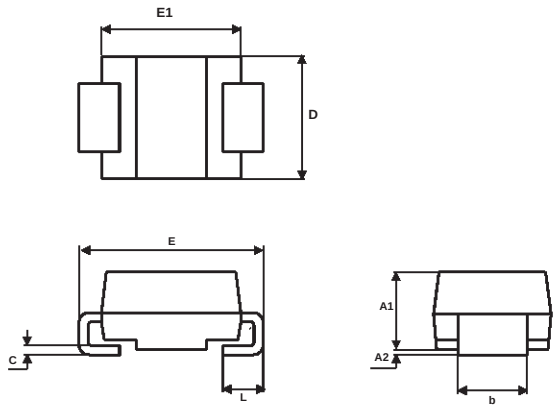


Fig. 11: Forward voltage drop versus forward current.



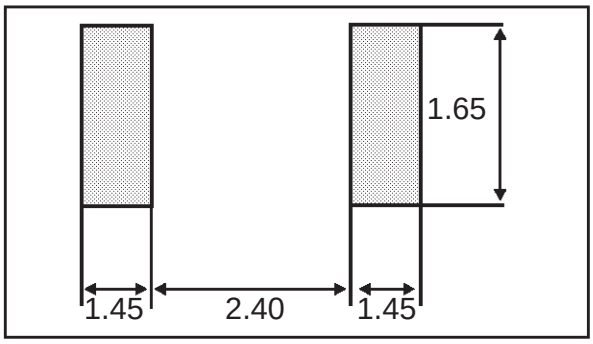
PACKAGE MECHANICAL DATA

SMA



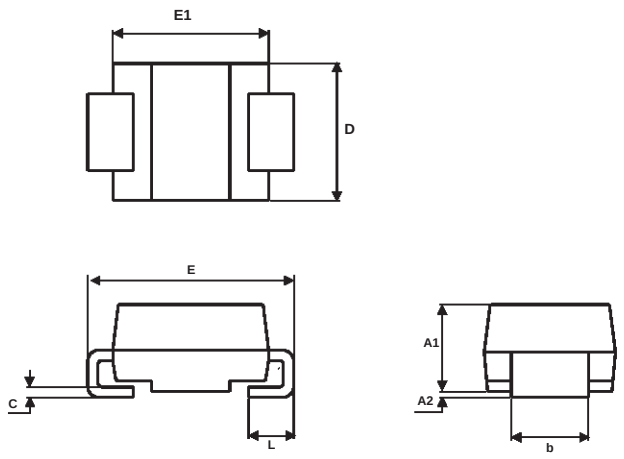
REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.70	0.075	0.106
A2	0.05	0.20	0.002	0.008
b	1.25	1.65	0.049	0.065
c	0.15	0.41	0.006	0.016
E	4.80	5.60	0.189	0.220
E1	3.95	4.60	0.156	0.181
D	2.25	2.95	0.089	0.116
L	0.75	1.60	0.030	0.063

FOOT PRINT (in millimeters)



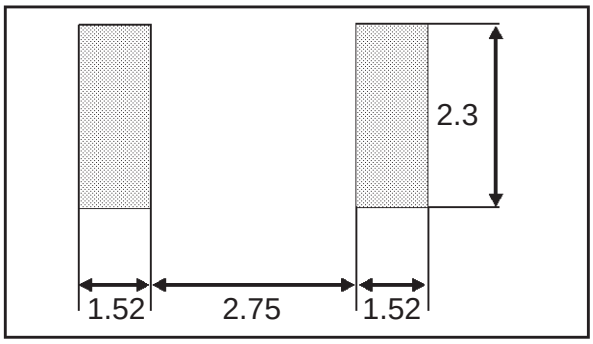
PACKAGE MECHANICAL DATA

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)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2H100A	S21	SMA	0.068g	5000	Tape & reel
STPS2H100U	G21	SMB	0.107g	2500	Tape & reel

- Band indicates cathode
- Epoxy meets UL94,V0