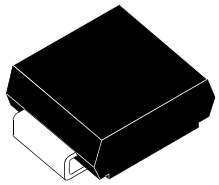
SGS-THOMSON MICROELECTRONICS

STPS1100U

POWER SCHOTTKY RECTIFIERS

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	**1.5 A**
V_{RRM}	**100 V**
V_F **(max)**	**0.70 V**



SMB
(Plastic)

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW CAPACITANCE
- HIGH REVERSE AVALANCHE SURGE CAPABILITY

DESCRIPTION

High voltage Schottky rectifier suited for SLIC protection during the card insertion operation.

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 = 90°C δ = 0.5 V_R = 60V	1.5	A
I_{FSM}	Surge Non Repetitive Forward Current	tp = 10 ms Sinusoidal	75	A
I_{RRM}	Peak Repetitive Reverse Current	tp = 2 µs F = 1KHz	1	A
I_{RSM}	Non Repetitive Peak Reverse Current	tp = 100 µs	1	A
T_{stg} Tj	Storage Temperature Range Max. Operating Junction Temperature		- 65 to + 150 115	°C
dV/dt	Critical Rate of Rise of Reverse Voltage		1000	V/µs

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
Rth (j-l)	Junction-leads	20	°C/W

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			30	µA
		Tj = 100°C			1	5	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 100 mA			0.43	V
		Tj = 25°C	I_F = 3 A			0.95	
		Tj = 100°C	I_F = 1.5 A		0.57	0.71	
		Tj = 100°C	I_F = 3 A		0.67	0.85	

Pulse test : * tp = 5 ms, duty cycle < 2 %

** tp = 380 µs, duty cycle < 2%

To evaluate the conduction losses use the following equation:

$P = 0.65 \times I_{F(AV)} + 0.067\ I_F{}^2{}_{(RMS)}$

Typical junction capacitance, V_R = 0V F = 1MHz Tj = 25°C C = 365pF

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

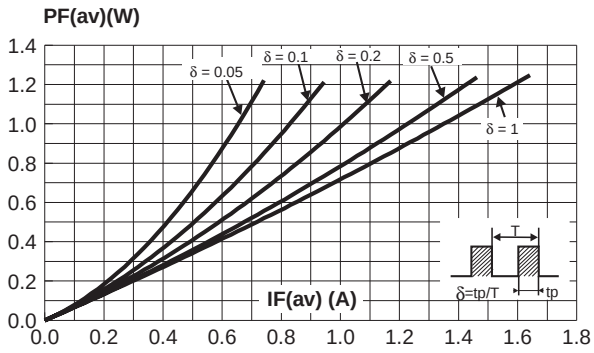


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

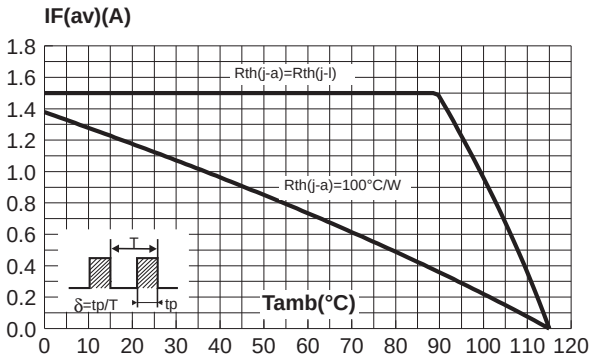


Fig. 3: Non repetitive surge peak forward current versus overload duration; device mounted on printed circuit board S(Cu)=1cm2 (maximum values).

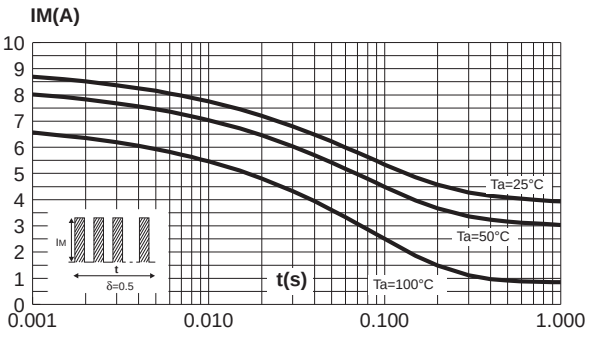


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

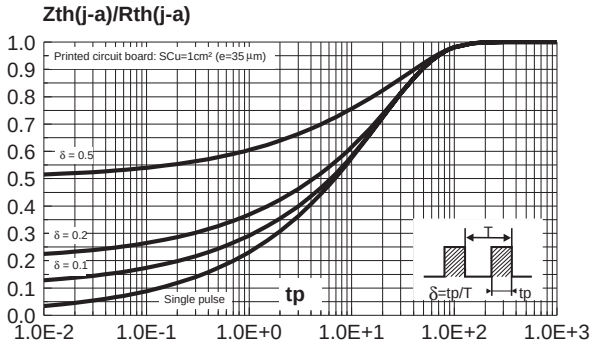


Fig. 5: Variation of thermal resistance junction to ambient versus copper surface under each lead.

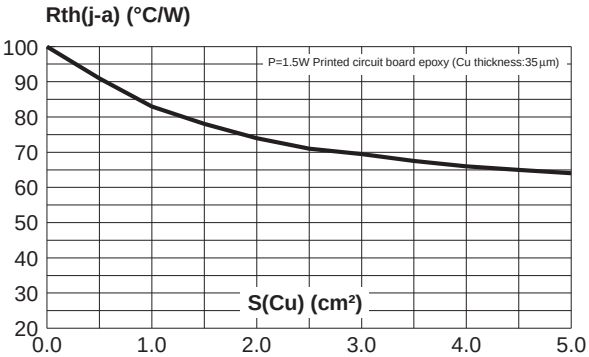


Fig. 6: Reverse leakage current versus reverse voltage applied (typical values).

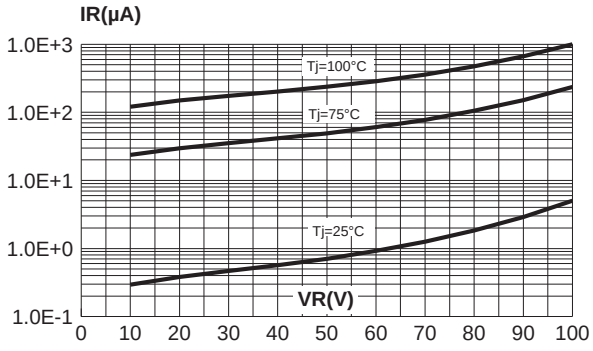


Fig. 7: Junction capacitance versus reverse voltage applied (typical values).

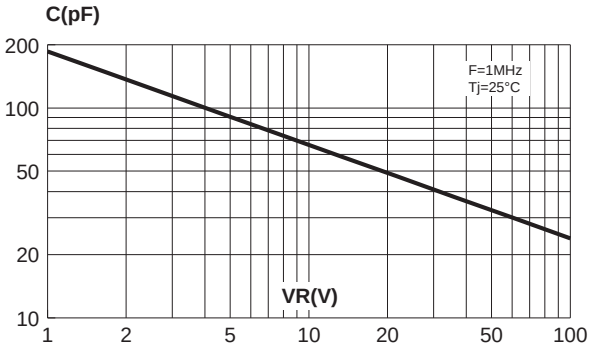
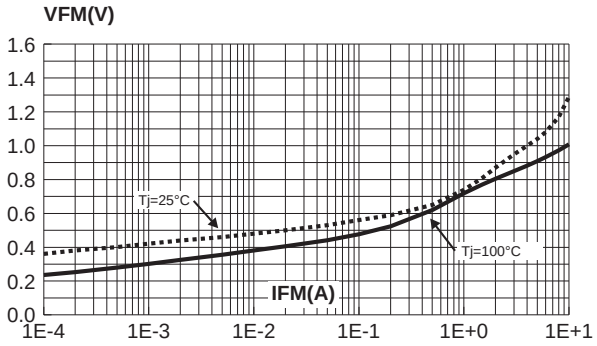
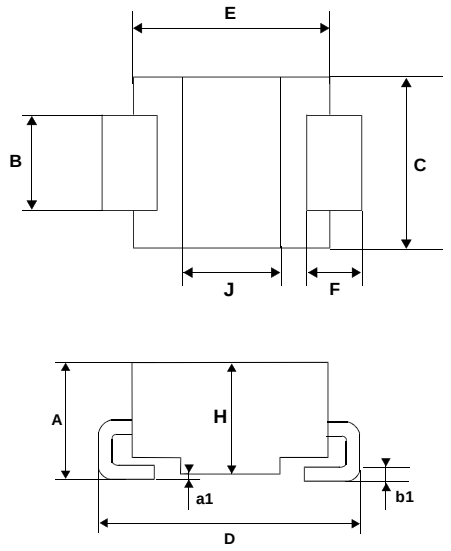


Fig. 8: Forward voltage drop versus forward current (maximum values).

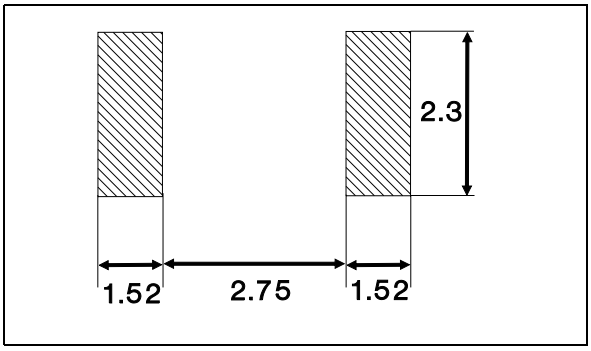


PACKAGE MECHANICAL DATA
SMB (plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.44	2.62	0.096	0.103
a1	0.10	0.20	0.004	0.008
B	1.96	2.11	0.077	0.083
b1	0.25	0.35	0.010	0.014
C	3.65	3.93	0.143	0.155
D	5.39	5.59	0.212	0.220
E	4.15	4.30	0.163	0.170
F	1.00	1.27	0.039	0.050
H	2.33	2.41	0.092	0.095
J	2.05	2.13	0.080	0.084

FOOTPRINT DIMENSIONS (in millimeters)
SMB (plastic)



Voltage (V)	100
Marking	E11