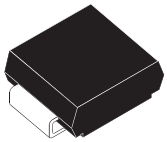
STPS2L25U

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	25 V
Tj (max)	150 °C
V_F (max)	0.375 V



SMB
JEDEC DO-214AA

FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION
- OPTIMIZED CONDUCTION/REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY IN THE APPLICATIONS

DESCRIPTION

Single Schottky rectifier suited to Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in SMB (JEDEC DO214-AA), this device is especially intended for use in parallel with MOSFETs in synchronous rectification.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		25	V
$I_{F(RMS)}$	RMS forward current		10	A
$I_{F(AV)}$	Average forward current	T_L = 125°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 square F=1kHz	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square	1	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum operating junction temperature *		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead	25	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			90	µA
		Tj = 125°C			15	30	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 2 A			0.45	V
		Tj = 125°C			0.325	0.375	
		Tj = 25°C	I_F = 4 A			0.53	
		Tj = 125°C			0.43	0.51	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.24 \times I_{F(AV)} + 0.068\ I_F{}^2{}_{(RMS)}$

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

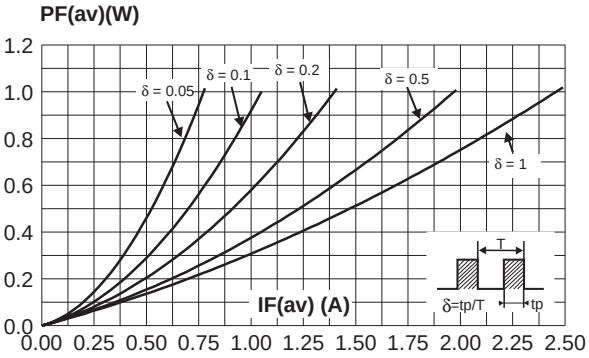


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

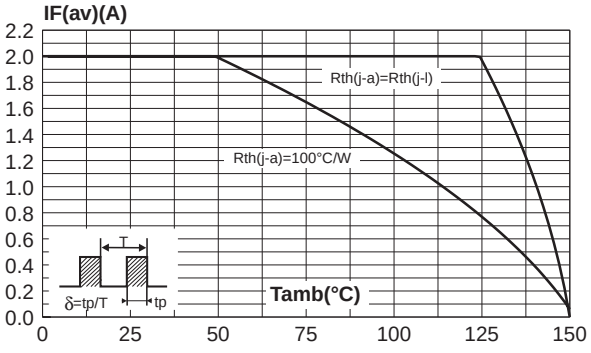


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

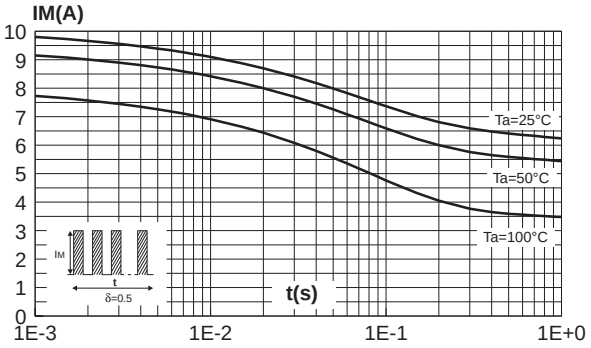


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

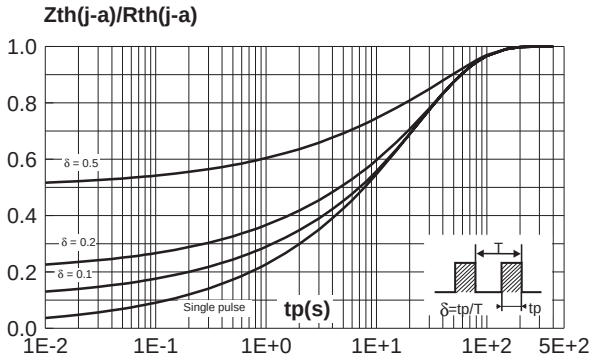


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

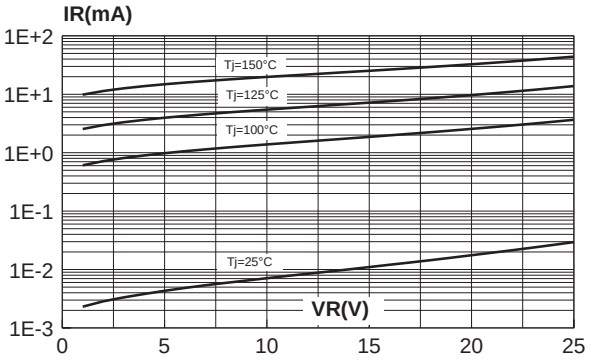


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

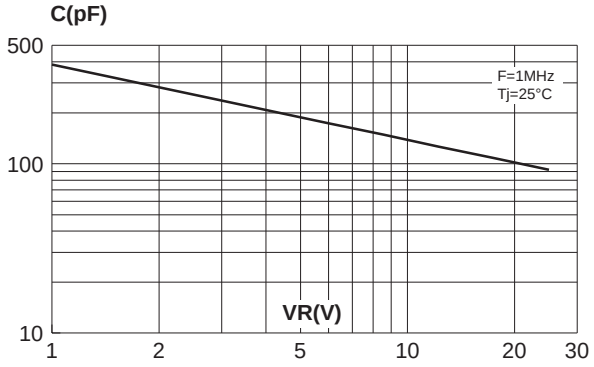


Fig. 7: Forward voltage drop versus forward current (maximum values).

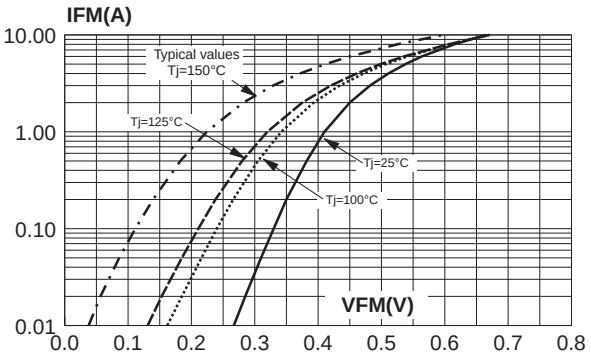
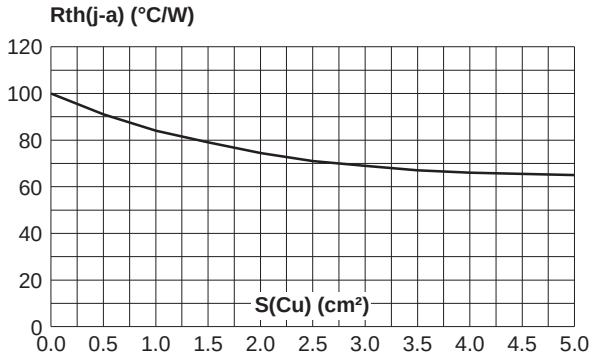
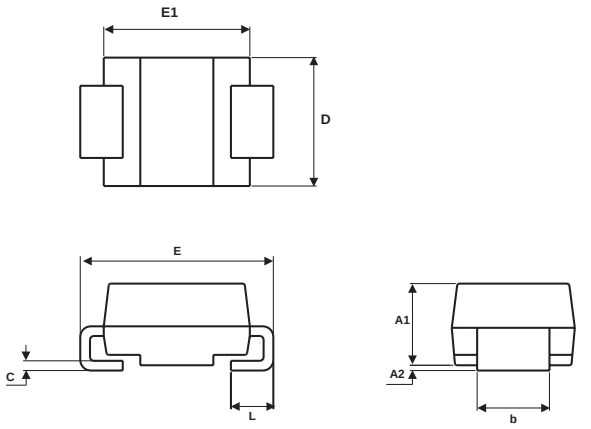


Fig. 8: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm).



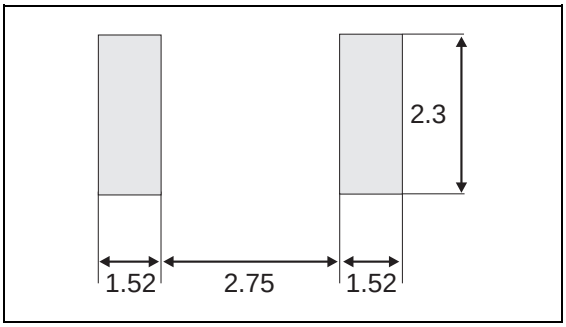
PACKAGE MECHANICAL DATA

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 DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2L25U	G23	SMB	0.107g	2500	Tape & reel

- Band indicates cathode
- Epoxy meets UL94,V0

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