

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

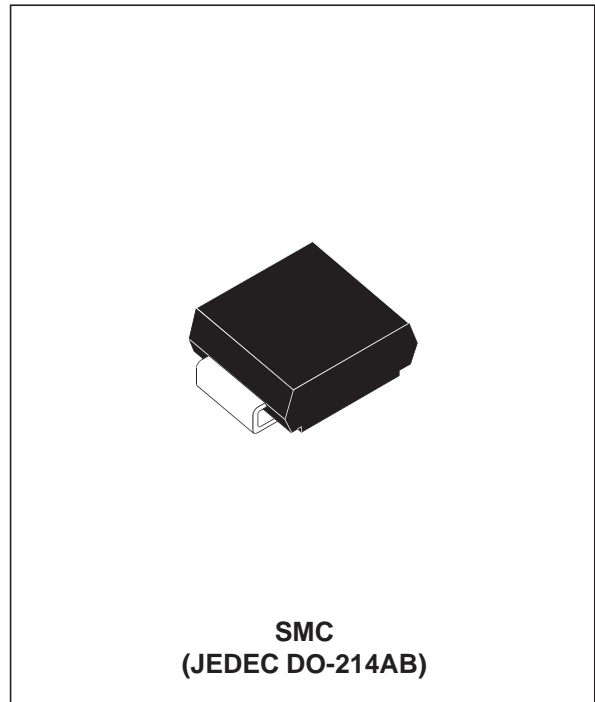
$I_{F(AV)}$	3 A
$V_{RRM}$	60 V
$T_j(\text{max})$	150°C
$V_F(\text{max})$	0.65 V

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Schottky rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in SMC, this device is intended for use in DC/DC chargers.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	60	V
$I_{F(RMS)}$	RMS forward current	10	A
$I_{F(AV)}$	Average forward current	$T_c = 100^\circ\text{C} \quad \delta = 0.5$	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal	A
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ square $F=1\text{kHz}$	A
$P_{ARM}$	Repetitive peak avalanche power	$t_p = 1 \mu\text{s} \quad T_j = 25^\circ\text{C}$	W
$T_{stg}$	Storage temperature range	- 65 to + 175	°C
$T_j$	Maximum operating junction temperature *	150	°C
$dV/dt$	Critical rate of rise of reverse voltage	10000	V/ $\mu\text{s}$

\* :  $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

# STPS3L60S

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads	20	$^{\circ}\text{C/W}$

## STATIC ELECTRICAL CHARACTERISTICS

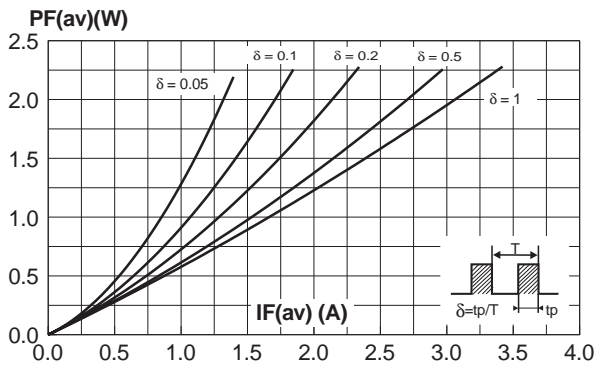
Symbol	Parameter	Tests conditions	Min.	Typ.	Max.	Unit	
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$		55	$\mu\text{A}$	
		$T_j = 125^{\circ}\text{C}$			10	15	$\text{mA}$
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{ A}$			0.7	$\text{V}$
		$T_j = 125^{\circ}\text{C}$	$I_F = 3\text{ A}$		0.56	0.65	
		$T_j = 25^{\circ}\text{C}$	$I_F = 6\text{ A}$			0.94	
		$T_j = 125^{\circ}\text{C}$	$I_F = 6\text{ A}$		0.67	0.76	

Pulse test : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

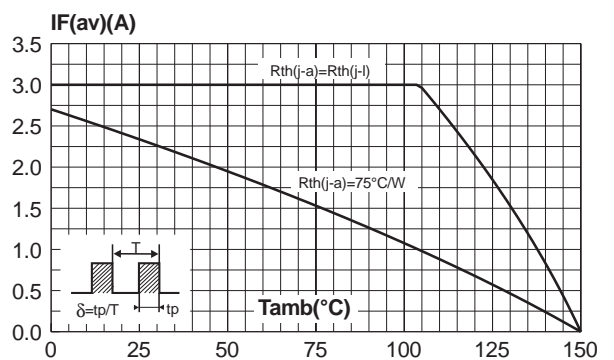
To evaluate the conduction losses use the following equation :

$$P = 0.54 \times I_{F(AV)} + 0.037 I_{F(RMS)}^2$$

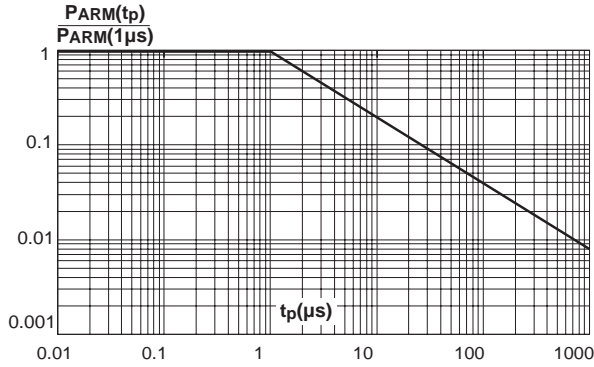
**Fig. 1:** Average forward power dissipation versus average forward current.



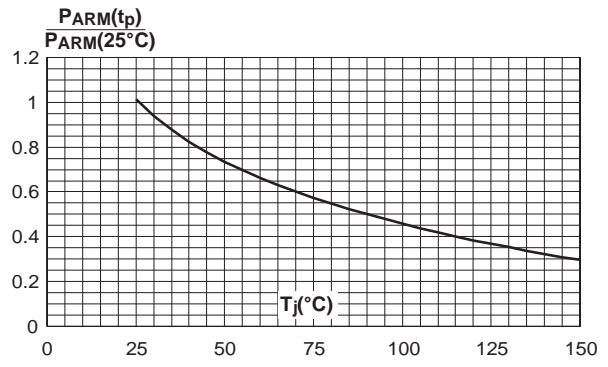
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).



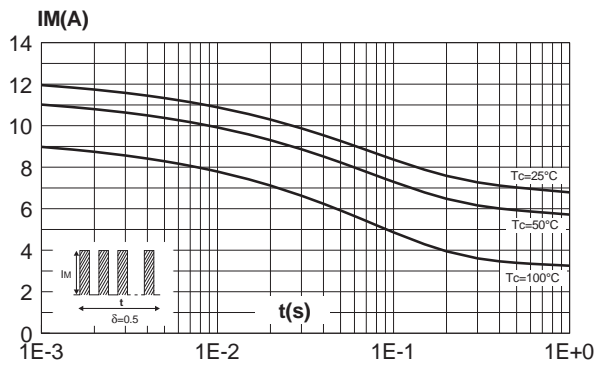
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



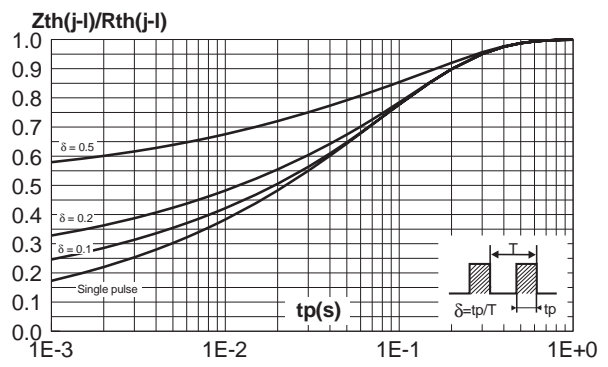
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



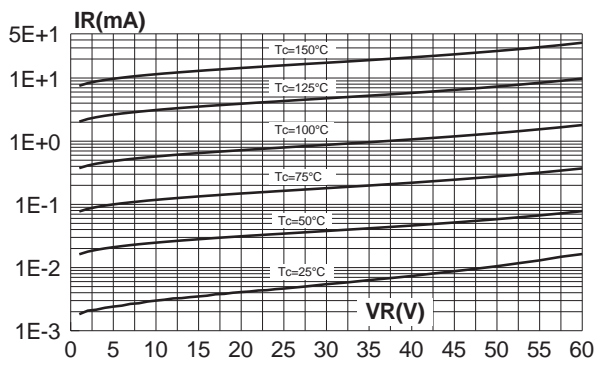
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values).



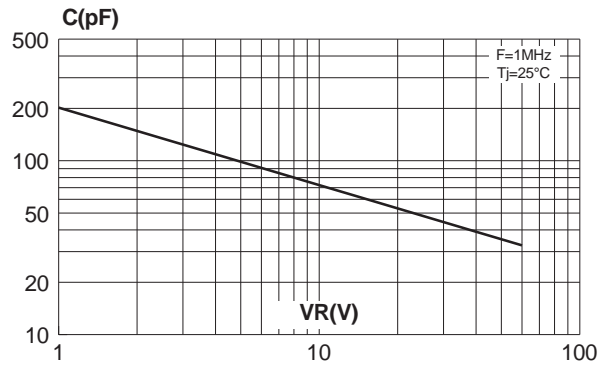
**Fig. 6:** Relative variation of thermal impedance junction to lead versus pulse duration.



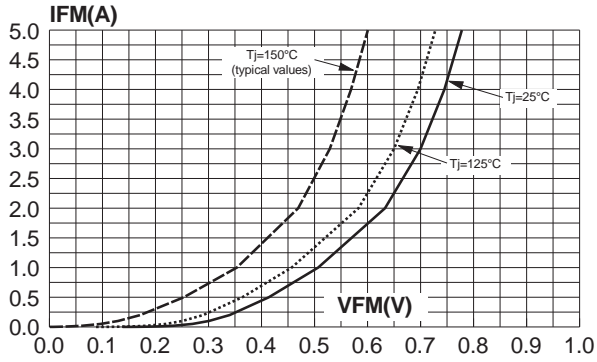
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



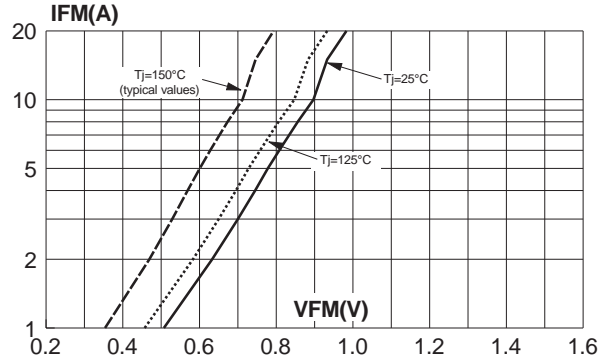
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



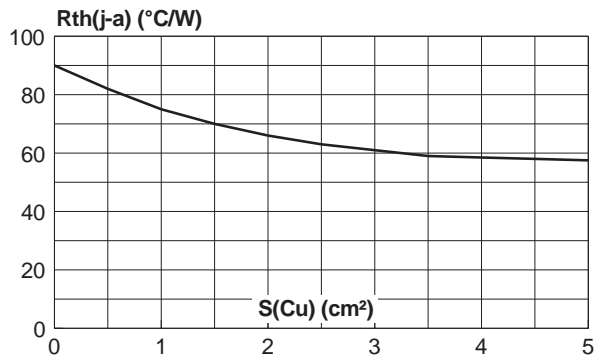
**Fig. 9-1:** Forward voltage drop versus forward current (low level, maximum values).



**Fig. 9-2:** Forward voltage drop versus forward current (high level, maximum values).



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

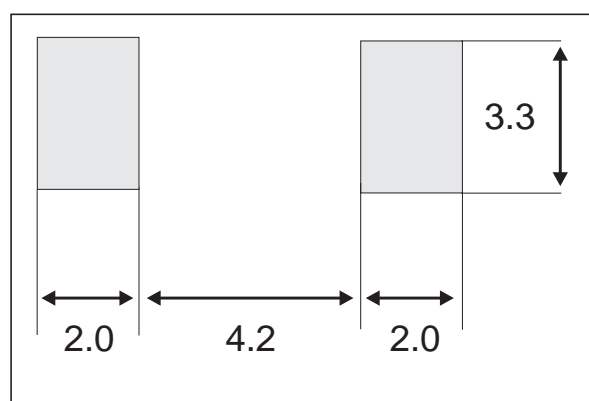


## PACKAGE MECHANICAL DATA

SMC

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	2.90	3.2	0.114	0.126
c	0.15	0.41	0.006	0.016
E	7.75	8.15	0.305	0.321
E1	6.60	7.15	0.260	0.281
E2	4.40	4.70	0.173	0.185
D	5.55	6.25	0.218	0.246
L	0.75	1.60	0.030	0.063

## FOOT PRINT ( in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS3L60S	S36	SMC	0.24g	2500	Tape and reel

- EPOXY MEETS UL94,V0

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