



# STPS3L60S

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

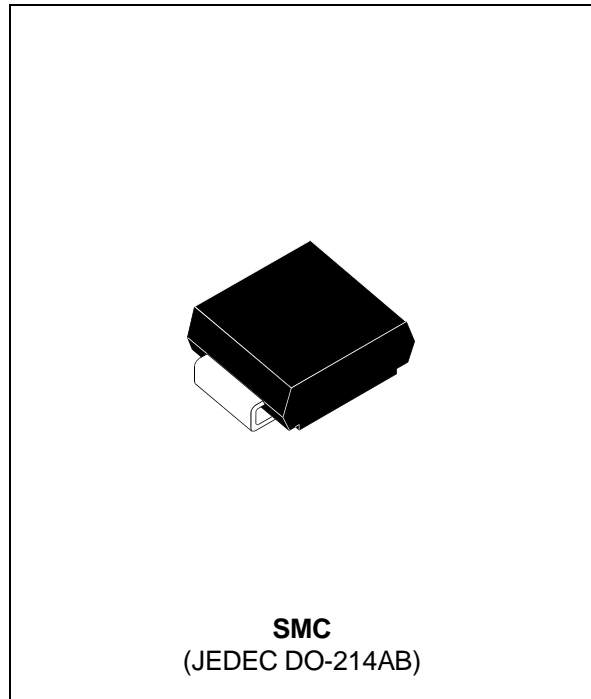
<b>I<sub>F(AV)</sub></b>	<b>3 A</b>
<b>V<sub>RRM</sub></b>	<b>60 V</b>
<b>T<sub>j</sub> (max)</b>	<b>150°C</b>
<b>V<sub>F</sub> (max)</b>	<b>0.65 V</b>

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE

### 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 <sub>RRM</sub>	Repetitive peak reverse voltage	60	V
I <sub>F(RMS)</sub>	RMS forward current	10	A
I <sub>F(AV)</sub>	Average forward current	T <sub>c</sub> = 100°C δ = 0.5 3	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms Sinusoidal 75	A
I <sub>RSM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs square F = 1kHz 1	A
T <sub>stg</sub>	Storage temperature range	- 65 to + 175	°C
T <sub>j</sub>	Maximum operating junction temperature *	150	°C
dV/dt	Critical rate of rise of reverse voltage	10000	V/μs

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

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## THERMAL RESISTANCES

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

## STATIC ELECTRICAL CHARACTERISTICS

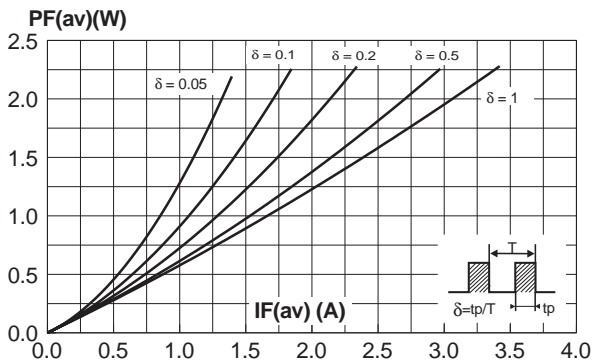
Symbol	Parameter	Tests conditions	Min.	Typ.	Max.	Unit	
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$		55	$\mu\text{A}$	
		$T_j = 125^{\circ}\text{C}$			10	15	$\text{mA}$
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{ A}$		0.7	$\text{V}$	
		$T_j = 125^{\circ}\text{C}$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

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

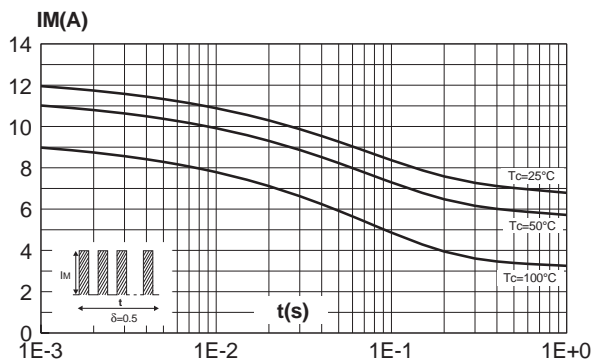
To evaluate the conduction losses use the following equation :

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

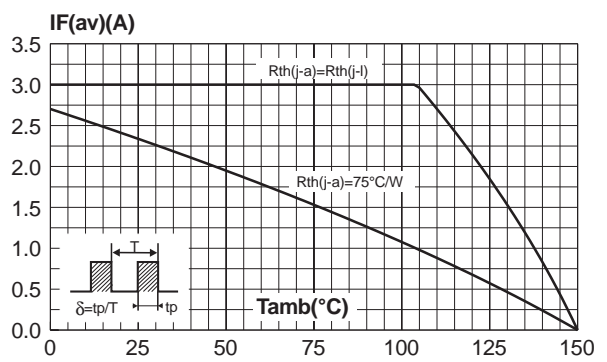
**Fig. 1:** Average forward power dissipation versus average forward current.



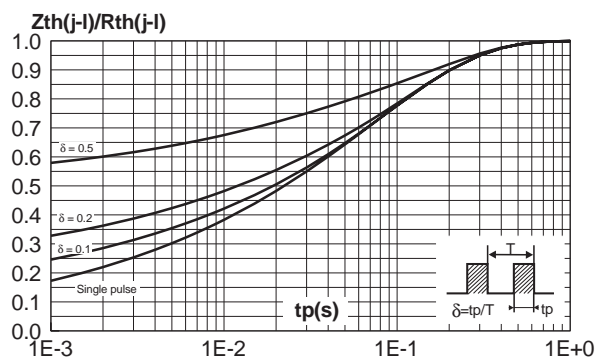
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).



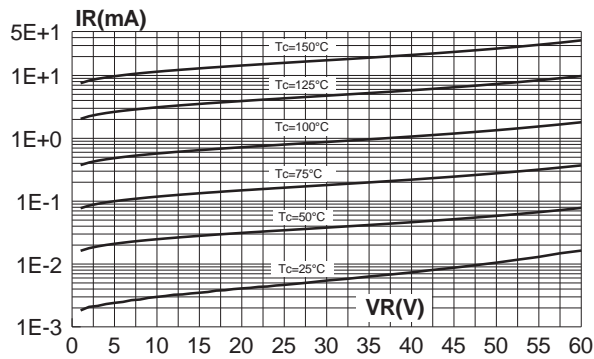
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).



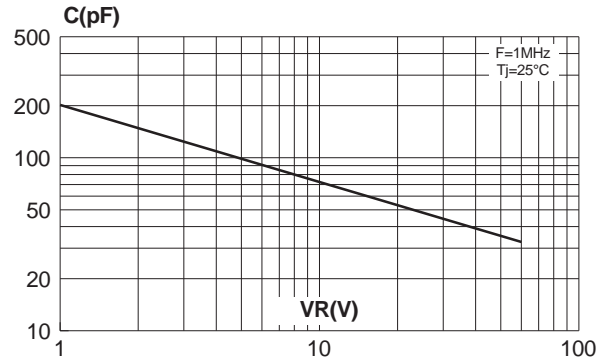
**Fig. 4:** Relative variation of thermal impedance junction to lead versus pulse duration.



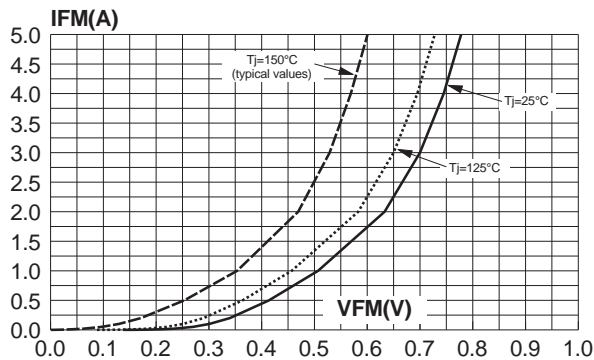
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



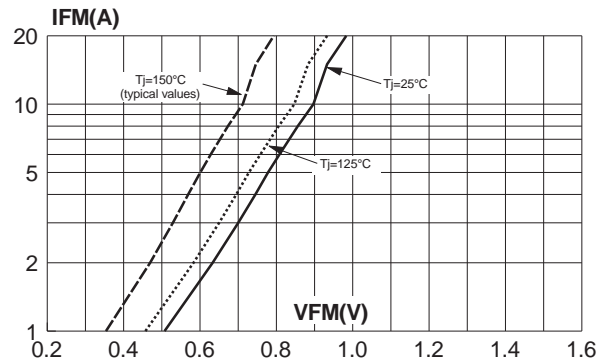
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).



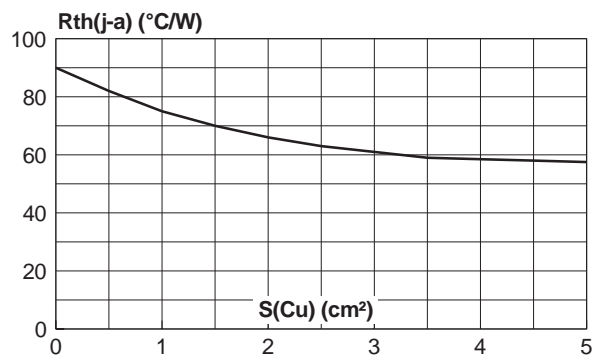
**Fig. 7-1:** Forward voltage drop versus forward current (low level, maximum values).



**Fig. 7-2:** Forward voltage drop versus forward current (high level, maximum values).



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

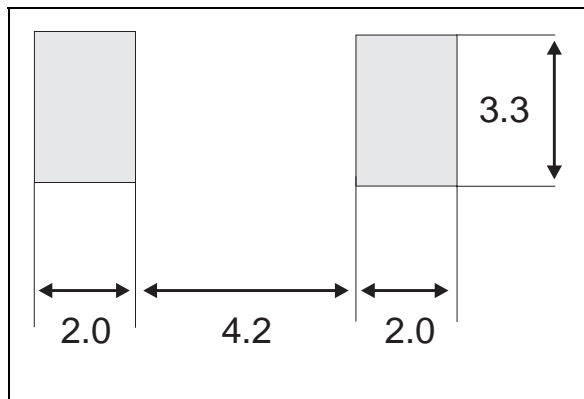


## STPS3L60S

### 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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