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# STPS3L60S

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

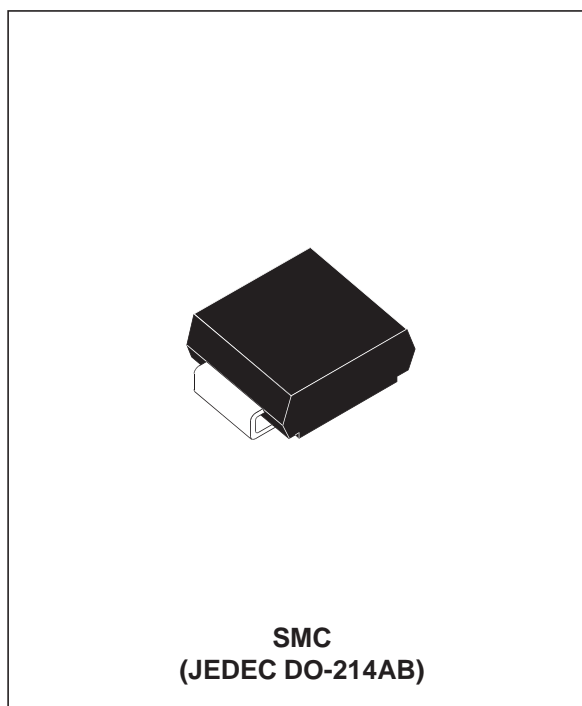
<b>I<sub>F(AV)</sub></b>	<b>3 A</b>
<b>V<sub>RRM</sub></b>	<b>60 V</b>
<b>T<sub>j (max)</sub></b>	<b>150°C</b>
<b>V<sub>F (max)</sub></b>	<b>0.65 V</b>

### 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 <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>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs square F=1kHz	1	A
P <sub>ARM</sub>	Repetitive peak avalanche power	t <sub>p</sub> = 1μs T <sub>j</sub> = 25°C	1600	W
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

## STPS3L60S

### THERMAL RESISTANCES

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

### STATIC ELECTRICAL CHARACTERISTICS

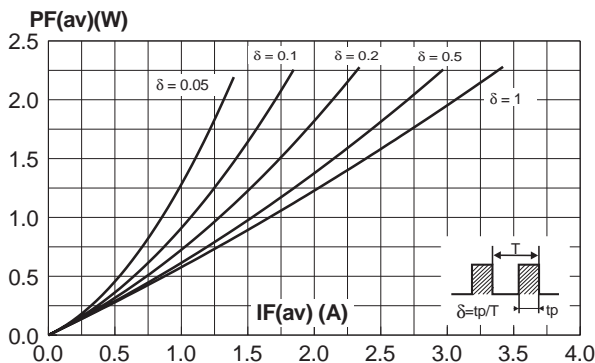
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			55	$\mu\text{A}$
		$T_j = 125^{\circ}\text{C}$			10	15	$\text{mA}$
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{ A}$			0.7	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 3\text{ A}$		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 : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

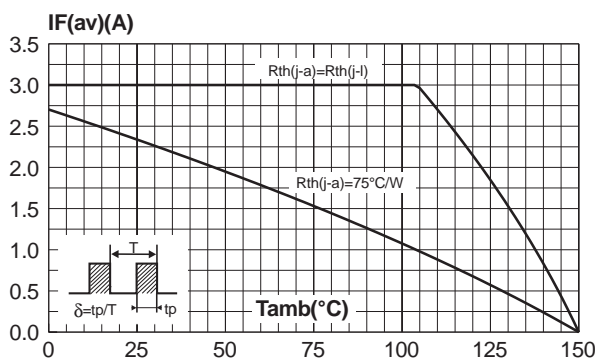
To evaluate the conduction losses use the following equation :

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

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

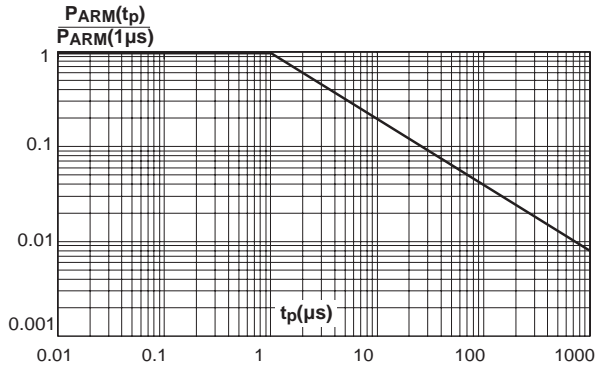


**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).

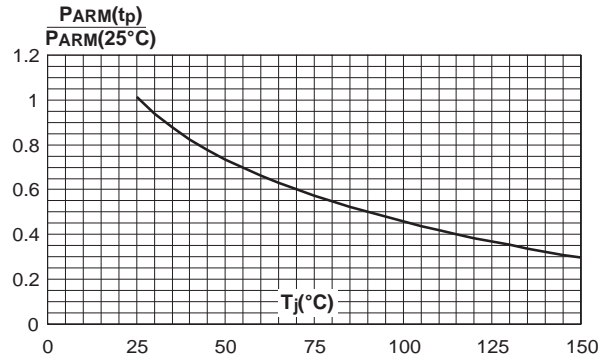


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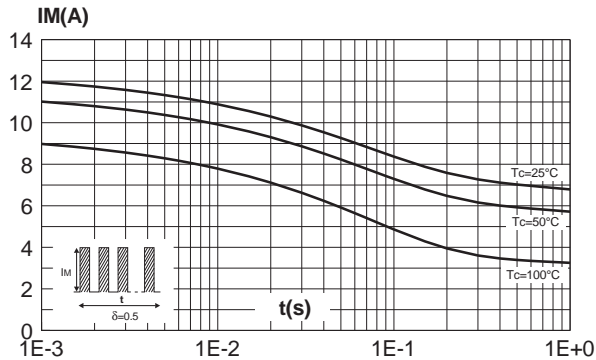
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



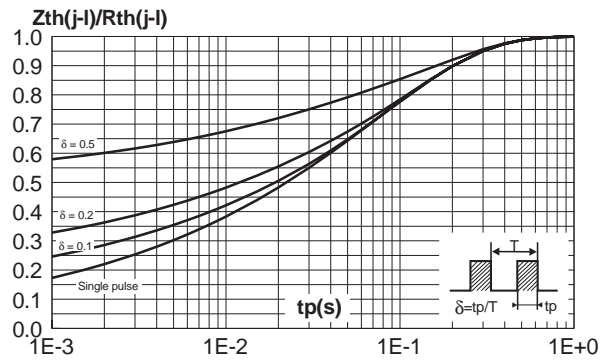
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



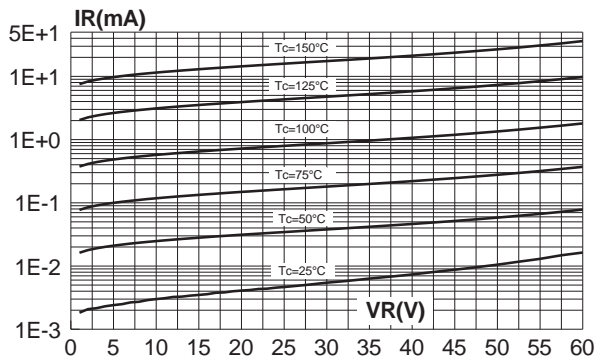
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values).



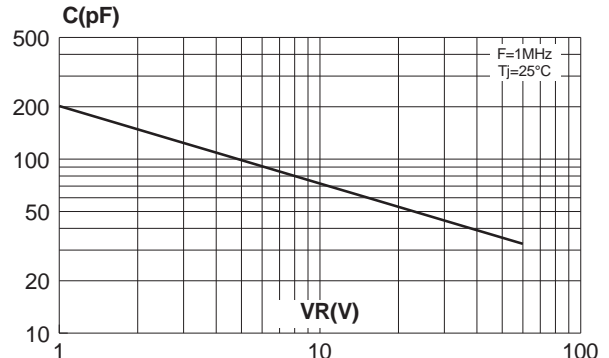
**Fig. 6:** Relative variation of thermal impedance junction to lead versus pulse duration.



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

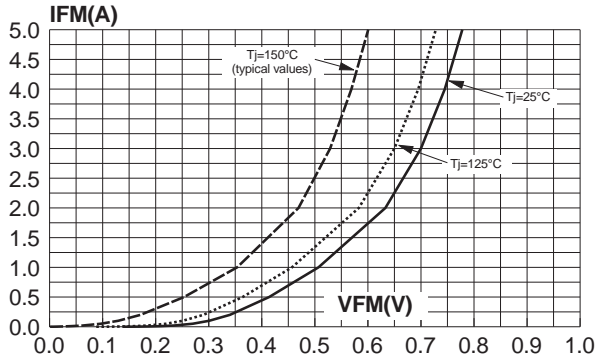


**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).

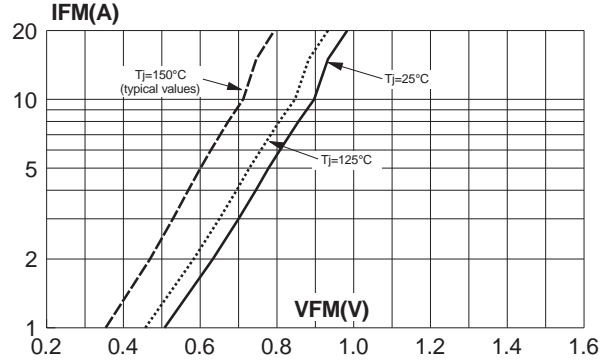


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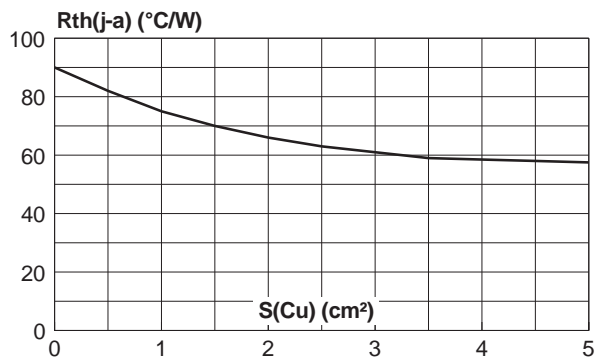
**Fig. 9-1:** Forward voltage drop versus forward current (low level, maximum values).



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



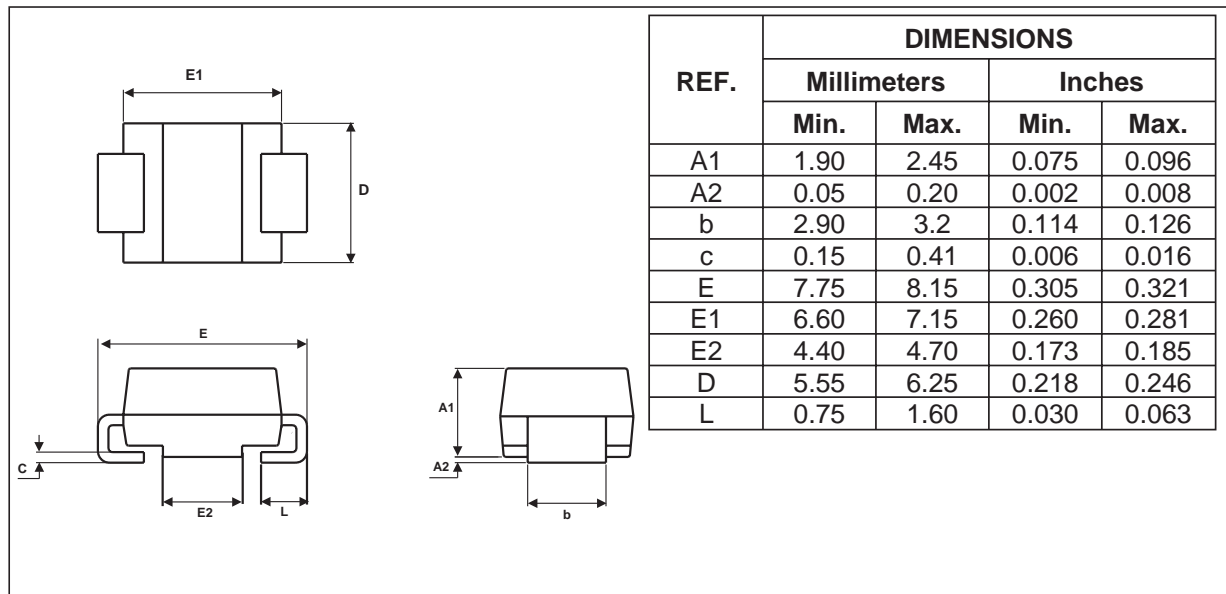
**Fig. 10:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm)



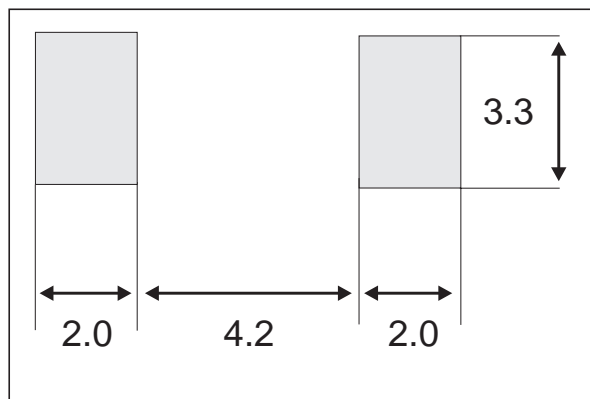
**STPS3L60S**

**PACKAGE MECHANICAL DATA**

SMC



**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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