

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	3 A
$V_{RRM}$	60 V
$T_j(max)$	150°C
$V_F(max)$	0.61 V

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE

### DESCRIPTION

Axial Power Schottky rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in DO-201AD, this device is intended for use in low voltage, high frequency inverters and small battery chargers.

For applications where there are space constraints, e.g Telecom battery charger, this product is also offered in DO-15 (STPS3L60Q).



### 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	$T_L = 105^\circ\text{C} \quad \delta = 0.5$	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms} \quad \text{Sinusoidal}$	A
$T_{stg}$	Storage temperature range	- 65 to + 150	°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

## STPS3L60

### THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-a)}$	Junction to ambient	Lead length = 10 mm	80	°C/W
$R_{th(j-l)}$	Junction to leads	Lead length = 10 mm	20	°C/W

### STATIC ELECTRICAL CHARACTERISTICS

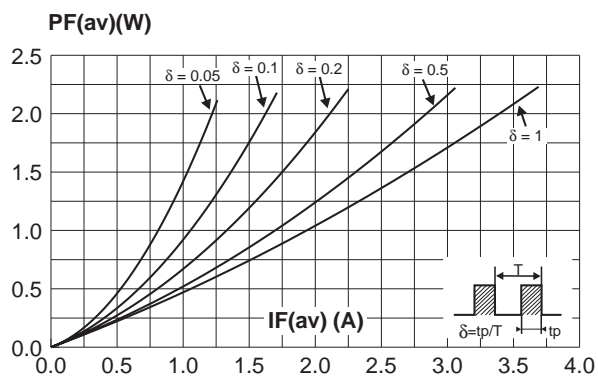
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			150	$\mu\text{A}$
		$T_j = 100^\circ\text{C}$				15	mA
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 3\text{ A}$			0.62	V
		$T_j = 100^\circ\text{C}$	$I_F = 3\text{ A}$			0.61	

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

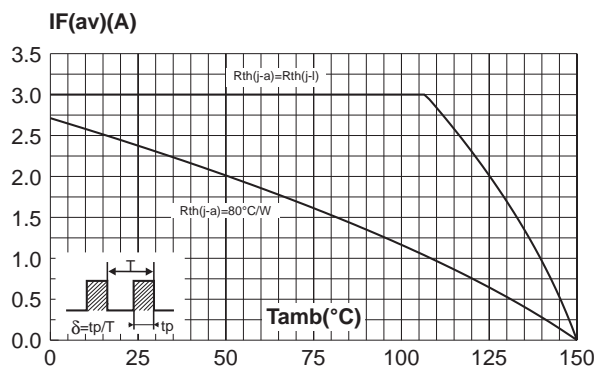
To evaluate the maximum conduction losses use the following equation:

$$P = 0.44 \times I_{F(AV)} + 0.05 \times I_F^2(RMS)$$

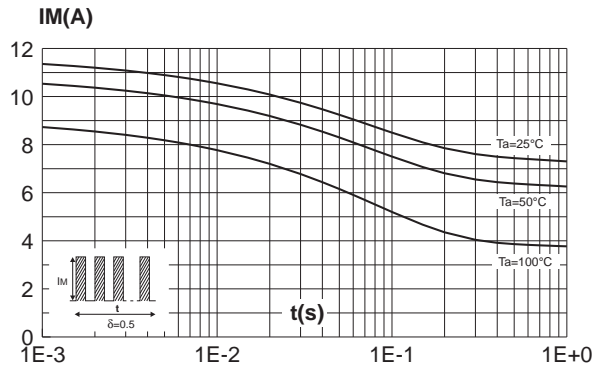
**Fig. 1:** Average forward power dissipation versus average forward current.



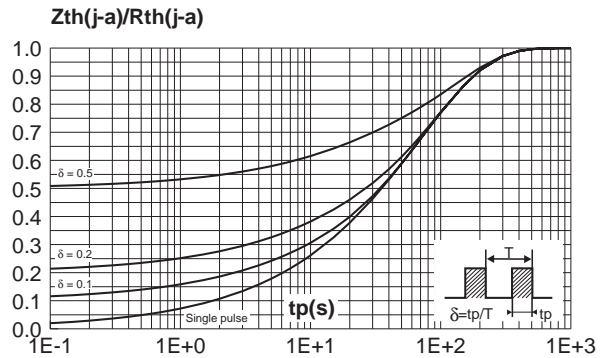
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).



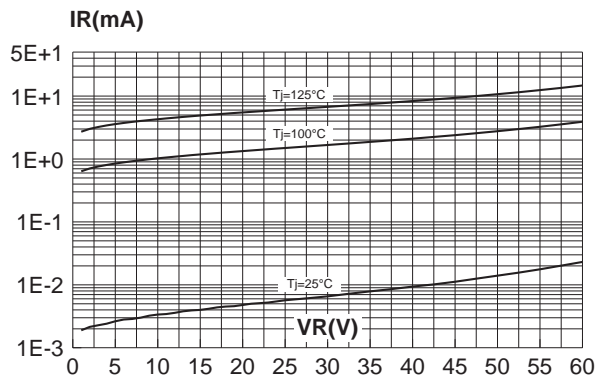
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).



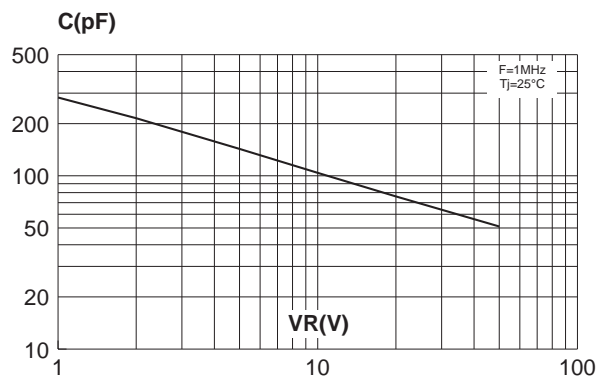
**Fig. 4:** Relative variation of thermal impedance junction to ambient versus pulse duration.



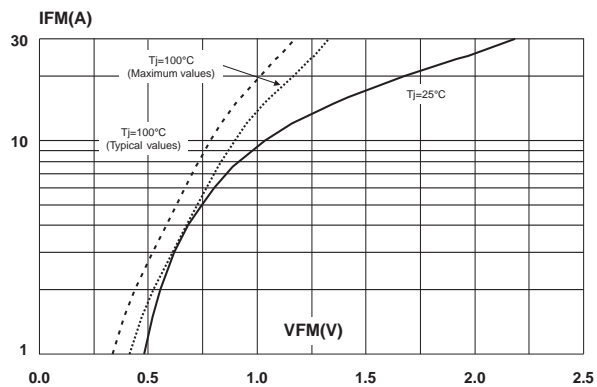
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



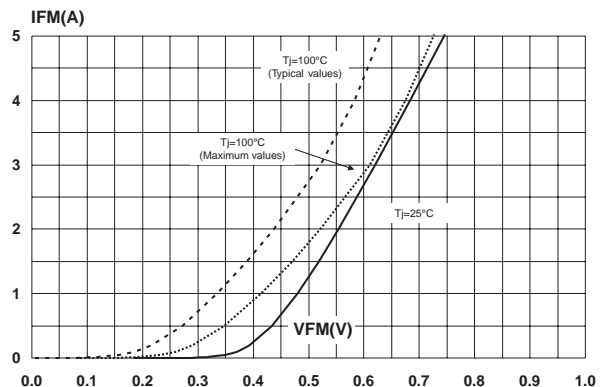
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).



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

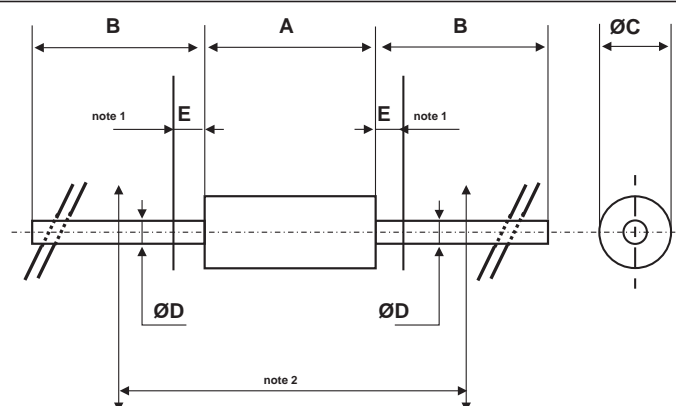


**Fig. 7-2:** Forward voltage drop versus forward current (low level, maximum values).



**PACKAGE MECHANICAL DATA**

DO-201AD plastic



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter $\varnothing D$ is not controlled over zone E 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59" (15 mm)
B	25.40		1.000		
$\varnothing C$		5.30		0.209	
$\varnothing D$		1.30		0.051	
E		1.25		0.049	

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS3L60	STPS3L60	DO-201AD	1.12g	600	Ammopack
STPS3L60RL	STPS3L60	DO-201AD	1.12g	1900	Tape and reel

- White band indicates cathode
- Epoxy meets UL94,V0

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied.

STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 2001 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia  
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>