

Main product characteristics

$I_{F(AV)}$	5 A
V_{RRM}	60 V
$T_j(max)$	150° C
$V_F(max)$	0.52 V

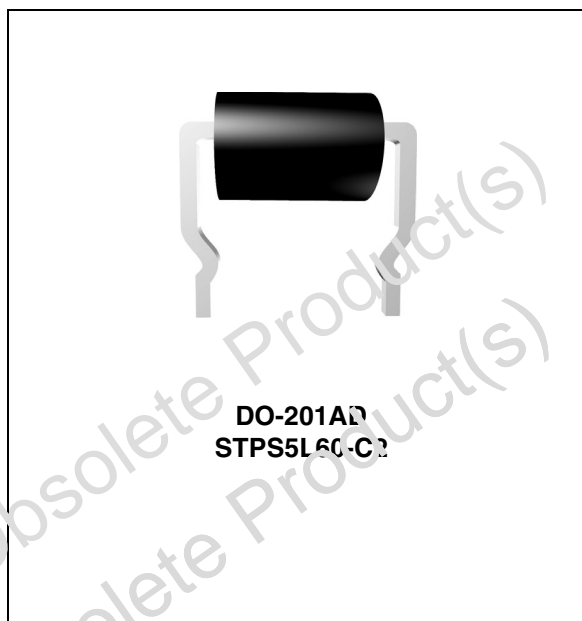
Features and benefits

- Negligible switching losses
- Low forward voltage drop for higher efficiency
- Low thermal resistance
- Avalanche capability specified

Description

Axial power Schottky rectifier suited for switch mode power supplies and high frequency inverters.

Packaged in DO-201AD, this device is intended for use in low voltage output for small battery chargers and consumer SMPS such as DVD and set-top box.



Order code

Order code	Marking
STPS5L60-C2	STPS5L60

Table 1. Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	60	V
$I_{F(RMS)}$	RMS forward current	15	A
$I_{F(AV)}$	Average forward current	$T_j = 100^\circ \text{C} \delta = 0.5$	A
I_{FSM}	Surge non repetitive forward current	Half wave, single phase $t_p = 10 \text{ ms}$	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu\text{s} T_j = 25^\circ \text{C}$	W
T_{STG}	Storage temperature range	-65 to + 150	° C
T_j	Maximum operating junction temperature ⁽¹⁾	150	° C
dV/dt	Critical rate of rise of reverse voltage (rated V_R , $T_j = 25^\circ \text{C}$)	10000	V/ μs

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

1 Characteristics

Table 2. Thermal parameters

Symbol	Parameter		Value	Unit
$R_{th(j-a)}$	Junction to ambient		75	° C/W
$R_{th(j-l)}$	Junction to leads	Lead length = 10 mm	15	° C/W

Table 3. Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25^\circ C$	$V_R = V_{RRM}$			0.22	mA
		$T_j = 100^\circ C$			10	25	
		$T_j = 125^\circ C$			40	100	
$V_F^{(1)}$	Forward voltage drop	$T_j = 25^\circ C$	$I_F = 5 A$		0.17	0.52	V
		$T_j = 100^\circ C$		0.43	0.49		
		$T_j = 125^\circ C$		0.42	0.48		

1. Pulse test: $t_p = 380 \mu s$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation:
 $P = 0.39 \times I_{F(AV)} + 0.028 \times I_F^2 (RMS)$

Figure 1. Conduction losses versus average current

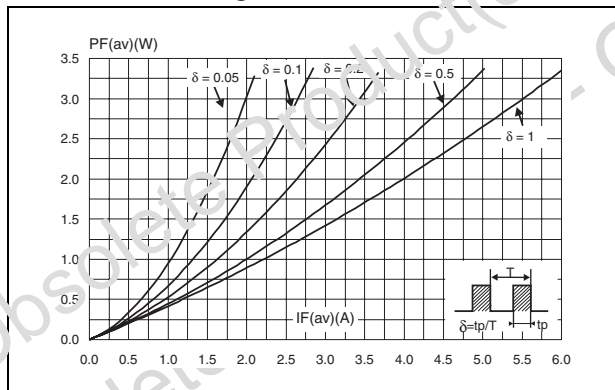


Figure 2. Average forward current versus ambient temperature ($\delta = 0.5$)

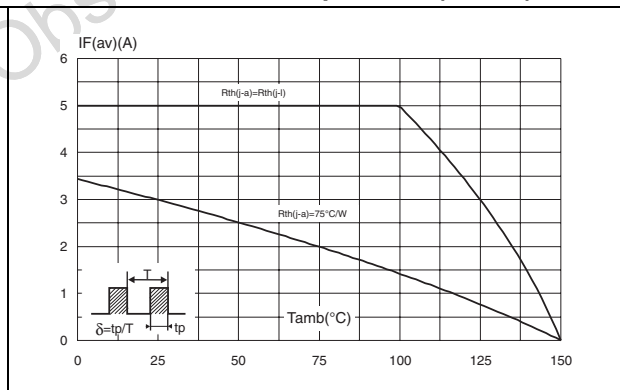


Figure 3. Normalized avalanche power derating versus pulse duration

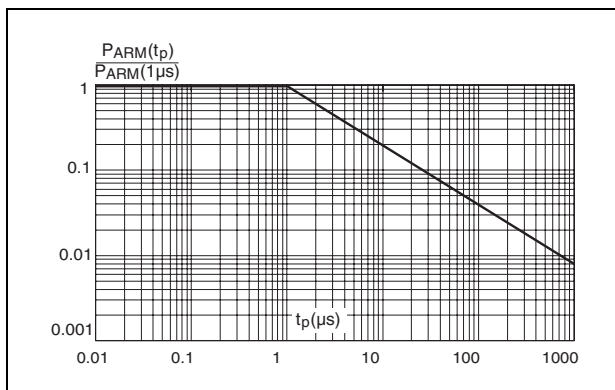


Figure 4. Normalized avalanche power derating versus junction temperature

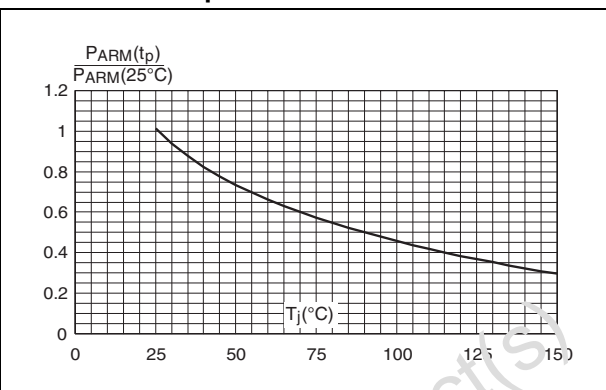


Figure 5. Non repetitive surge peak forward current versus overload duration (maximum values)

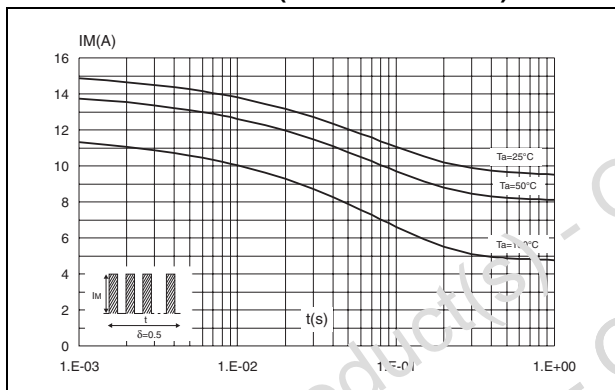


Figure 6. Relative variation of thermal impedance junction to ambient versus pulse duration

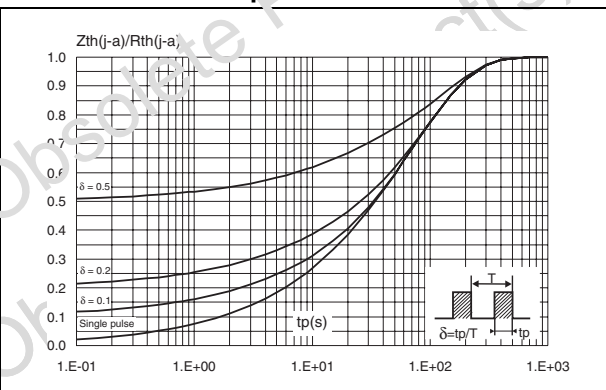


Figure 7. Reverse leakage current versus reverse voltage applied (typical values)

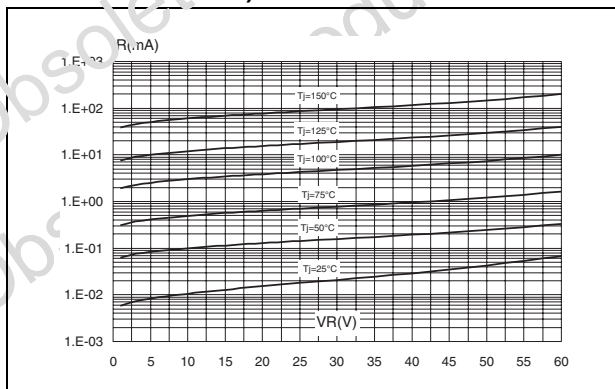


Figure 8. Junction capacitance versus reverse voltage applied (typical values)

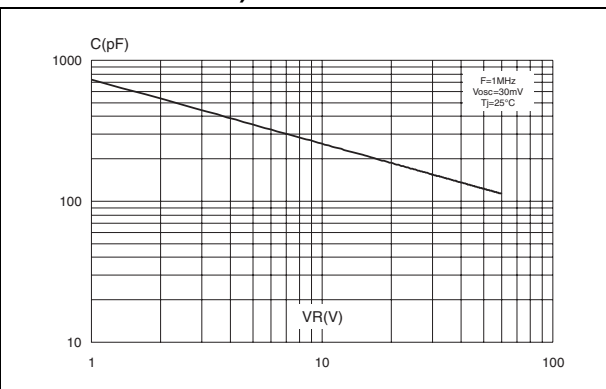


Figure 9. Forward voltage drop versus forward current (low level)

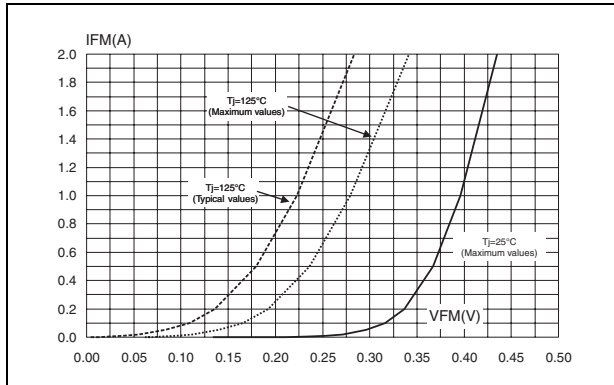


Figure 10. Forward voltage drop versus forward current (high level)

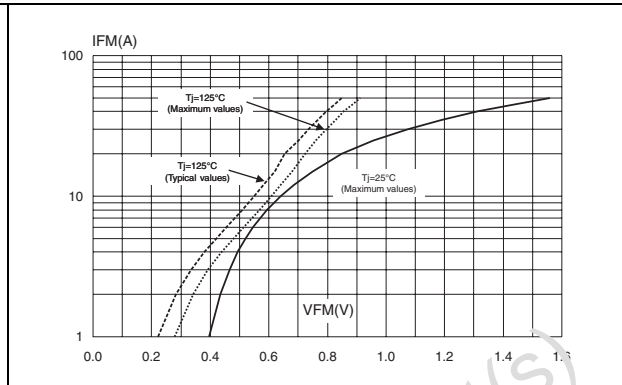


Figure 11. Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed board FR4, Cu = 35 μm)

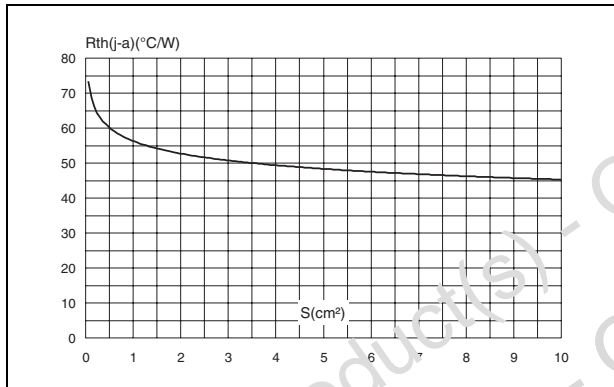
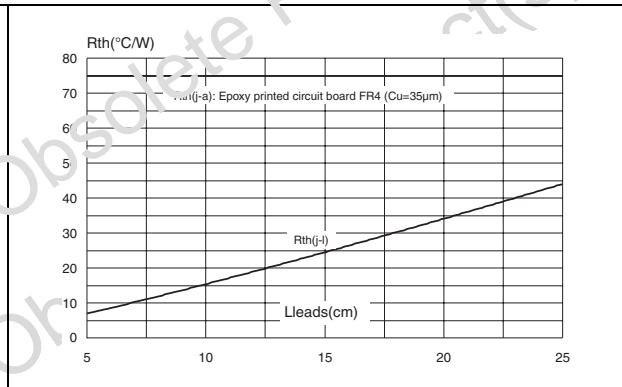


Figure 12. Thermal resistances versus leads length



2 Package information

- White band indicates cathode
- Epoxy meets UL94, V0

Table 4. DO-201AD dimensions

Ref.	Dimensions					
	Milimeter			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			9.5			0.374
B	13.75		17.75	0.541		0.699
C			5.3			0.208
D			1.3			0.051
E		3.53			0.139	
F	2.4	3.15	3.9	0.094	0.124	0.153
G		1.6			0.063	
H	14.9		15.6	0.587		0.614
I	0.5	0.6	0.7	0.019	0.024	0.027
J		18.78			0.739	
K	3.8		4.8	0.150		0.189

3 Ordering information

Part number	Marking	Package	Weight	Base qty	Delivery mode
STPS5L60-C2	STPS5L60	DO-201AD	1.12 g	600	Ammopack

4 Revision history

Date	Revision	Changes
22-Mar-2006	1	Initial release.

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