



STPS5L60

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	5 A
V_{RRM}	60 V
T_j (max)	150°C
V_F (max)	0.53 V

FEATURES AND BENEFITS

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

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 & consumer SMPS such as DVD and Set-Top-Box..



**DO-201AD
STPS5L60**

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 _I = 100°C δ = 0.5	5	A
I _{FSM}	Surge non repetitive forward current	Half wave, single phase t _p = 10 ms	150	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 (rated V _R , T _j = 25°C)		10000	V/μs

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

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

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			0.22	mA
		$T_j = 100^\circ\text{C}$			10	25	
		$T_j = 125^\circ\text{C}$			40	100	
V_F^*	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 5\text{ A}$		0.47	0.52	V
		$T_j = 100^\circ\text{C}$			0.43	0.49	
		$T_j = 125^\circ\text{C}$			0.42	0.48	

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

To evaluate the maximum conduction losses use the following equation:

$$P = 0.39 \times I_{F(AV)} + 0.028 \times I_{F(RMS)}^2$$

Fig. 1: Conduction losses versus average current.

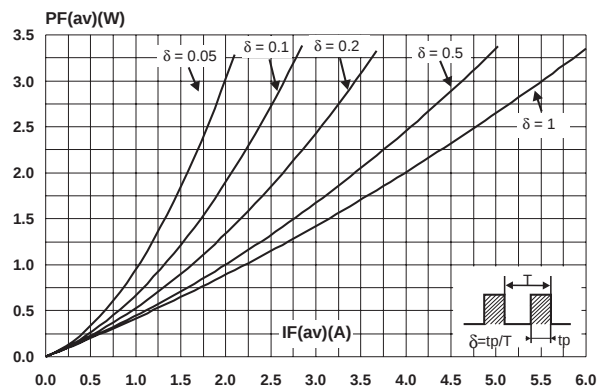


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

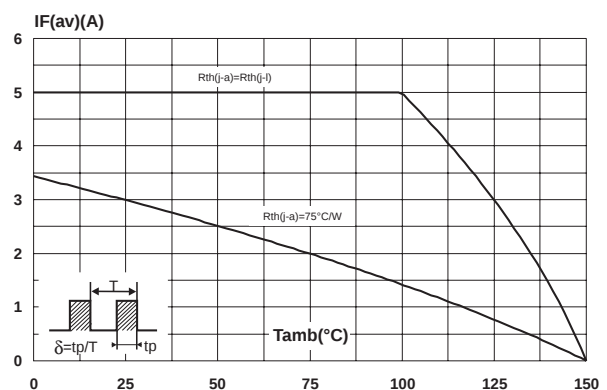


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

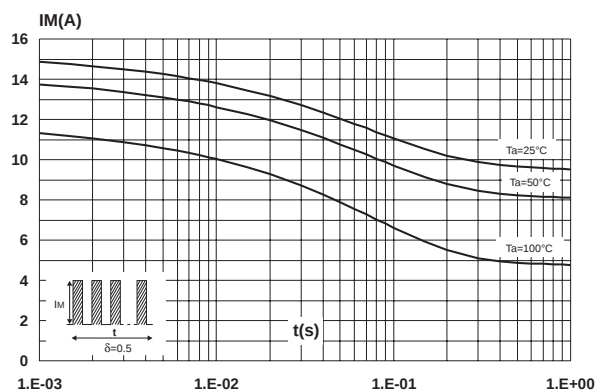


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

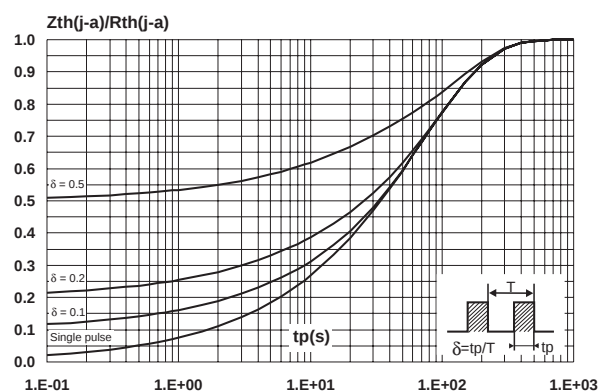


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

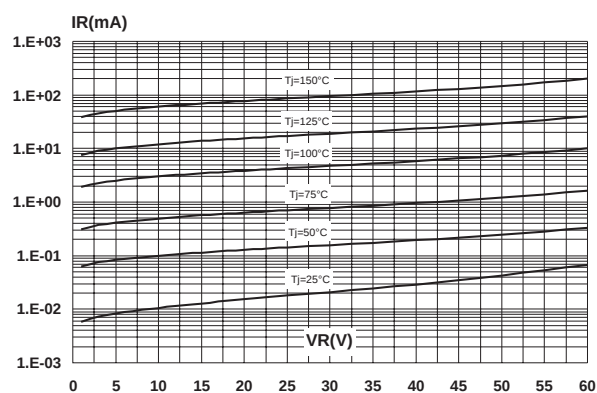


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

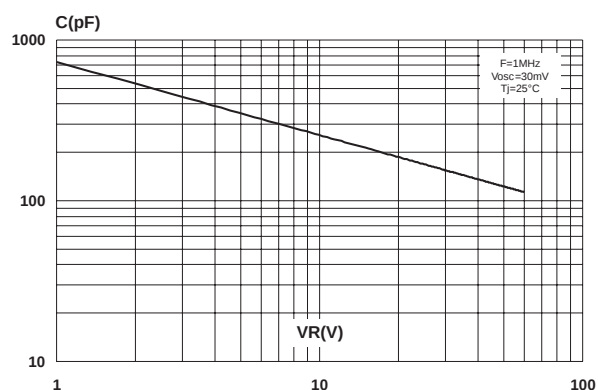


Fig. 7-1: Forward voltage drop versus forward current (low level).

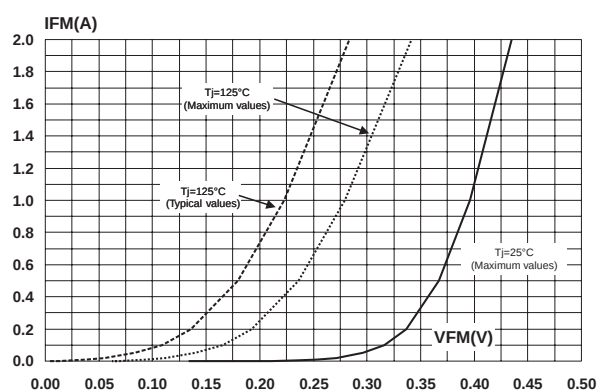


Fig. 7-2: Forward voltage drop versus forward current (high level).

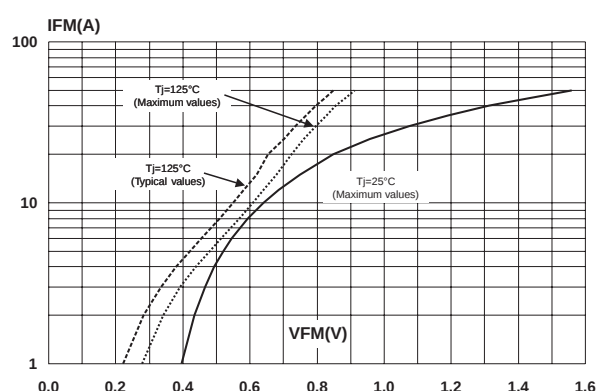


Fig. 8: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed board FR4, $\text{Cu} = 35\mu\text{m}$).

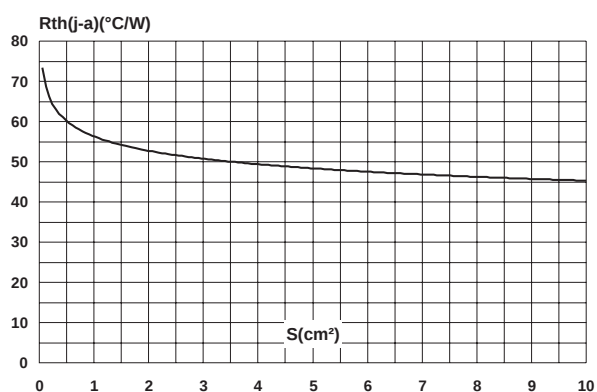
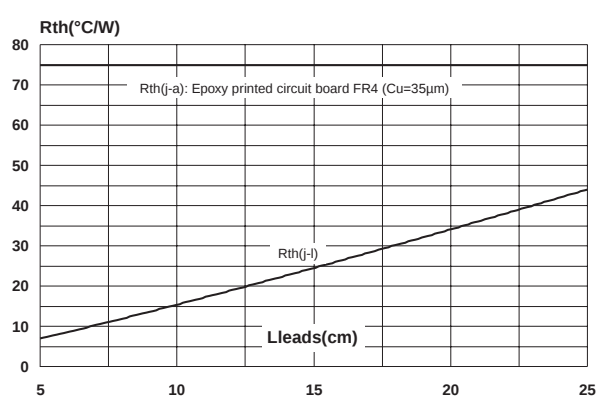


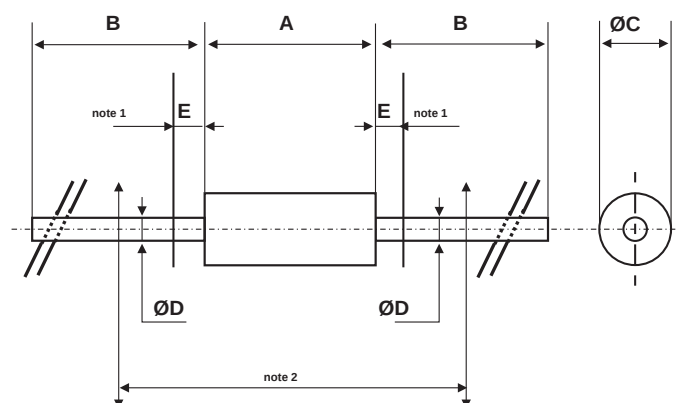
Fig. 9: Thermal resistances versus leads length.



STPS5L60

PACKAGE MECHANICAL DATA

DO-201AD plastic



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter Ø 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		
Ø C		5.30		0.209	
Ø D		1.30		0.051	
E		1.25		0.049	

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS5L60	STPS5L60	DO-201AD	1.12g	600	Ammopack
STPS5L60RL	STPS5L60	DO-201AD	1.12g	1900	Tape and reel

- White band indicates cathode
- Epoxy meets UL94,V0

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