



# STPS10L60D

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

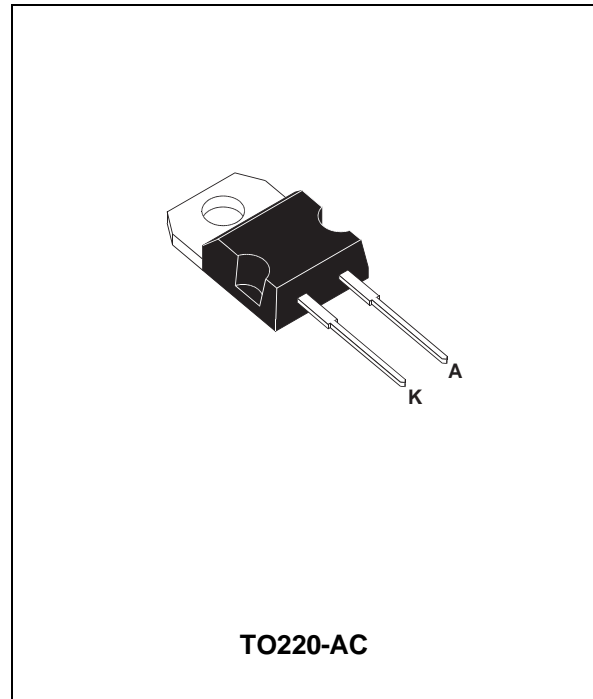
$I_{F(AV)}$	10 A
$V_{RRM}$	60 V
$T_j(\text{max})$	150°C
$V_F(\text{max})$	0.56 V

### FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP
- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE

### DESCRIPTION

Schottky rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in TO220-AC, this device is intended for use in DC/DC chargers.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	60	V
$I_{F(RMS)}$	RMS forward current	30	A
$I_{F(AV)}$	Average forward current	$T_c = 140^\circ\text{C} \delta = 0.5$ 10	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal 220	A
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ square $F = 1 \text{ kHz}$ 1	A
$T_{stg}$	Storage temperature range	- 65 to + 175	°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

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## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	1.6	$^{\circ}\text{C}/\text{W}$

## STATIC ELECTRICAL CHARACTERISTICS

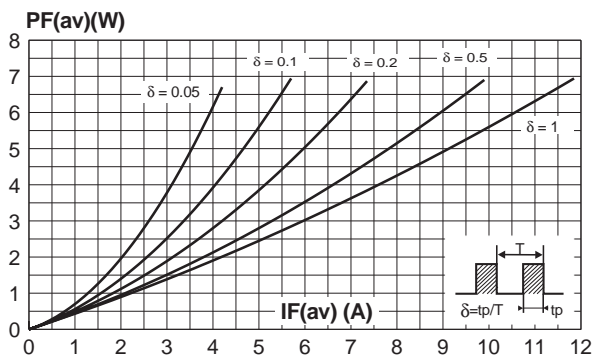
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit	
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			350	$\mu\text{A}$	
		$T_j = 125^{\circ}\text{C}$			65	95	$\text{mA}$	
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 10\text{ A}$			0.6	$\text{V}$	
		$T_j = 125^{\circ}\text{C}$			0.48	0.56		
		$T_j = 25^{\circ}\text{C}$		$I_F = 20\text{ A}$				0.74
		$T_j = 125^{\circ}\text{C}$				0.62		0.7

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

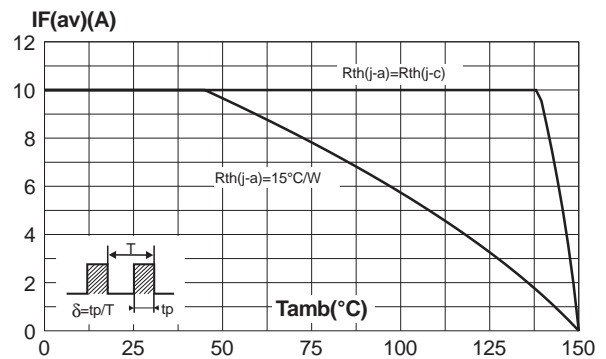
To evaluate the conduction losses use the following equation :

$$P = 0.42 \times I_{F(AV)} + 0.014 I_{F(RMS)}^2$$

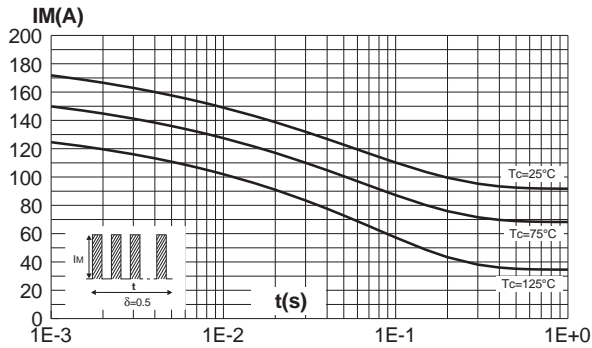
**Fig. 1:** Average forward power dissipation versus average forward current.



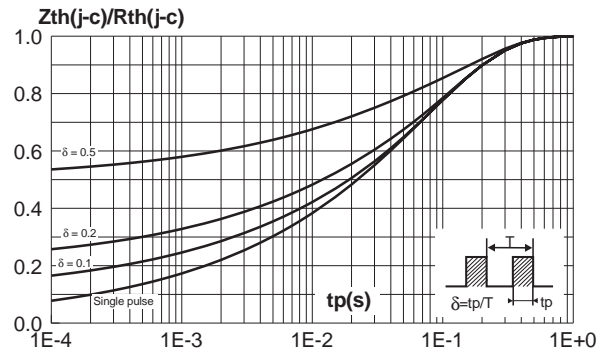
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).



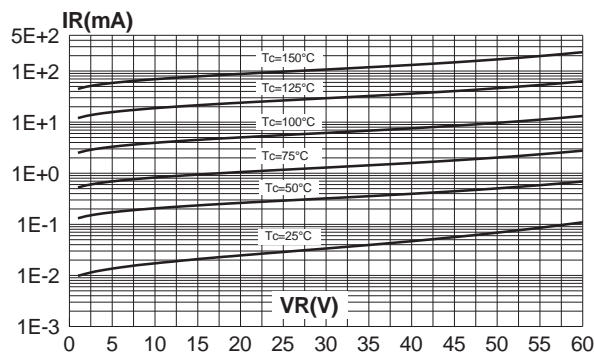
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).



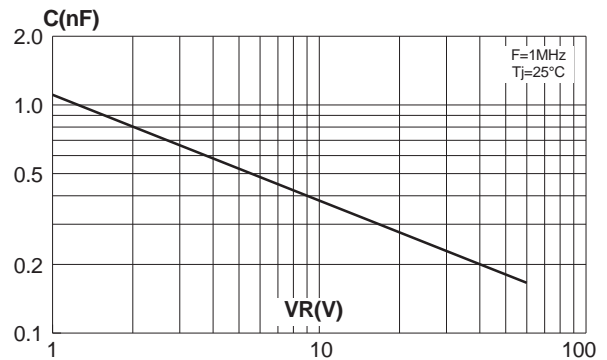
**Fig. 4:** Relative variation of thermal impedance junction to lead versus pulse duration.



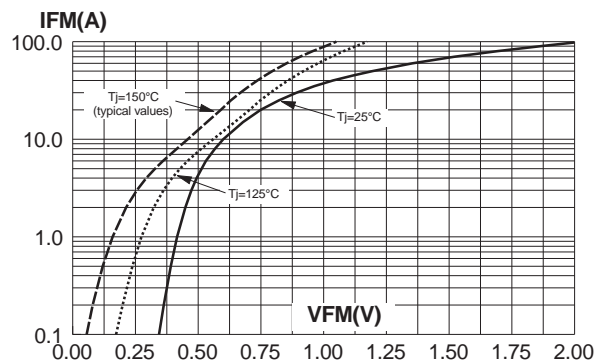
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



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

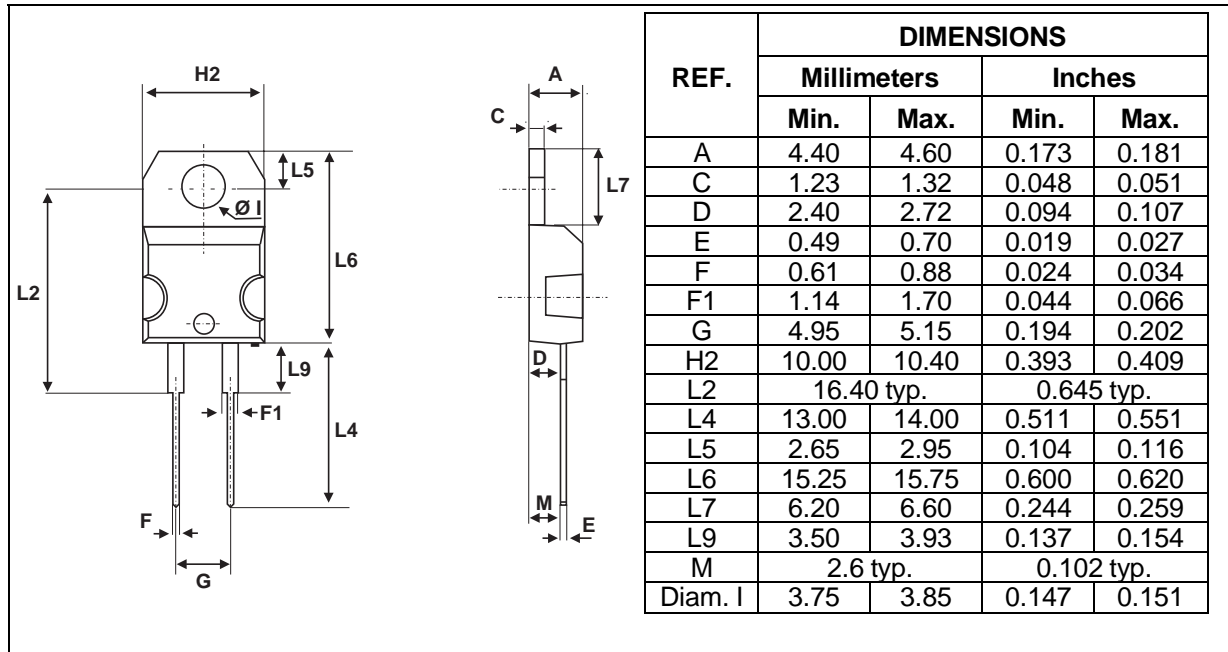


**Fig. 7:** Forward voltage drop versus forward current (low level, maximum values).



## STPS10L60D

### PACKAGE MECHANICAL DATA TO220-AC



- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS10L60D	STPS10L60D	TO220-AC	1.86g	50	Tube
STPS10L60D	STPS10L60D	TO220-AC	1.86g	1000	Bulk

- Epoxy meets UL94,V0

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