



STPS10L60D

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

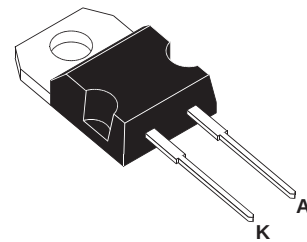
$I_{F(AV)}$	10 A
V_{RRM}	60 V
T_j (max)	150°C
V_F (max)	0.56 V

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.



TO220-AC

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	$T_c = 140^\circ\text{C} \quad \delta = 0.5$	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/ μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ 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	°C/W

STATIC ELECTRICAL CHARACTERISTICS

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

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

To evaluate the conduction losses use the following equation :
 $P = 0.42 \times I_{F(AV)} + 0.014 \times I_{F(RMS)}^2$

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

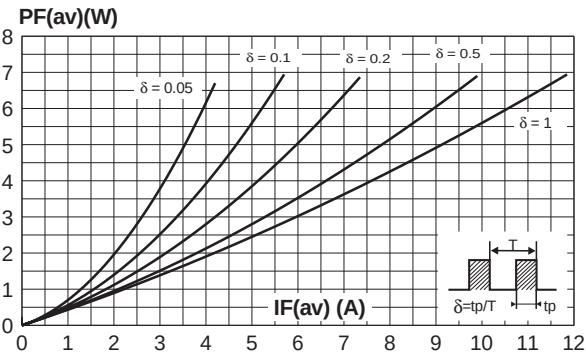


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

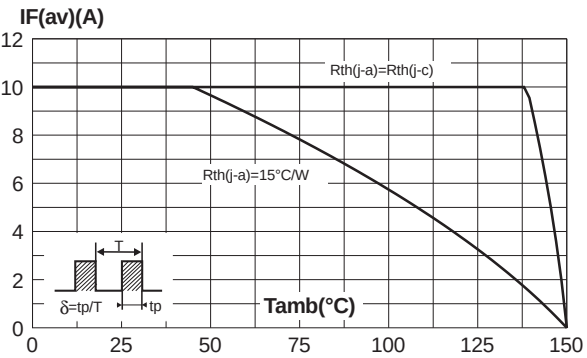


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

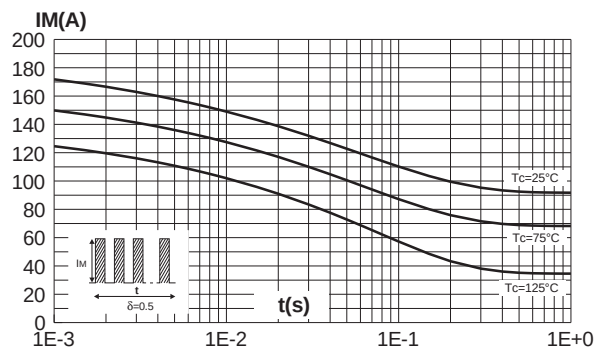


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

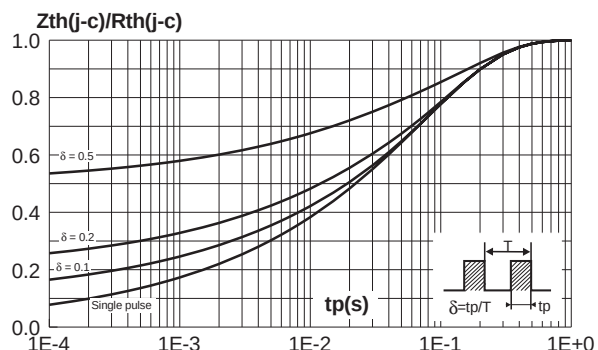


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

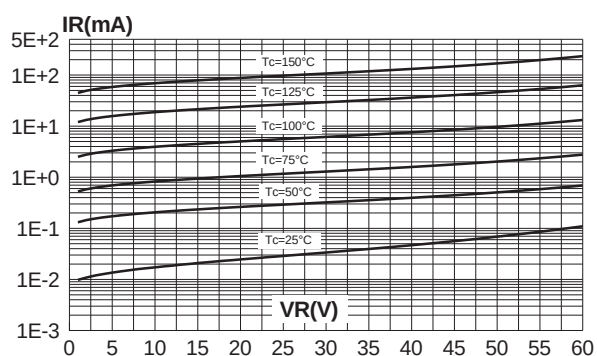


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

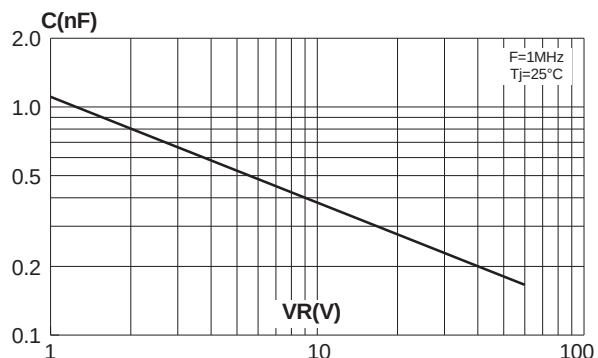
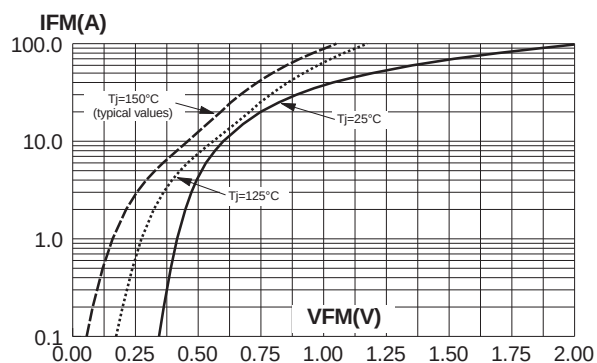
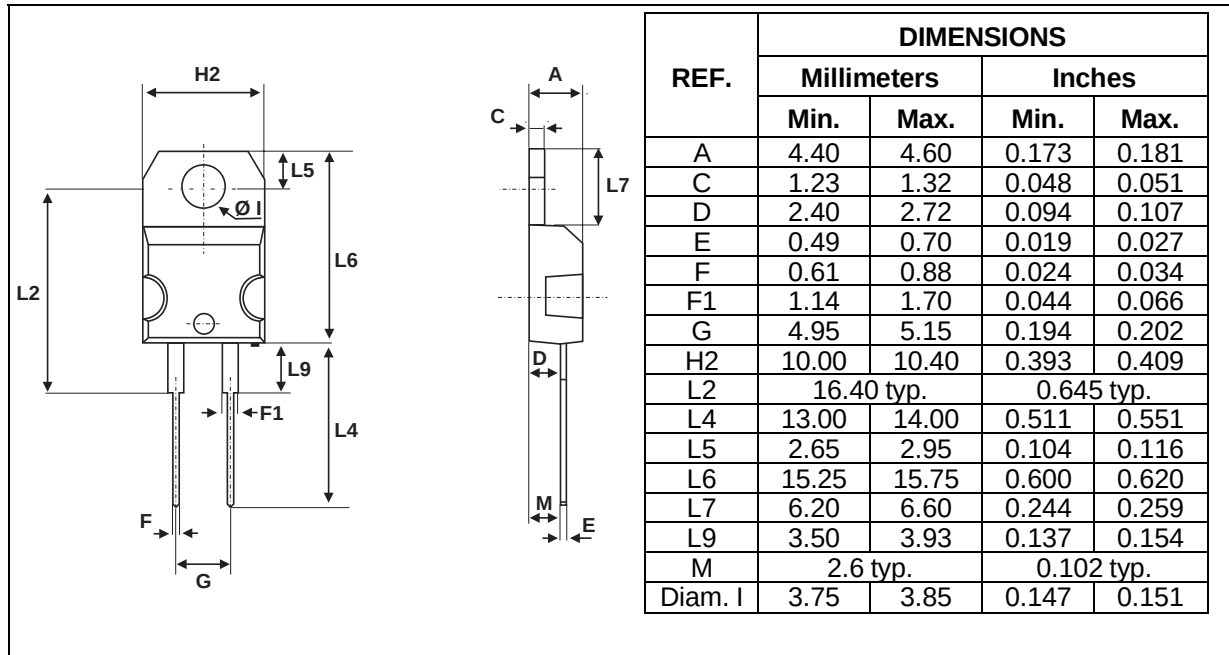


Fig. 7: Forward voltage drop versus forward current (low level, maximum values).



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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