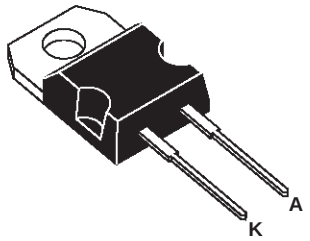
STPS10L60D

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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



TO220-AC

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	Tc = 140°C δ = 0.5	10	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	220	A
I_{RRM}	Repetitive peak reverse current	tp=2 µs square F=1kHz	1	A
T_{stg}	Storage temperature range		- 65 to + 175	°C
Tj	Maximum operating junction temperature *		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

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	Tj = 25°C	$V_R = V_{RRM}$			350	µA
		Tj = 125°C			65	95	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 10 A			0.6	V
		Tj = 125°C	I_F = 10 A		0.48	0.56	
		Tj = 25°C	I_F = 20 A			0.74	
		Tj = 125°C	I_F = 20 A		0.62	0.7	

Pulse test : * tp = 380 µs, δ < 2%

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

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

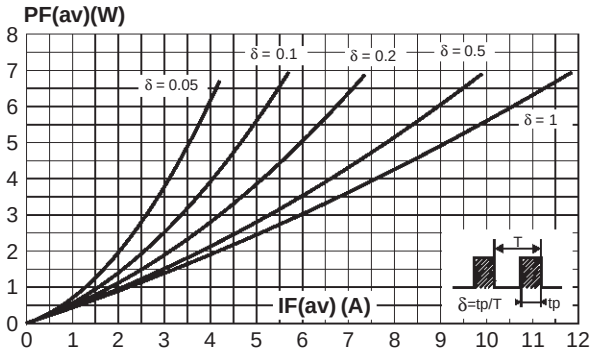


Fig. 2: Average forward current versus ambient temperature(δ = 0.5).

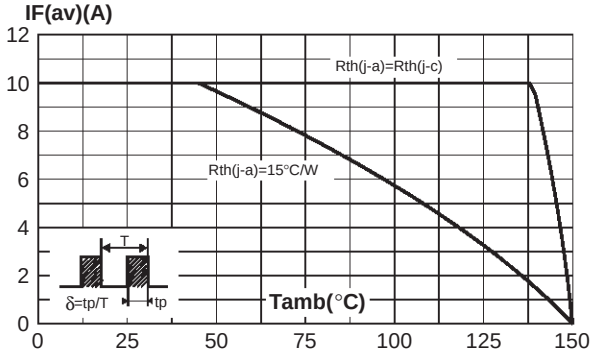


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

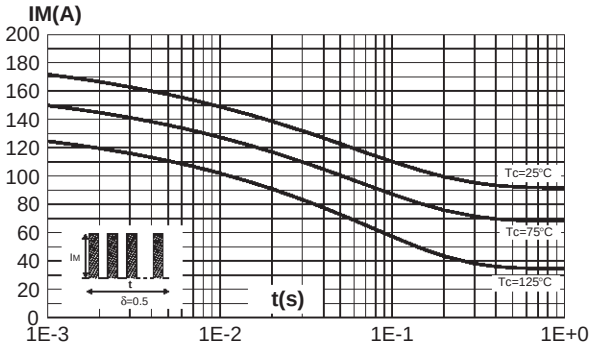


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

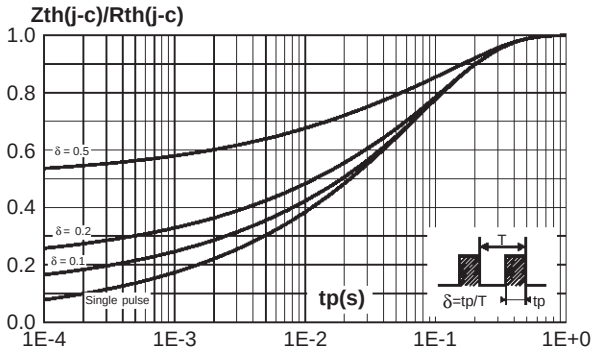


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

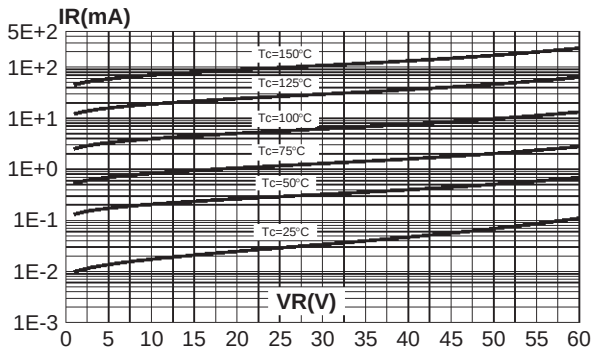


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

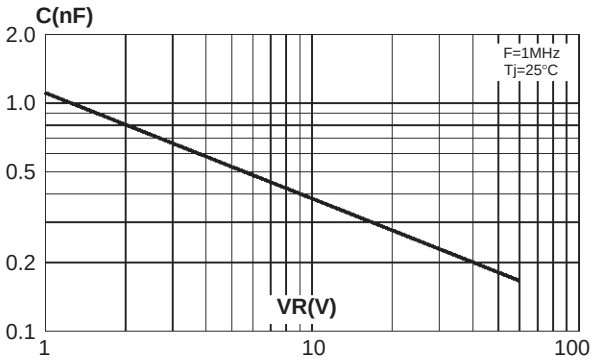
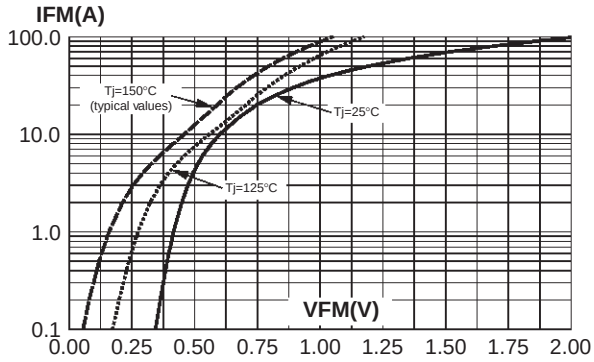
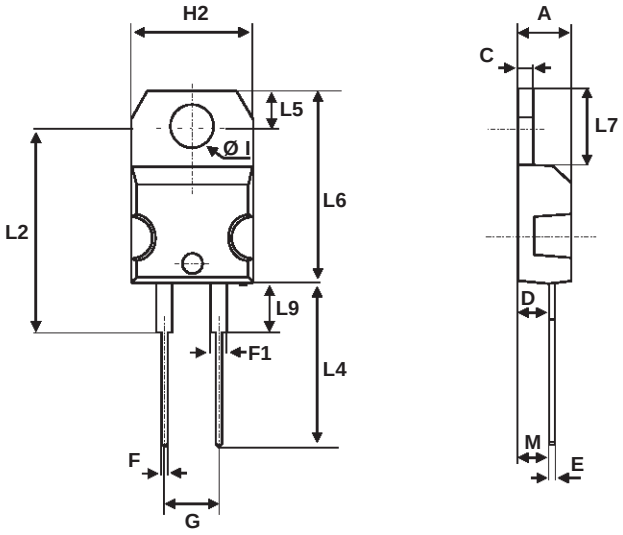


Fig. 7: Forward voltage drop versus forward current (low level, maximum values).



PACKAGE MECHANICAL DATA

TO220-AC



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
H2	10.00	10.40	0.393	0.409
L2	16.40 typ.		0.645 typ.	
L4	13.00	14.00	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam. I	3.75	3.85	0.147	0.151

- 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