

**POWER SCHOTTKY RECTIFIER**
**MAIN PRODUCT CHARACTERISTICS**

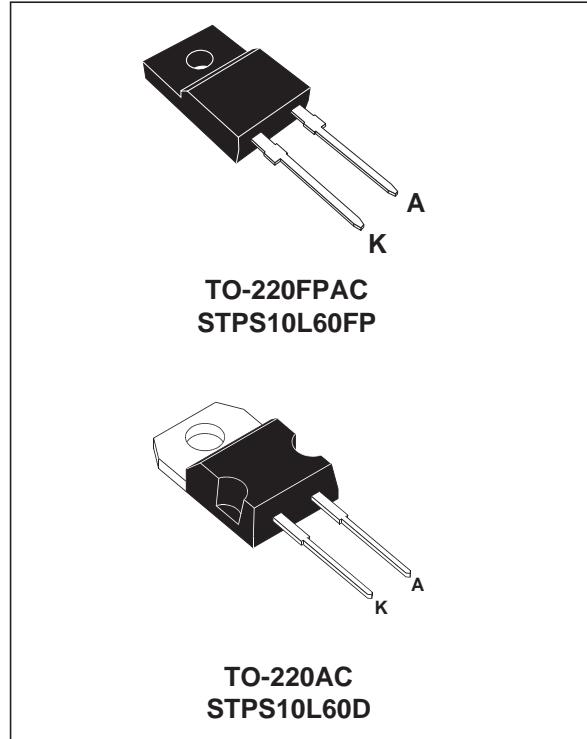
<b>I<sub>F(AV)</sub></b>	<b>10 A</b>
<b>V<sub>RRM</sub></b>	<b>60 V</b>
<b>T<sub>j</sub> (max)</b>	<b>150°C</b>
<b>V<sub>F</sub> (max)</b>	<b>0.56 V</b>

**FEATURES AND BENEFITS**

- LOW FORWARD VOLTAGE DROP
- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

**DESCRIPTION**

Schottky rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in TO-220AC, TO-220FPAC this device is intended for use in DC/DC chargers.


**ABSOLUTE RATINGS (limiting values)**

Symbol	Parameter			Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage			60	V
I <sub>F(RMS)</sub>	RMS forward current			30	A
I <sub>F(AV)</sub>	Average forward current	TO-220AC	T <sub>c</sub> = 140°C δ = 0.5	10	A
		TO-220FPAC	T <sub>c</sub> = 120°C δ = 0.5		
I <sub>FSM</sub>	Surge non repetitive forward current	tp = 10 ms	Sinusoidal	220	A
I <sub>RRM</sub>	Repetitive peak reverse current	tp = 2 μs	square F=1kHz	1	A
P <sub>ARM</sub>	Repetitive peak avalanche power	tp = 1μs	T <sub>j</sub> = 25°C	5800	W
T <sub>stg</sub>	Storage temperature range			- 65 to + 175	°C
T <sub>j</sub>	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	TO-220AC	1.6
		TO-220FPAC	4

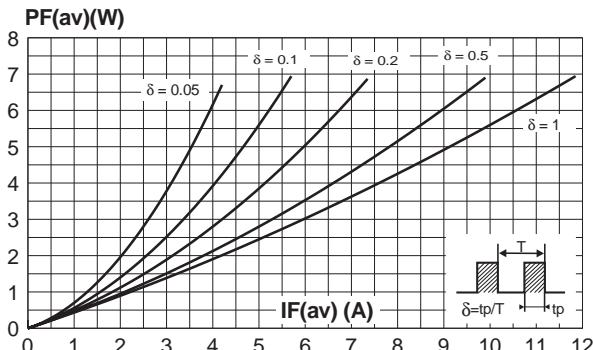
### STATIC ELECTRICAL CHARACTERISTICS

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	$\text{V}$
		$T_j = 125^\circ\text{C}$	$I_F = 10 \text{ A}$		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	

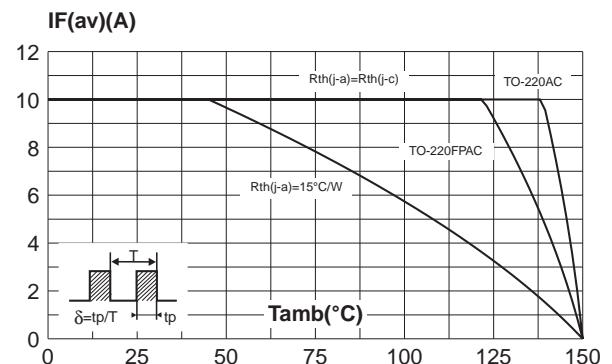
Pulse test : \*  $t_p = 380 \mu\text{s}$ ,  $\delta < 2\%$

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

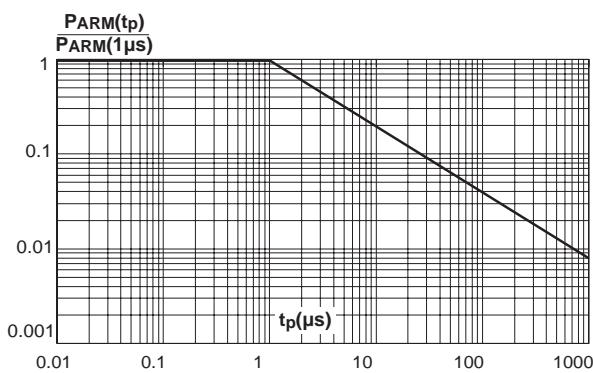
**Fig. 1:** Average forward power dissipation versus average forward current.



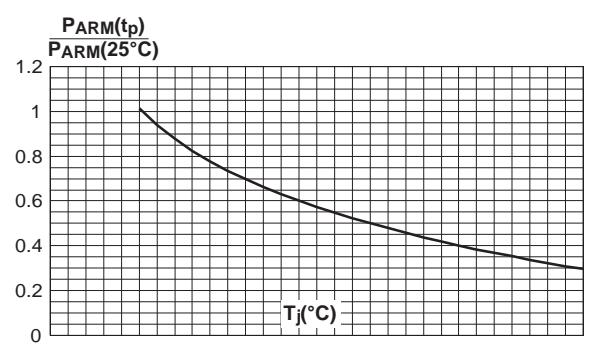
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ ).



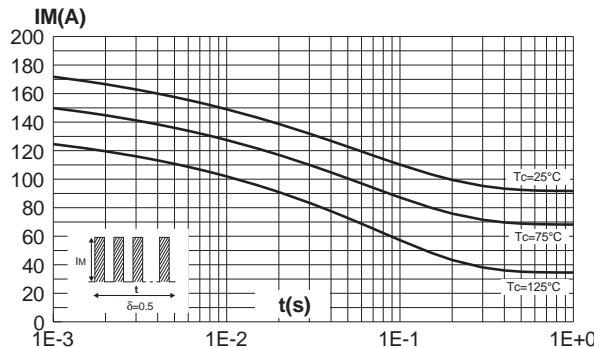
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



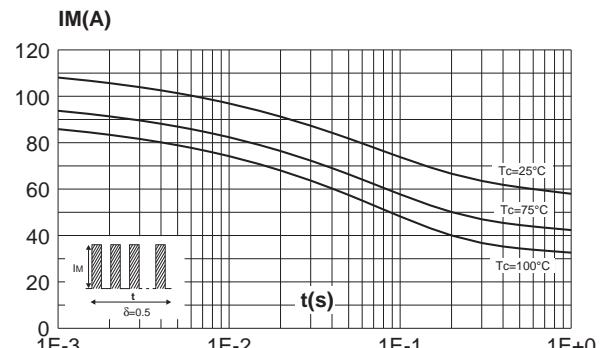
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



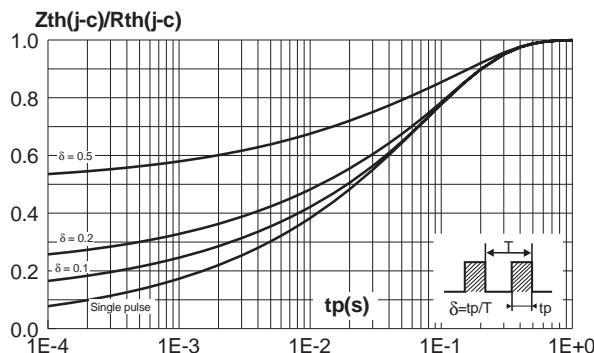
**Fig. 5-1:** Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220AC).



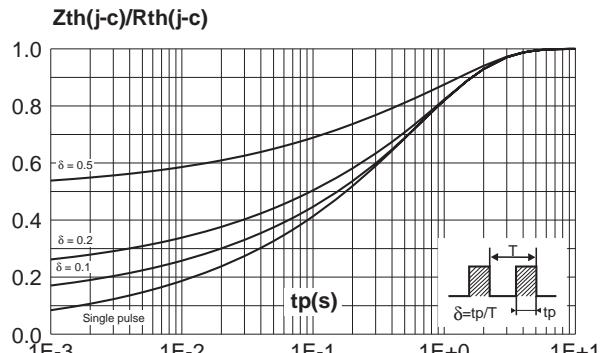
**Fig. 5-2:** Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220FPAC).



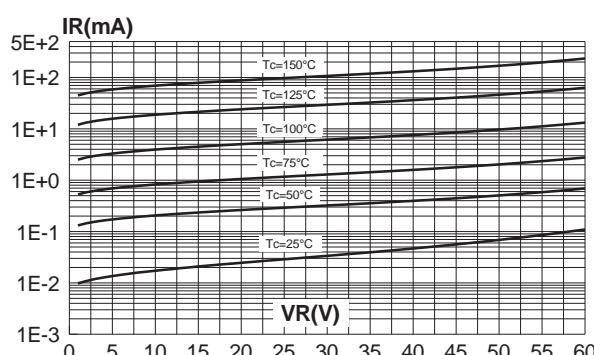
**Fig. 6-1:** Relative variation of thermal impedance junction to lead versus pulse duration (TO-220AC).



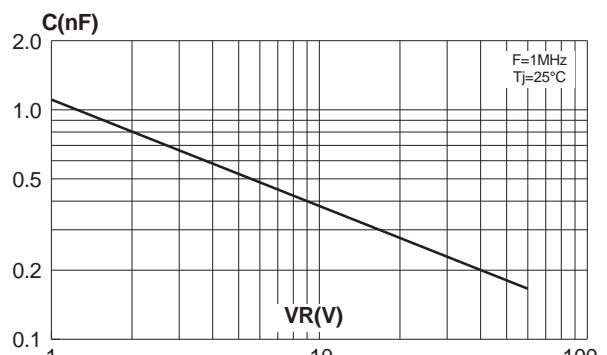
**Fig. 6-2:** Relative variation of thermal impedance junction to lead versus pulse duration (TO-220FPAC).



**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).

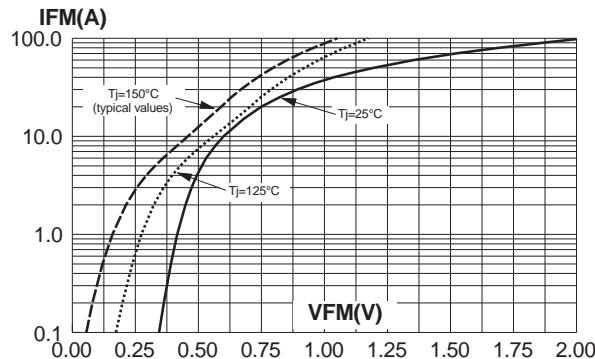


**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



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**Fig. 9:** Forward voltage drop versus forward current (low level, maximum values).



### PACKAGE MECHANICAL DATA TO-220FPAC

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.018	0.027
F	0.75	1	0.030	0.039
F1	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 Typ.		0.63 Typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.6	0.386	0.417
L5	2.9	3.6	0.114	0.142
L6	15.9	16.4	0.626	0.646
L7	9.00	9.30	0.354	0.366
Dia.	3.00	3.20	0.118	0.126

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### PACKAGE MECHANICAL DATA TO-220AC

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	TO-220AC	1.86g	50	Tube
STPS10L60FP	STPS10L60FP	TO-220FPAC	1.9g	50	Tube

- EPOXY MEETS UL94,V0

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