

## POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 5 A
$V_{RRM}$	60 V
$T_j(max)$	150 °C
$V_F(max)$	0.52 V

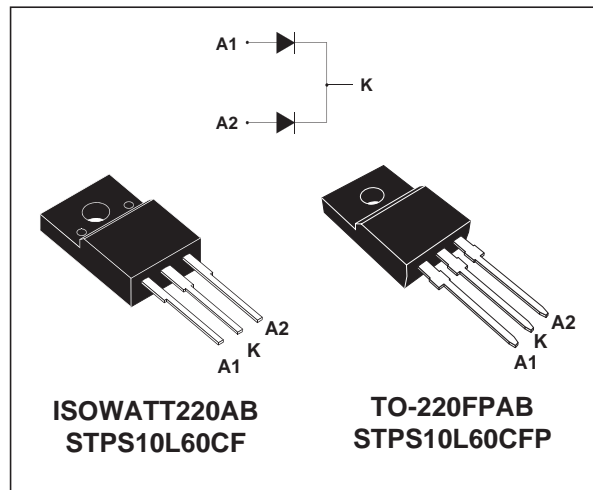
### FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP
- NEGLIGIBLE SWITCHING LOSSES
- INSULATED PACKAGE:  
Insulating voltage = 2000V DC  
Capacitance = 12pF
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Dual center tap Schottky rectifiers suited for Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in ISOWATT220AB, TO-220FPAB this device is intended for use in high frequency inverters.



### ABSOLUTE RATINGS (limiting values, per diode)

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	ISOWATT220AB TO220FPAB	$T_c = 130^\circ\text{C}$ $\delta = 0.5$	Per diode Per device	5 10	A
$I_{FSM}$	Surge non repetitive forward current		$t_p = 10\text{ ms}$ Sinusoidal	180	A	
$I_{RRM}$	Repetitive peak reverse current		$t_p = 2\ \mu\text{s}$ square F = 1kHz	1	A	
$P_{ARM}$	Repetitive peak avalanche power		$t_p = 1\ \mu\text{s}$ $T_j = 25^\circ\text{C}$	4000	W	
$T_{stg}$	Storage temperature range			- 65 to + 175	°C	
$T_j$	Maximum operating junction temperature *			150	°C	
$dV/dt$	Critical rate of rise 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

## STPS10L60CF/CFP

### THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case ISOWATT220AB TO-220FPAB	Per Diode	4.5	°C/W
		Total	3.5	
$R_{th(c)}$		Coupling	2.5	°C/W

When the diodes 1 and 2 are used simultaneously :  
 $\Delta T_j(\text{diode } 1) = P(\text{diode } 1) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode } 2) \times R_{th(c)}$

### STATIC ELECTRICAL CHARACTERISTICS (per diode)

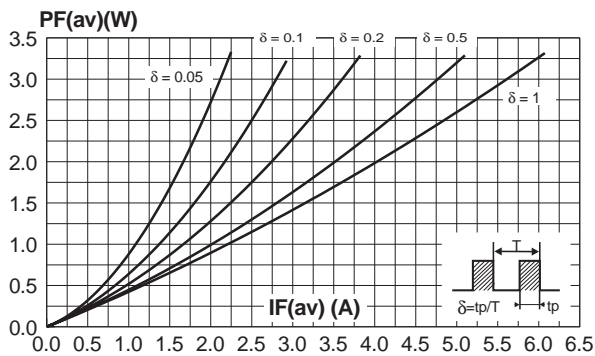
Symbol	Parameter	Tests conditions	Min.	Typ.	Max.	Unit			
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$		220	$\mu\text{A}$			
		$T_j = 125^\circ\text{C}$				45	60	mA	
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 5\text{ A}$		0.55	V			
		$T_j = 125^\circ\text{C}$					0.43	0.52	
		$T_j = 25^\circ\text{C}$					$I_F = 10\text{ A}$		0.67
		$T_j = 125^\circ\text{C}$							

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

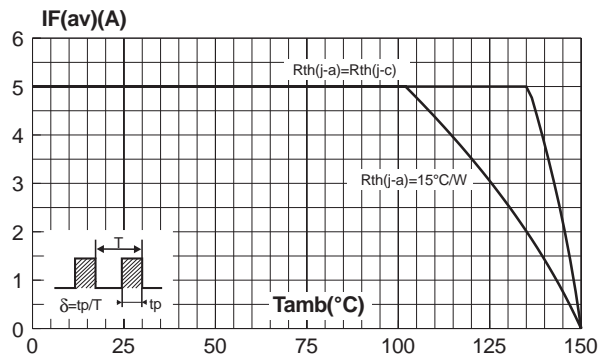
To evaluate the conduction losses use the following equation :

$$P = 0.4 \times I_{F(AV)} + 0.024 \times I_{F(RMS)}^2$$

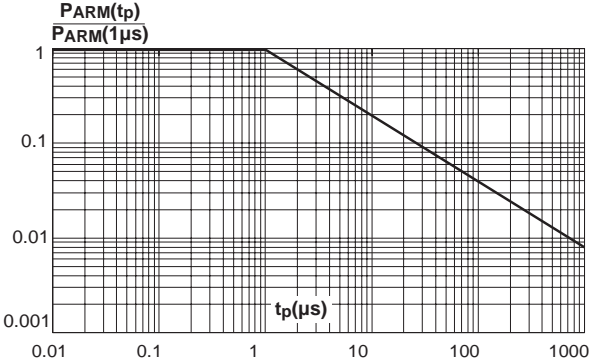
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



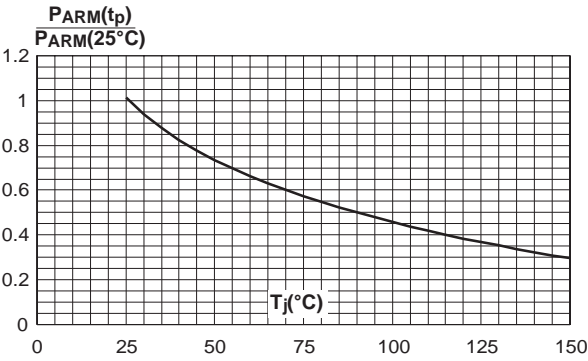
**Fig. 2:** Average current versus ambient temperature ( $\delta=0.5$ ) (per diode).



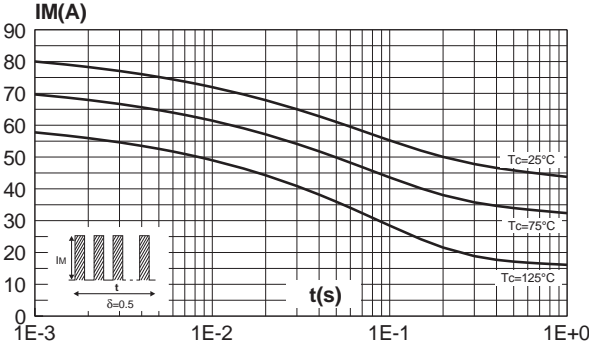
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



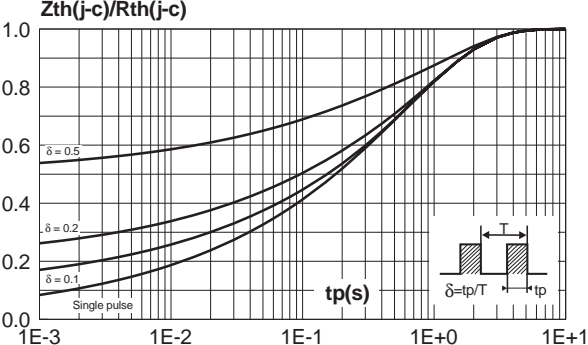
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



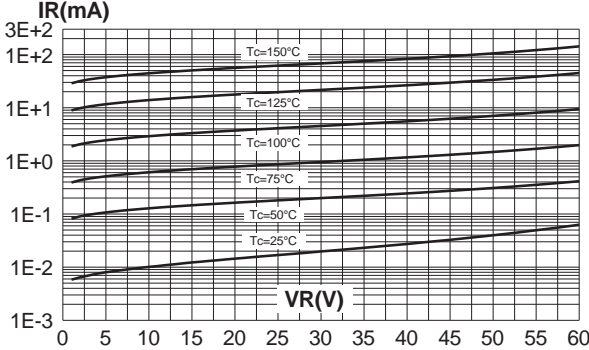
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (ISOWATT220AB, TO-220FPAB).



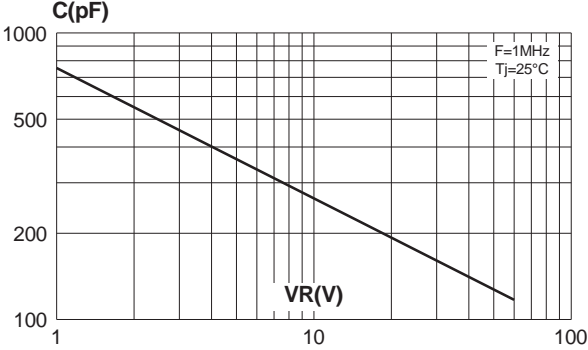
**Fig. 6:** Relative variation of thermal transient impedance junction to case versus pulse duration. (ISOWATT220AB, TO-220FPAB).



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

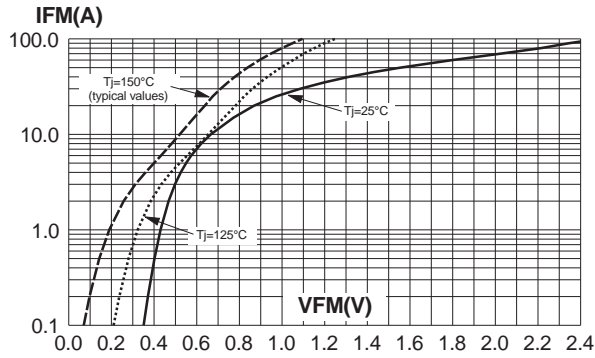


**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values, per diode).

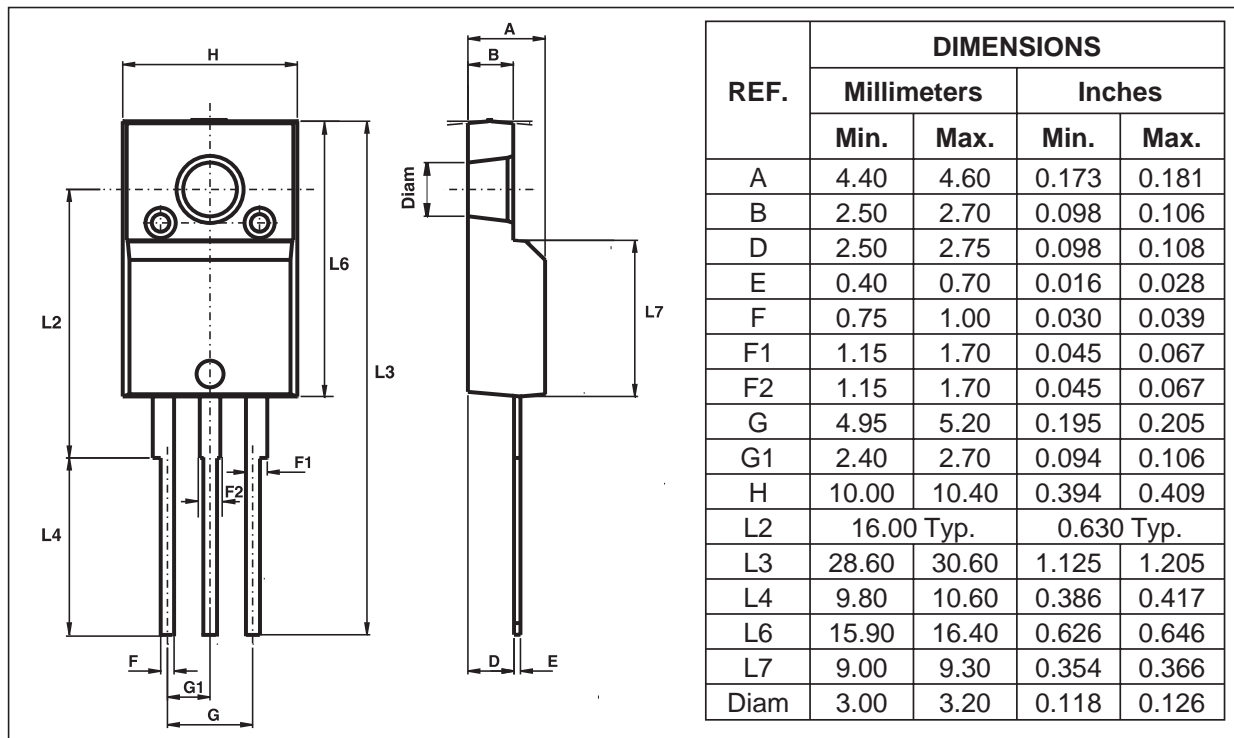


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**Fig. 9:** Forward voltage drop versus forward current (maximum values, per diode).



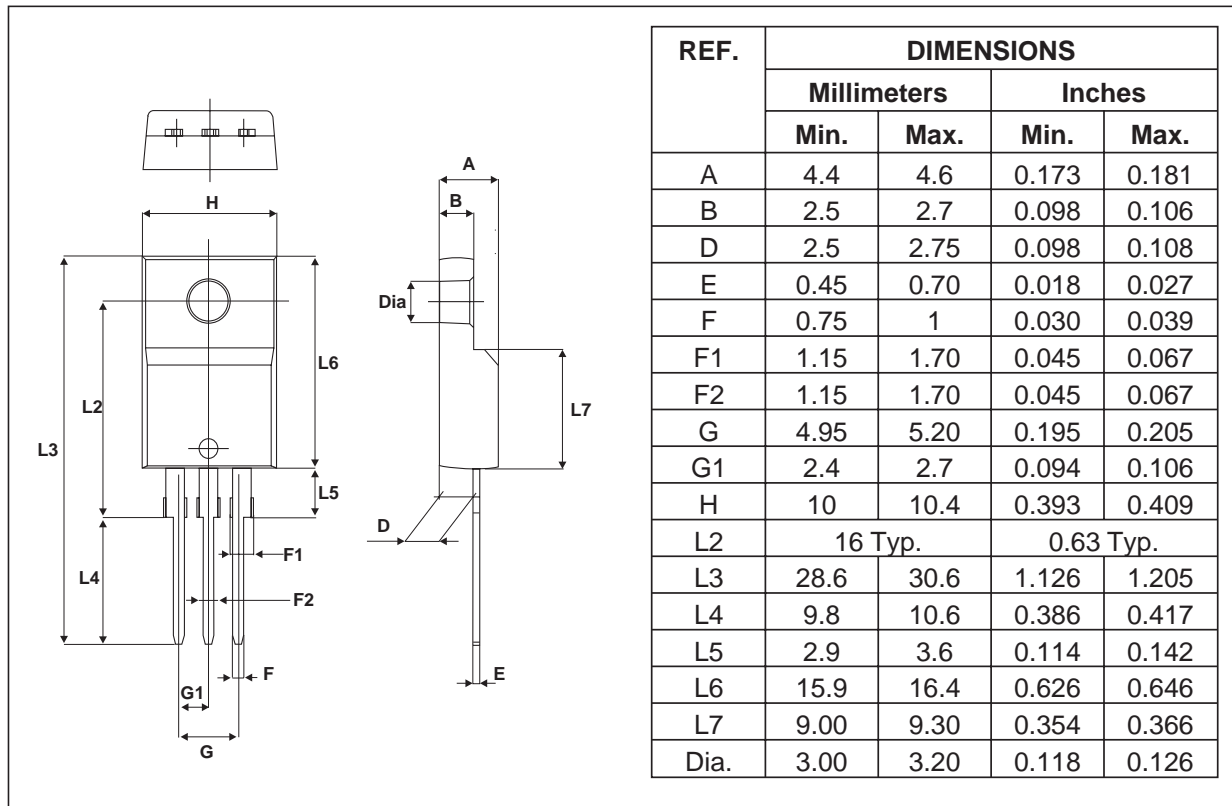
## PACKAGE MECHANICAL DATA ISOWATT220AB



- Cooling method: C
- Recommended torque value: 0.55 m.N
- Maximum torque value: 0.70 m.N

**PACKAGE MECHANICAL DATA**

TO-220FPAB



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS10L60CF	STPS10L60CF	ISOWATT220AB	2.08g	50	Tube
STPS10L60CF	STPS10L60CF	ISOWATT220AB	2.08g	1000	Bulk
STPS10L60CFP	STPS10L60CFP	TO-220FPAB	2 g	50	Tube

- Epoxy meets UL94,V0

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