

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

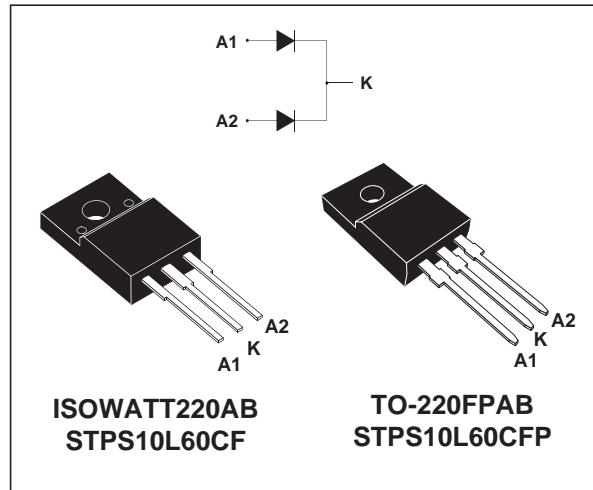
FEATURES AND BENEFITS

- 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/ 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 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	μA	
		$T_j = 125^\circ\text{C}$			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
		$T_j = 125^\circ\text{C}$				0.55		0.64

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).

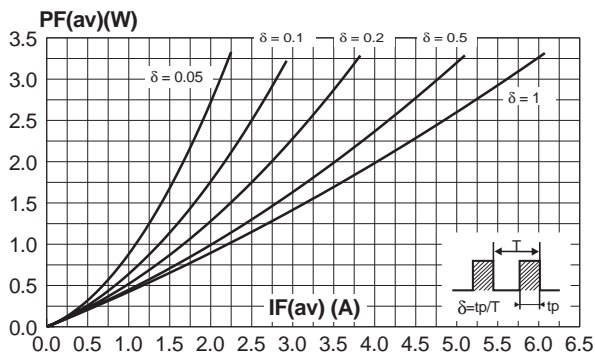


Fig. 2: Average current versus ambient temperature ($\delta=0.5$) (per diode).

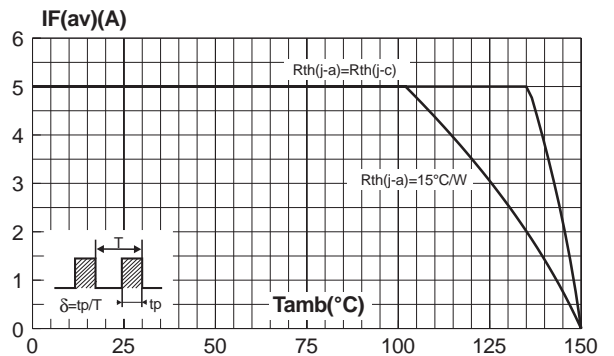


Fig. 3: Normalized avalanche power derating versus pulse duration.

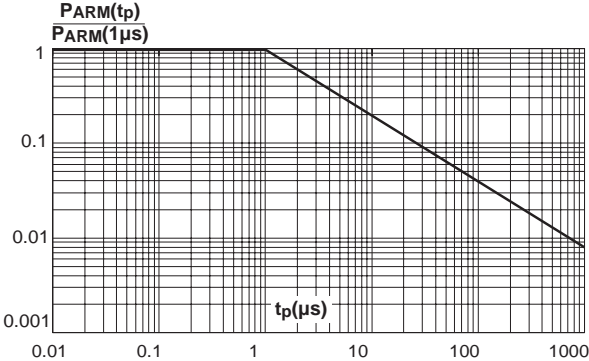


Fig. 4: Normalized avalanche power derating versus junction temperature.

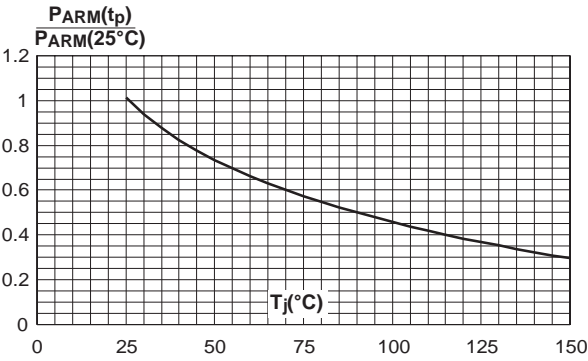


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (ISOWATT220AB, TO-220FPAB).

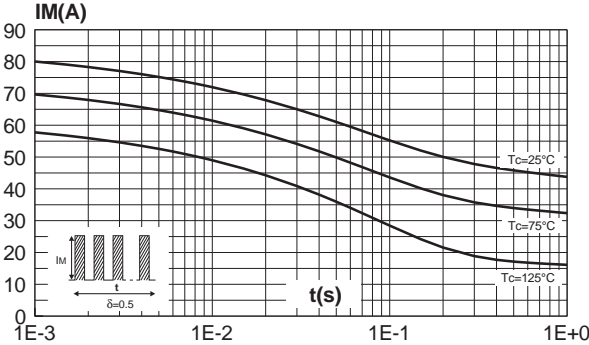


Fig. 6: Relative variation of thermal transient impedance junction to case versus pulse duration. (ISOWATT220AB, TO-220FPAB).

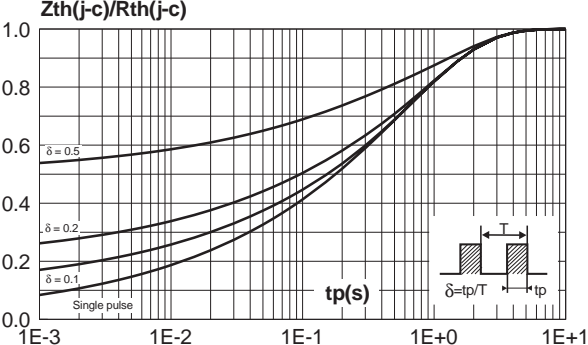


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

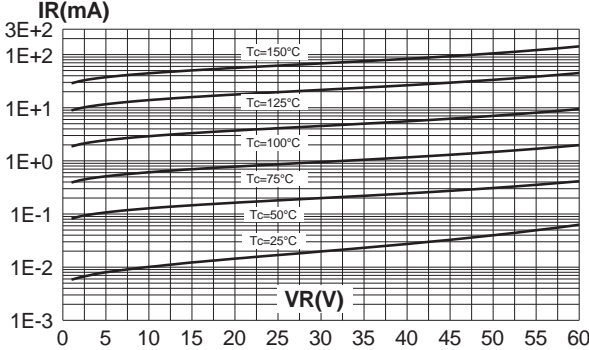
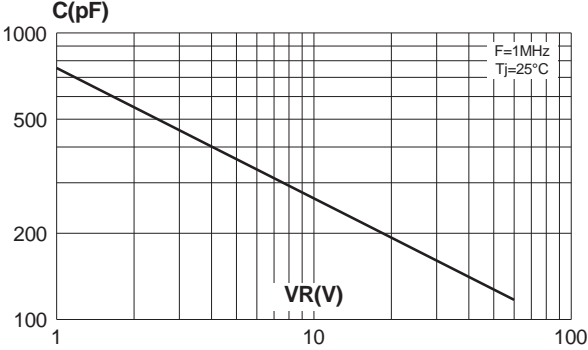
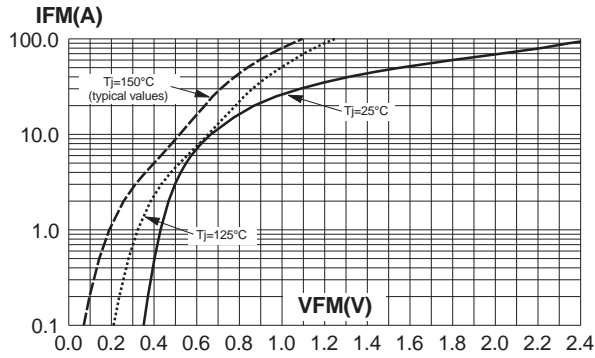


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

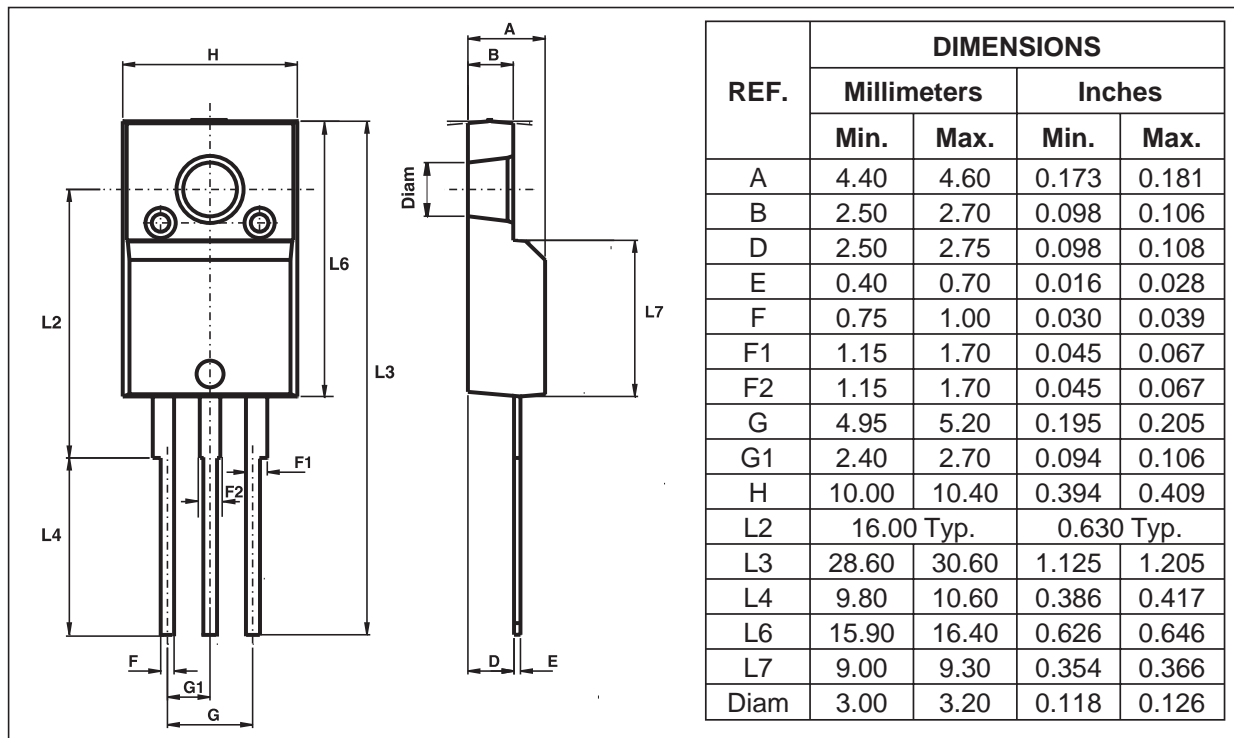


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Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).



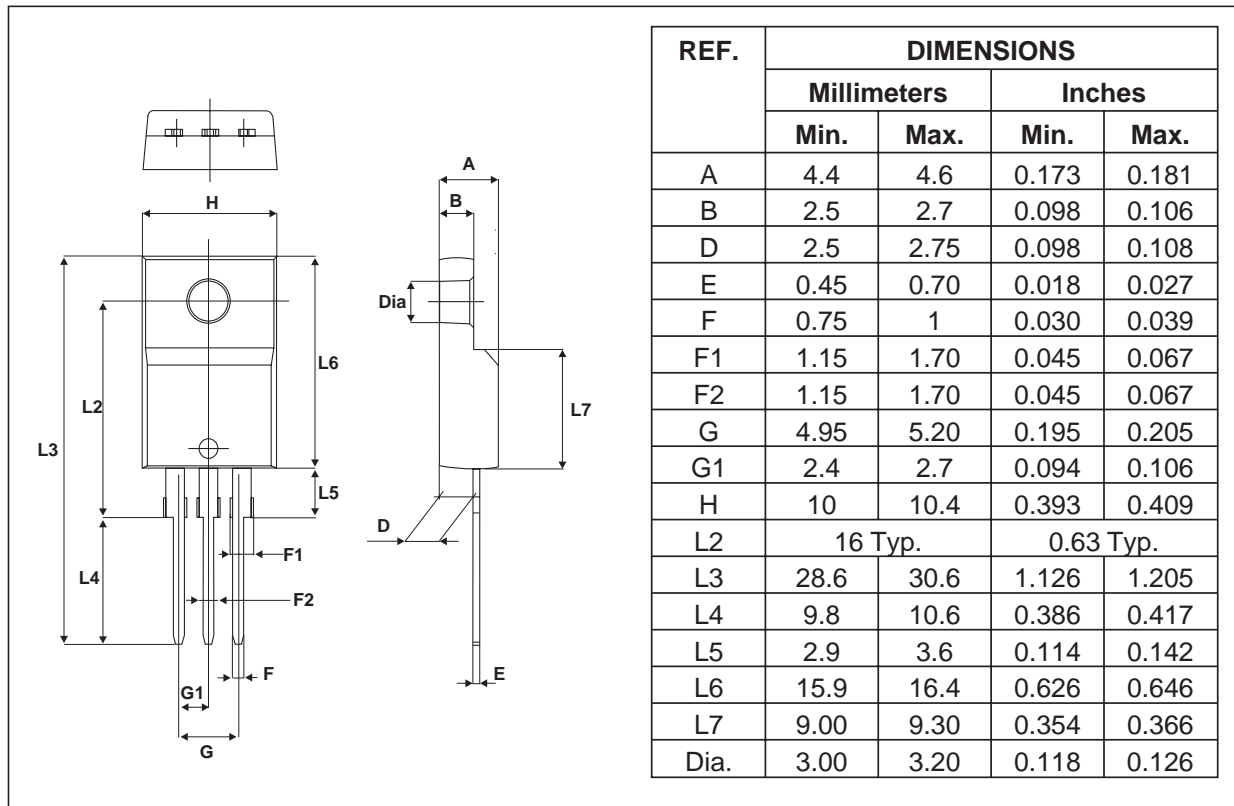
PACKAGE MECHANICAL DATA ISOWATT220AB



- 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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