

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

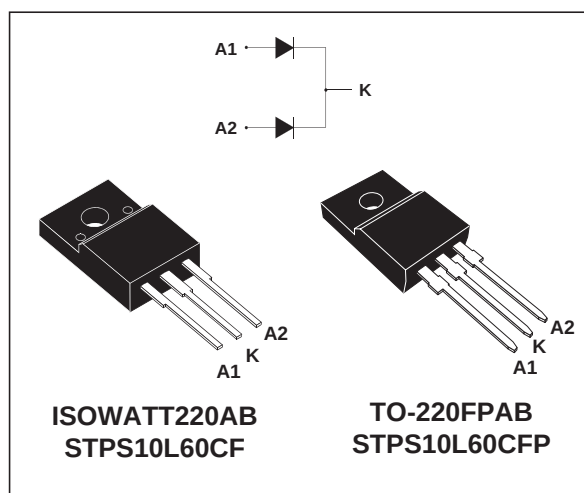
FEATURES AND BENEFITS

- 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	Tc =130°C δ = 0.5	Per diode Per device	5 10	A
I _{FSM}	Surge non repetitive forward current		tp = 10 ms Sinusoidal		180	A
I _{RRM}	Repetitive peak reverse current		tp = 2 μs square F = 1kHz		1	A
P _{ARM}	Repetitive peak avalanche power		tp = 1μs Tj = 25°C		4000	W
T _{stg}	Storage temperature range				- 65 to + 175	°C
Tj	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

STPS10L60CF/CFP

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case ISOWATT220AB TO-220FPAB	Per Diode Total	4.5 3.5	°C/W
$R_{th(c)}$		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
		$T_j = 125^\circ\text{C}$	$I_F = 5\text{ A}$		0.43	0.52	
		$T_j = 25^\circ\text{C}$	$I_F = 10\text{ A}$			0.67	
		$T_j = 125^\circ\text{C}$	$I_F = 10\text{ A}$		0.55	0.64	

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

To evaluate the conduction losses use the following equation :

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

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

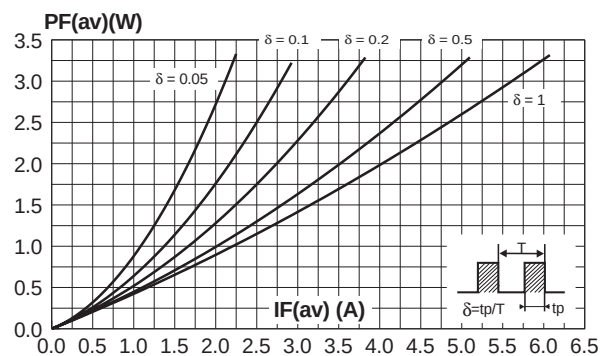


Fig. 2: Average current versus ambient temperature ($\delta=0.5$) (per diode).

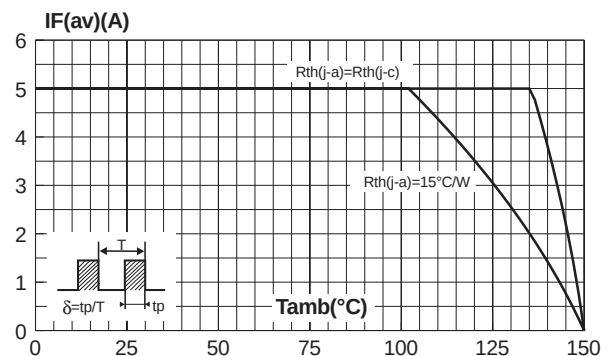


Fig. 3: Normalized avalanche power derating versus pulse duration.

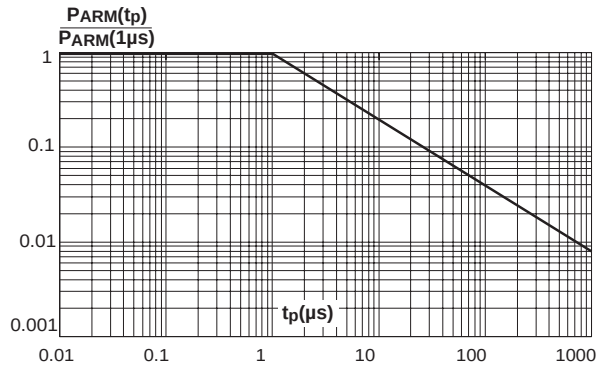


Fig. 4: Normalized avalanche power derating versus junction temperature.

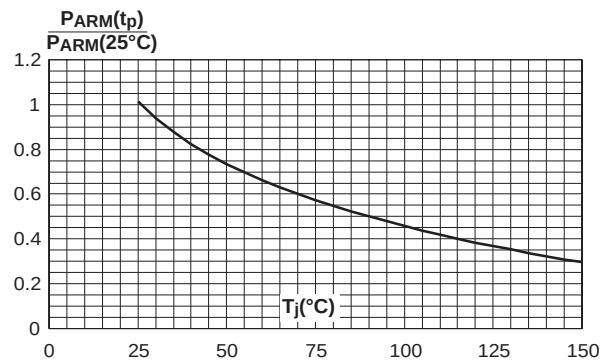


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (ISOWATT220AB, TO-220FPAB).

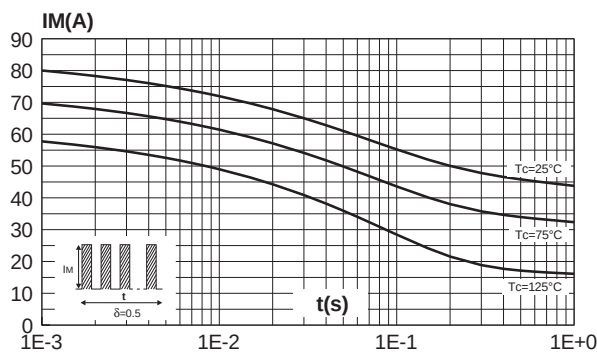


Fig. 6: Relative variation of thermal transient impedance junction to case versus pulse duration. (ISOWATT220AB, TO-220FPAB).

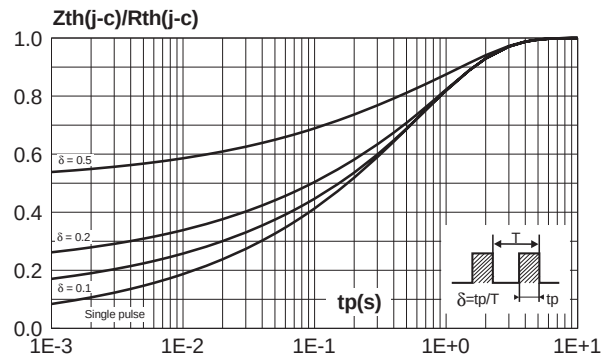


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

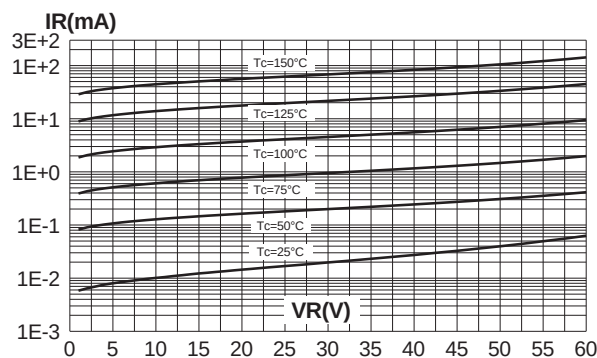


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

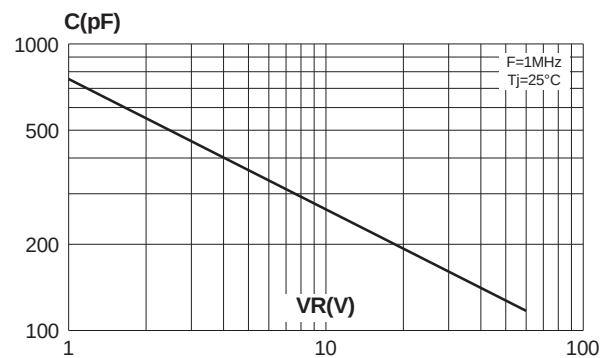
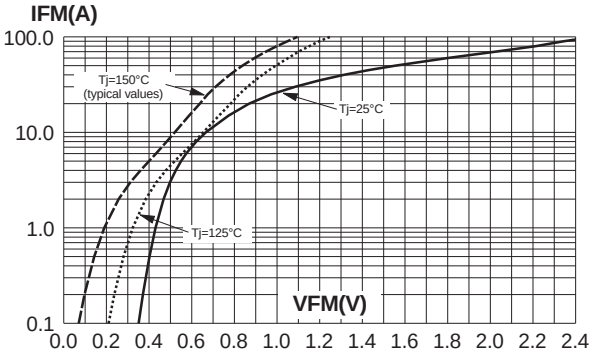
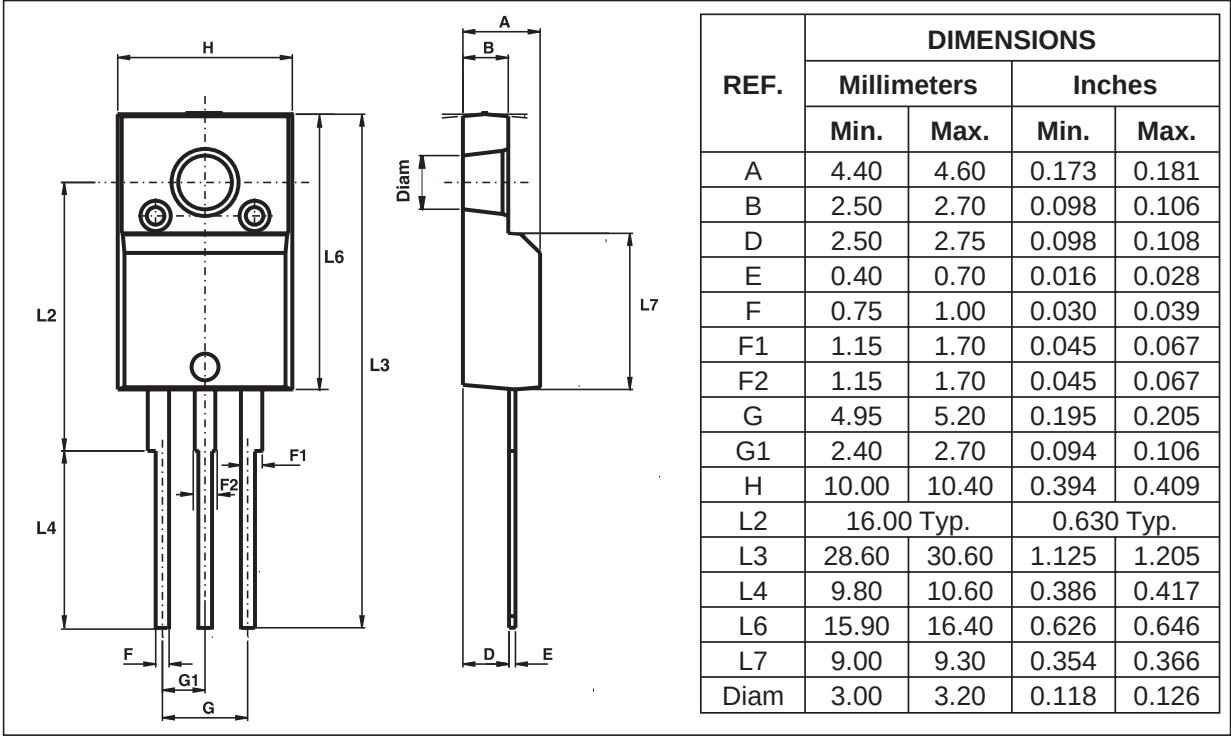


Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).



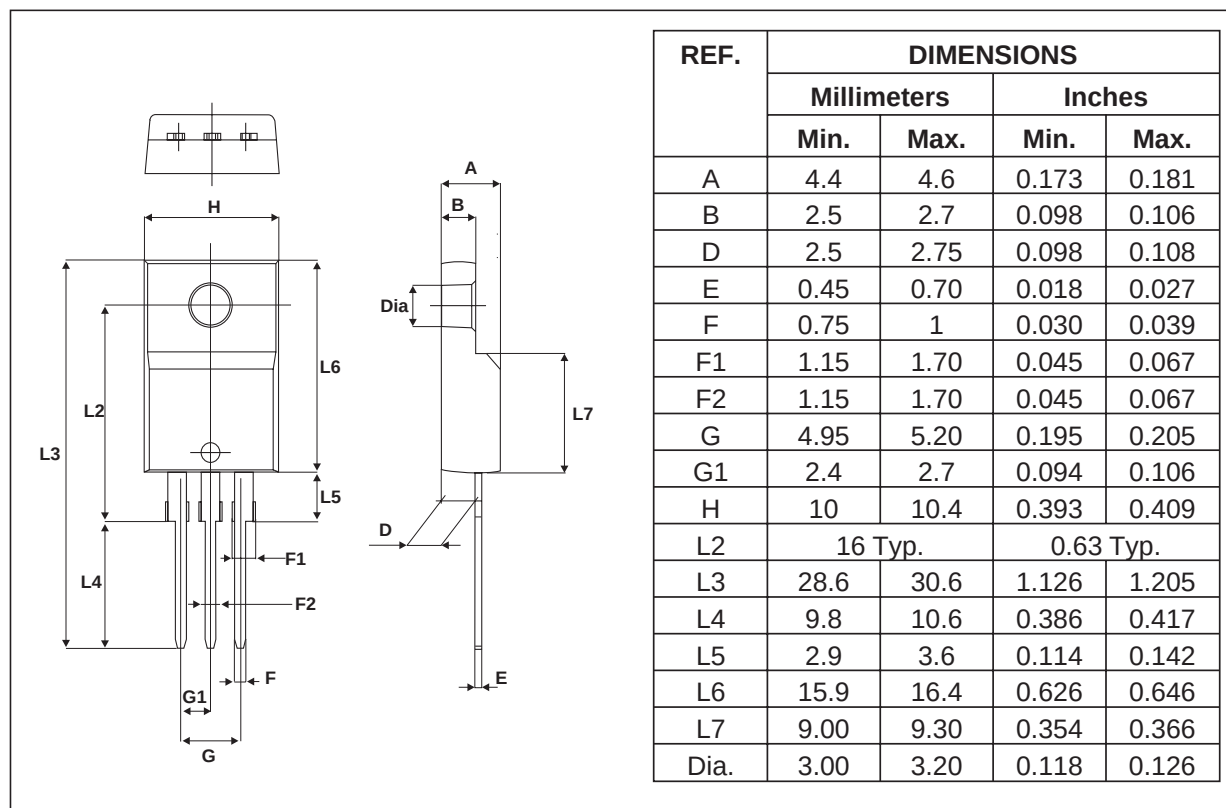
PACKAGE MECHANICAL DATA
ISOWATT220AB



- 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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