



# STPS8H100D/F/G/R/FP

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

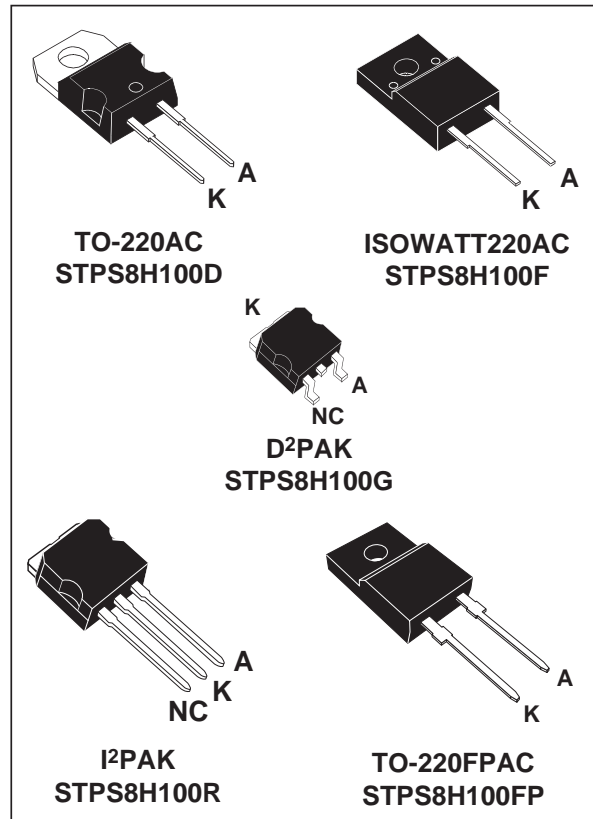
$I_{F(AV)}$	8 A
$V_{RRM}$	100 V
$T_j$ (max)	175 °C
$V_F$ (max)	0.58 V

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- INSULATED PACKAGE:  
ISOWATT220AC, TO-220FPAC  
Insulating voltage = 2000V DC  
Capacitance = 12pF
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Schottky barrier rectifier designed for high frequency compact Switched Mode Power Supplies such as adaptators and on board DC/DC converters.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$V_{RRM}$	Repetitive peak reverse voltage		100	V	
$I_{F(RMS)}$	RMS forward current		30	A	
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AC / I <sup>2</sup> PAK / D <sup>2</sup> PAK	$T_c = 165^\circ\text{C}$	8	A
		ISOWATT220AC TO-220FPAC	$T_c = 150^\circ\text{C}$		
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ sinusoidal	250	A	
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$ square	1	A	
$I_{RSM}$	Non repetitive peak reverse current	$t_p = 100 \mu\text{s}$ square	3	A	
$P_{ARM}$	Repetitive peak avalanche power	$t_p = 1 \mu\text{s}$ $T_j = 25^\circ\text{C}$	10800	W	
$T_{stg}$	Storage temperature range		- 65 to + 175	°C	
$T_j$	Maximum operating junction temperature		175	°C	
dV/dt	Critical rate of rise of rise voltage		10000	V/ $\mu\text{s}$	

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## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220AC / I <sup>2</sup> PAK / D <sup>2</sup> PAK	1.6	°C/W
$R_{th(j-c)}$	Junction to case	ISOWATT220AC / TO-220FPAC	4	°C/W

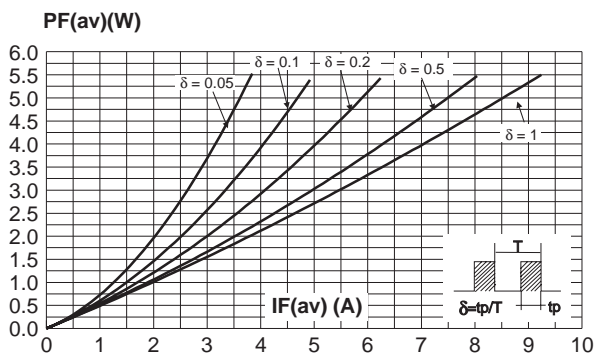
## STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			4.5	$\mu\text{A}$
		$T_j = 125^\circ\text{C}$			2	6	mA
$V_F^{**}$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$			0.71	V
		$T_j = 25^\circ\text{C}$	$I_F = 10\text{ A}$			0.77	
		$T_j = 25^\circ\text{C}$	$I_F = 16\text{ A}$			0.81	
		$T_j = 125^\circ\text{C}$	$I_F = 8\text{ A}$		0.56	0.58	
		$T_j = 125^\circ\text{C}$	$I_F = 10\text{ A}$		0.59	0.64	
		$T_j = 125^\circ\text{C}$	$I_F = 16\text{ A}$		0.65	0.68	

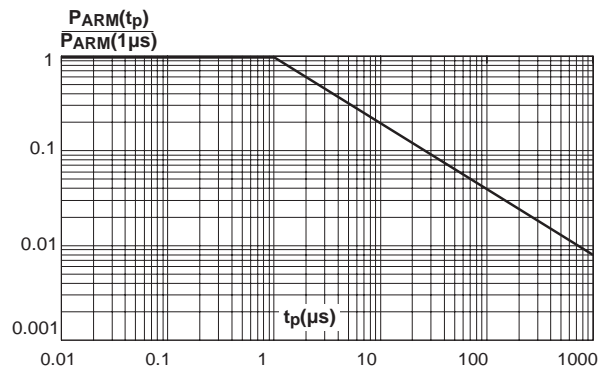
Pulse test : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$   
 \*\*  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.48 \times I_{F(AV)} + 0.0125 \times I_{F(RMS)}^2$

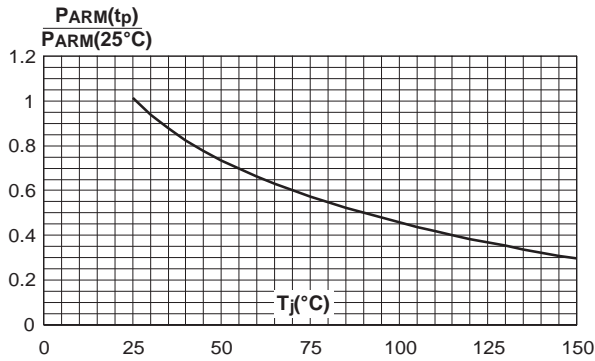
**Fig. 1:** Average forward power dissipation versus average forward current.  
 (TO-220AC / ISOWATT220AC / I<sup>2</sup>PAK / D<sup>2</sup>PAK)



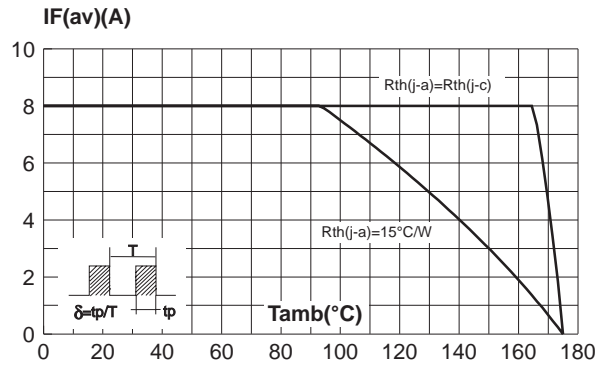
**Fig. 2:** Normalized avalanche power derating versus pulse duration.



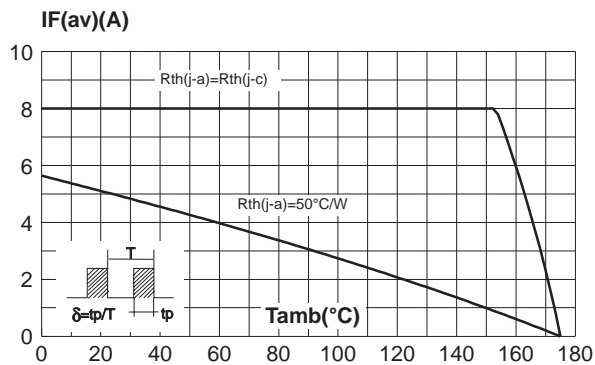
**Fig. 3:** Normalized avalanche power derating versus junction temperature.



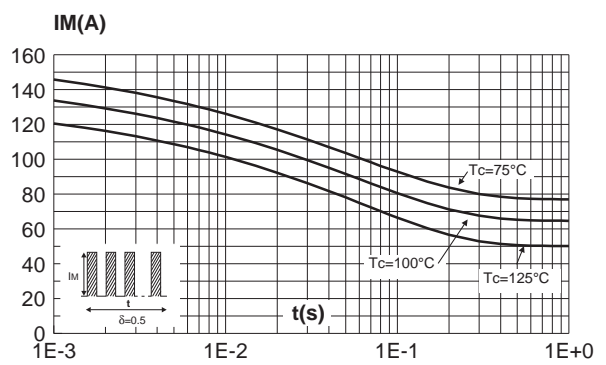
**Fig. 4-1:** Average forward current versus ambient temperature ( $\delta=0.5$ ) (TO-220AC / I<sup>2</sup>PAK / D<sup>2</sup>PAK).



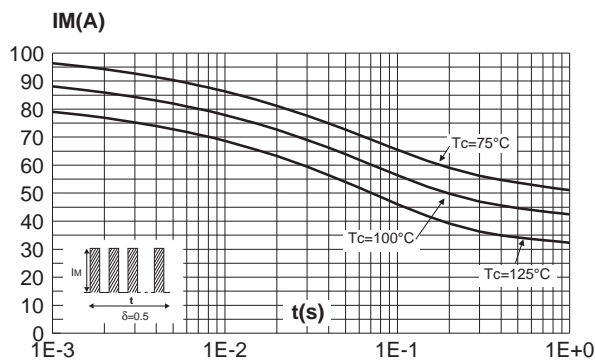
**Fig. 4-2:** Average forward current versus ambient temperature ( $\delta=0.5$ ) (ISOWATT220AC, TO-220FPAC).



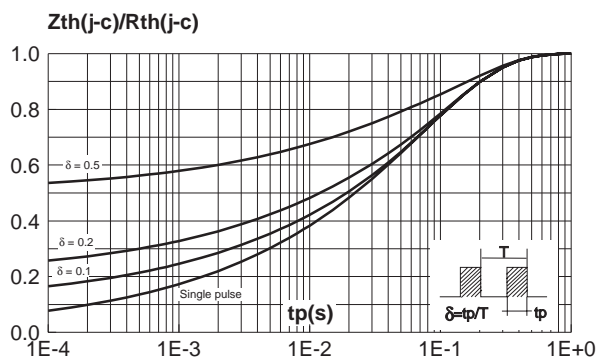
**Fig. 5-1:** Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220AC / I<sup>2</sup>PAK / D<sup>2</sup>PAK).



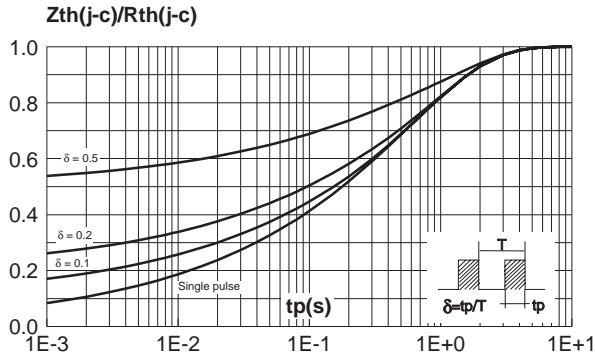
**Fig. 5-2:** Non repetitive surge peak forward current versus overload duration (maximum values) (ISOWATT220AC, TO-220FPAC).



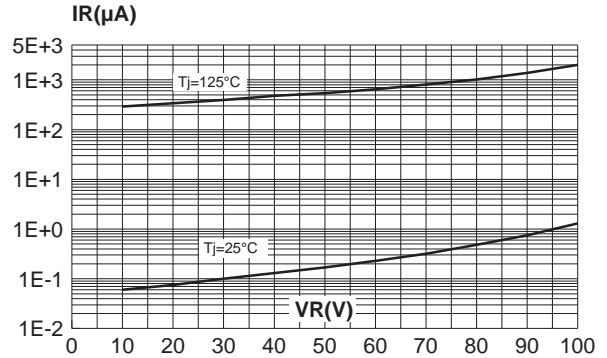
**Fig. 6-1:** Relative variation of thermal impedance junction to case versus pulse duration (TO-220AC / I<sup>2</sup>PAK / D<sup>2</sup>PAK).



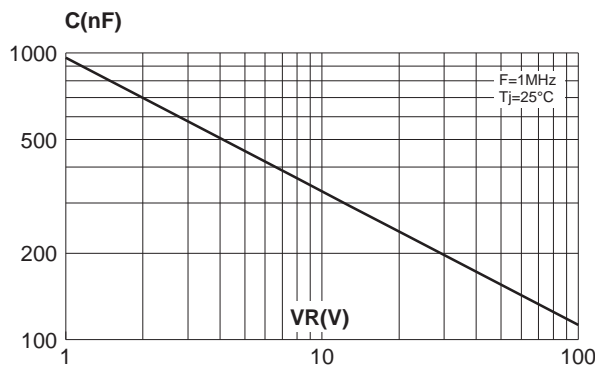
**Fig. 6-2:** Relative variation of thermal impedance junction to case versus pulse duration (ISOWATT220AC, TO-220FPAC).



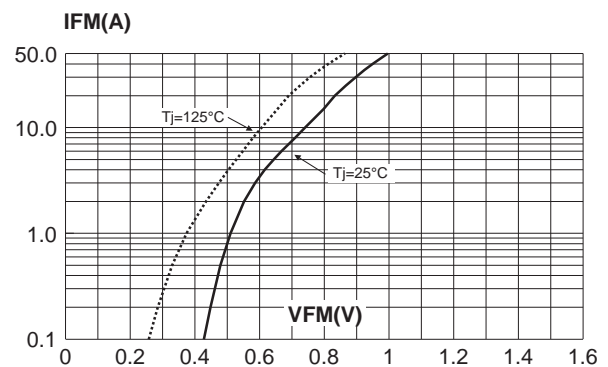
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



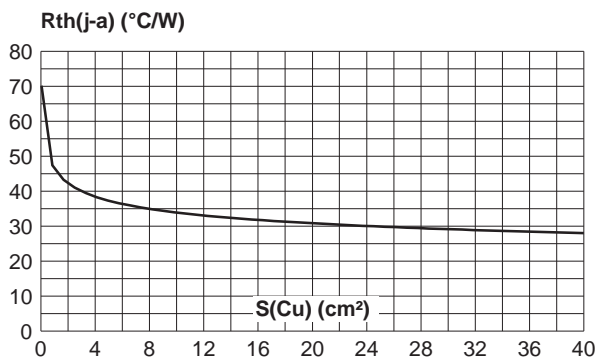
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



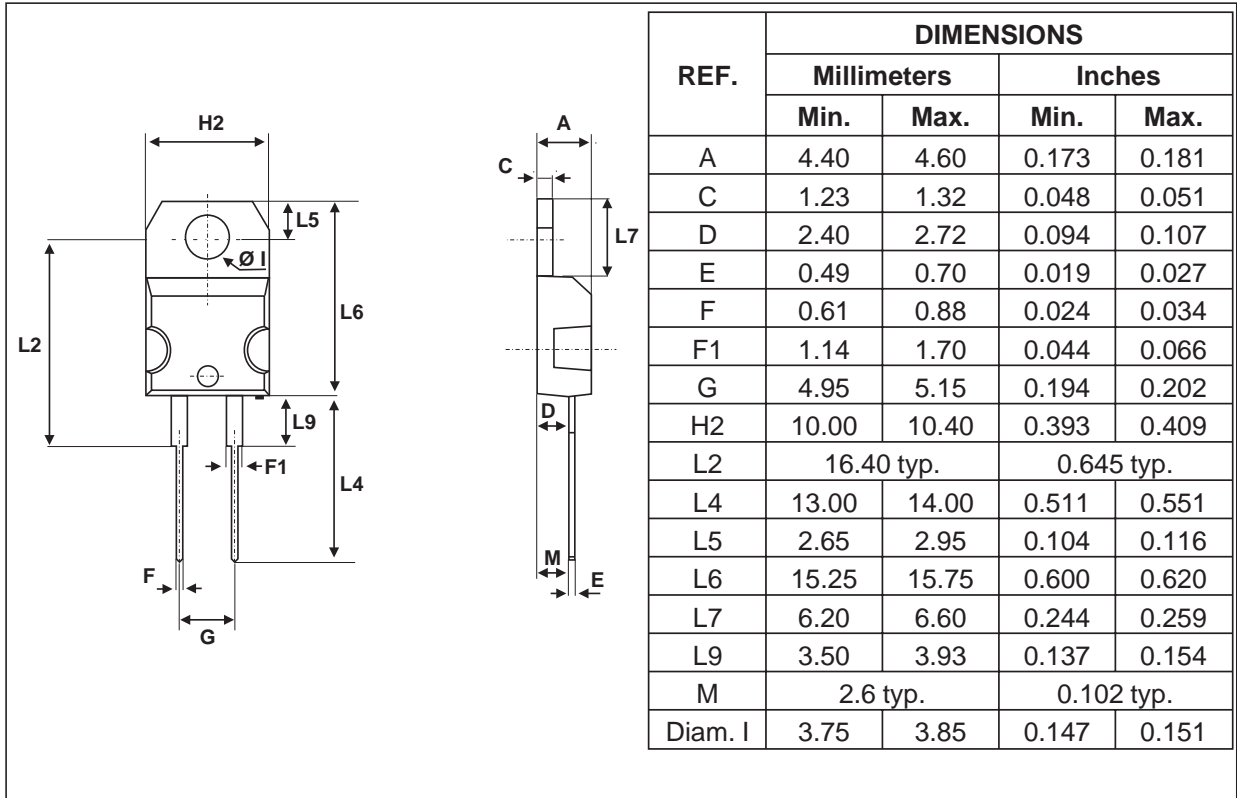
**Fig. 9:** Forward voltage drop versus forward current (maximum values).



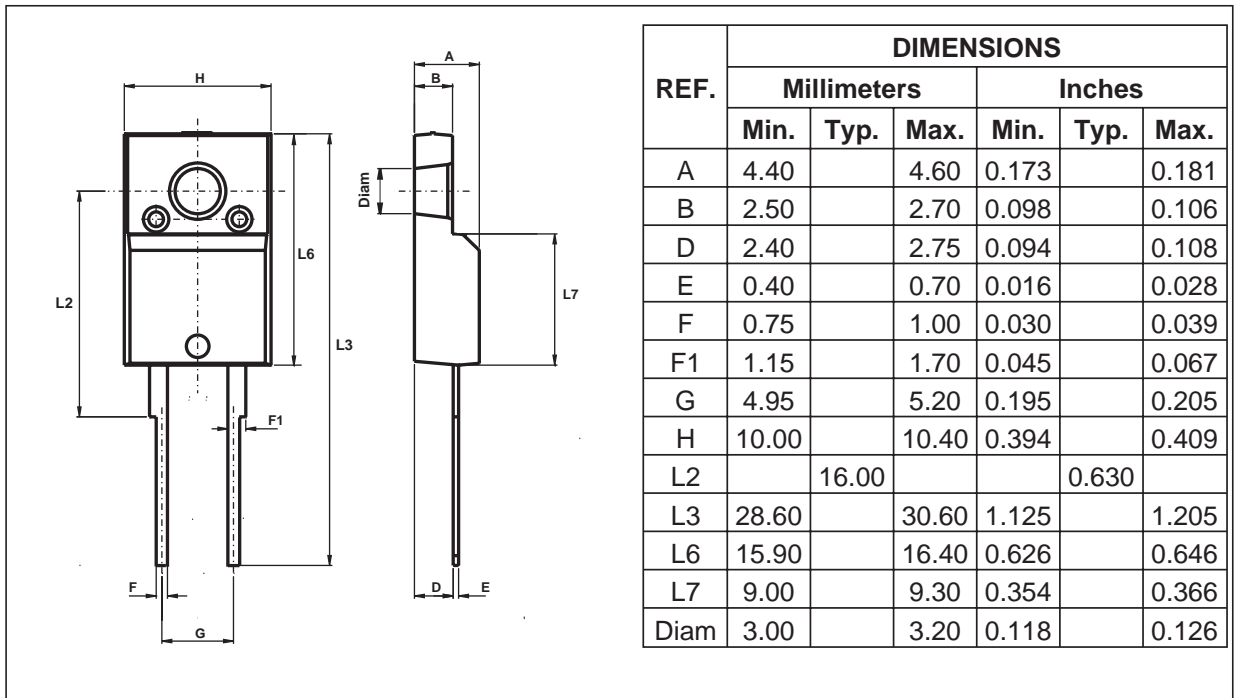
**Fig. 10:** Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness:  $35\mu m$ )(D<sup>2</sup>PAK).



**PACKAGE MECHANICAL DATA**  
TO-220AC

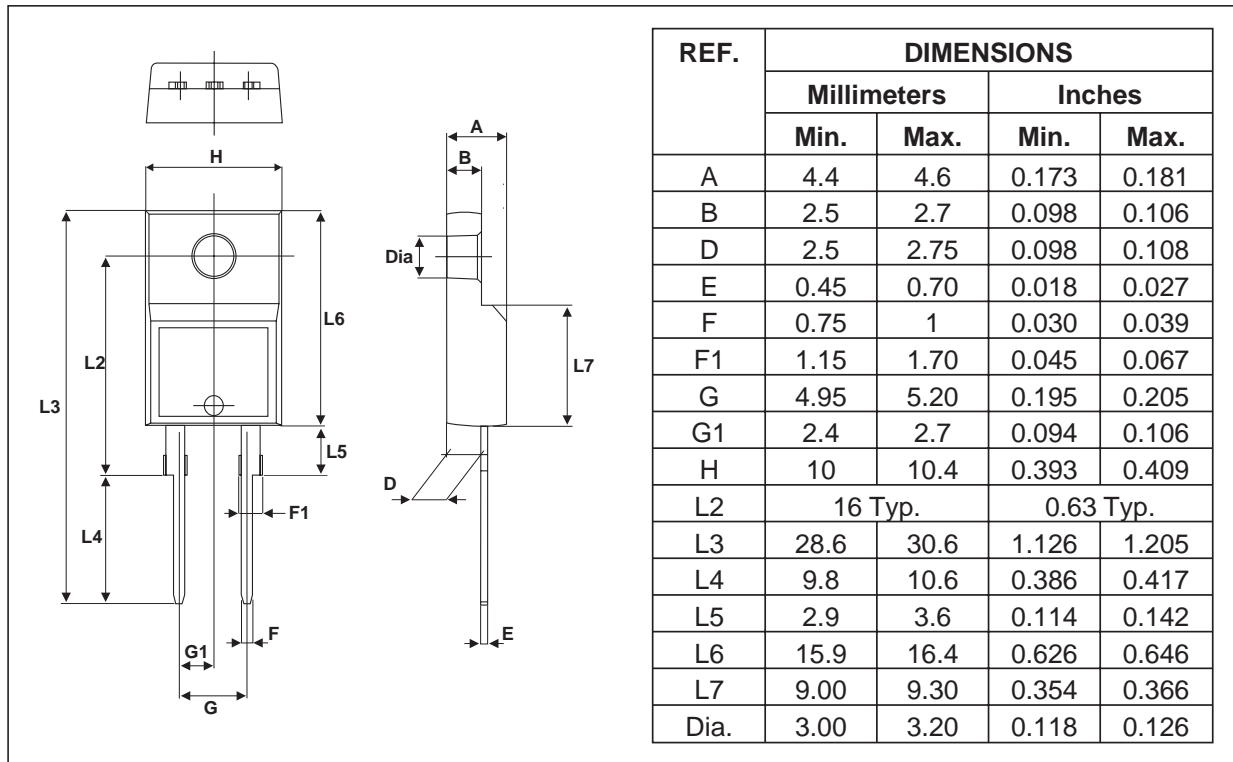


**PACKAGE MECHANICAL DATA**  
ISOWATT220AC

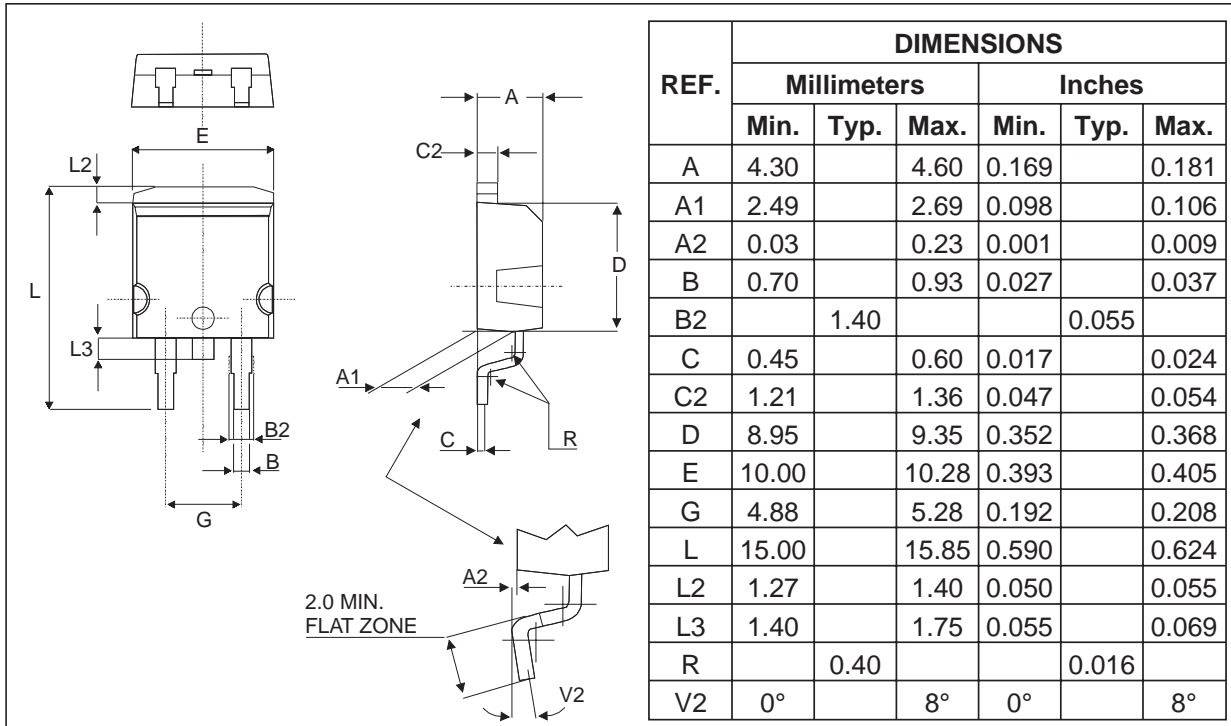


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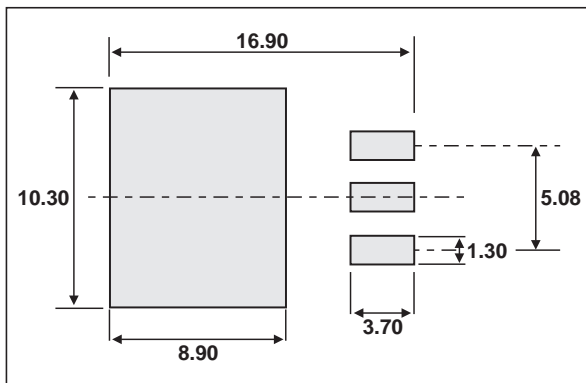
## PACKAGE MECHANICAL DATA TO-220FPAC



**PACKAGE MECHANICAL DATA**  
D<sup>2</sup>PAK

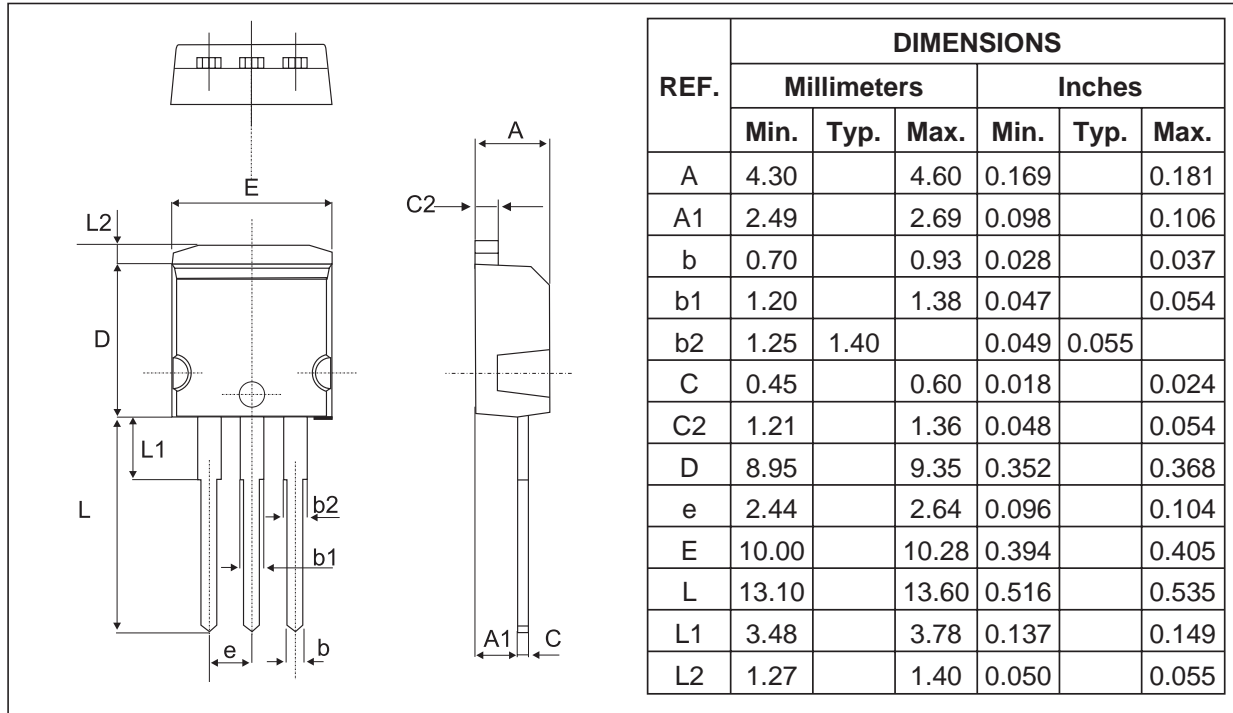


**FOOTPRINT (in millimeters)D<sup>2</sup>PAK**



# STPS8H100D/F/G/R/FP

## PACKAGE MECHANICAL DATA I<sup>2</sup>PAK



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS8H100D	STPS8H100D	TO-220AC	1.86g	50	Tube
STPS8H100F	STPS8H100F	ISOWATT220AC	2.00g	50	Tube
STPS8H100FP	STPS8H100FP	TO-220FPAC	1.9 g	50	Tube
STPS8H100R	STPS8H100R	I <sup>2</sup> PAK	1.49g	50	Tube
STPS8H100G	STPS8H100G	D <sup>2</sup> PAK	1.48g	50	Tube
STPS8H100G-TR	STPS8H100G	D <sup>2</sup> PAK	1.48g	500	Tape & reel

- Epoxy meets UL94,V0

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