



# STPS30H100CW/CT

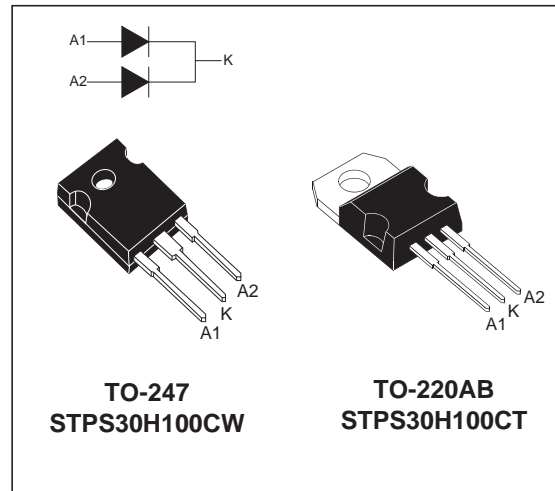
## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	100 V
$T_j$ (max)	175 °C
$V_F$ (max)	0.67 V

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED



### DESCRIPTION

Dual center tap Schottky rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in TO-247, 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		100	V	
$I_{F(RMS)}$	RMS forward current		30	A	
$I_{F(AV)}$	Average forward current	$T_c = 155^\circ\text{C}$	Per diode	15	A
		$\delta = 0.5$	Per device	30	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ sinusoidal	250	A	
$I_{RRM}$	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ square $F = 1 \text{ kHz}$	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 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

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### THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	1.6	$^{\circ}\text{C}/\text{W}$
		Total	0.9	
$R_{th(c)}$		Coupling	0.1	

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

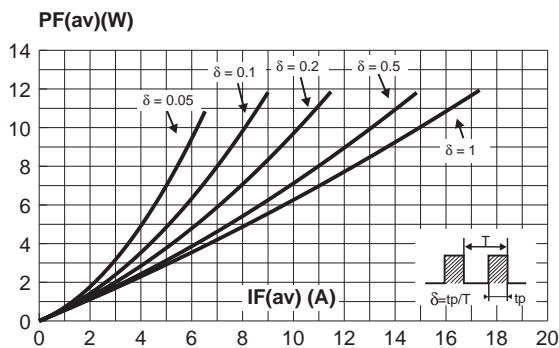
### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			5	$\mu\text{A}$
		$T_j = 125^{\circ}\text{C}$			2	6	$\text{mA}$
$V_F^{**}$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 15 \text{ A}$			0.80	$\text{V}$
		$T_j = 125^{\circ}\text{C}$	$I_F = 15 \text{ A}$		0.64	0.67	
		$T_j = 25^{\circ}\text{C}$	$I_F = 30 \text{ A}$			0.93	
		$T_j = 125^{\circ}\text{C}$	$I_F = 30 \text{ A}$		0.74	0.80	

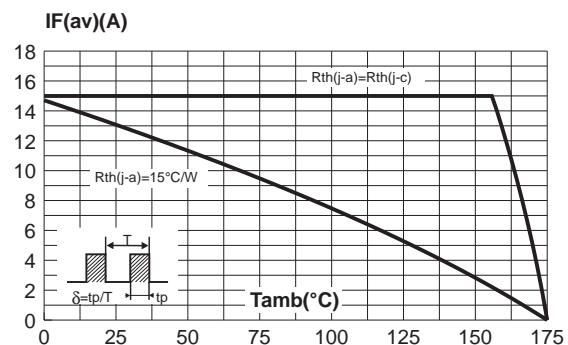
Pulse test : \*  $t_p = 5 \text{ ms}$ ,  $\delta < 2\%$   
 \*\*  $t_p = 380 \mu\text{s}$ ,  $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.54 \times I_{F(av)} + 0.0086 \times I_{F(av)}^2$

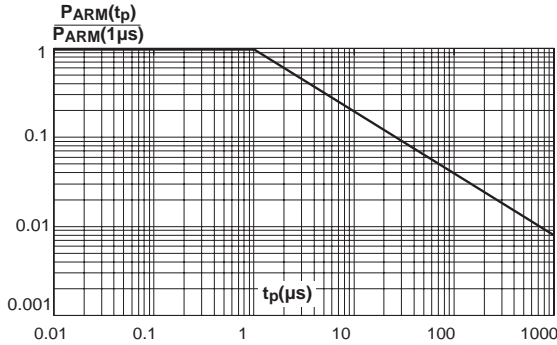
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



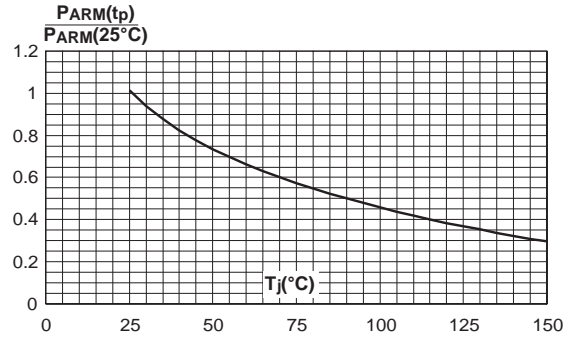
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ , per diode).



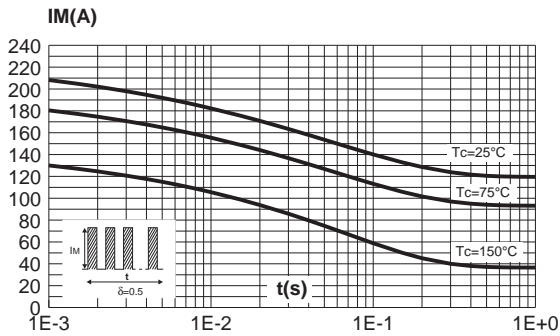
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



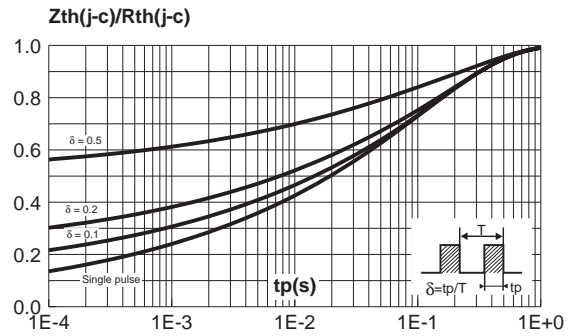
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



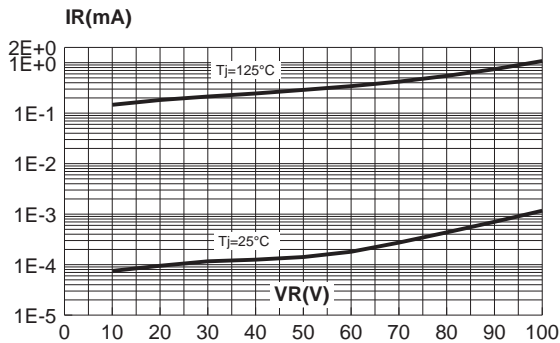
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



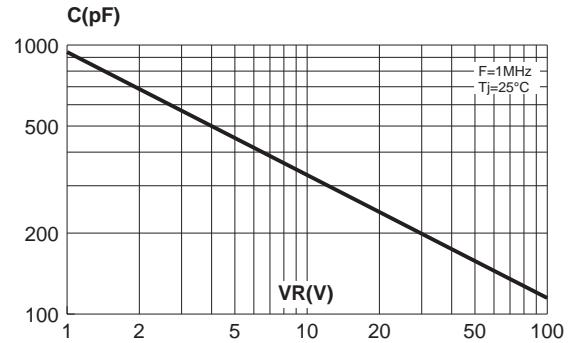
**Fig. 6:** Relative variation of thermal impedance junction to case versus pulse duration.



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

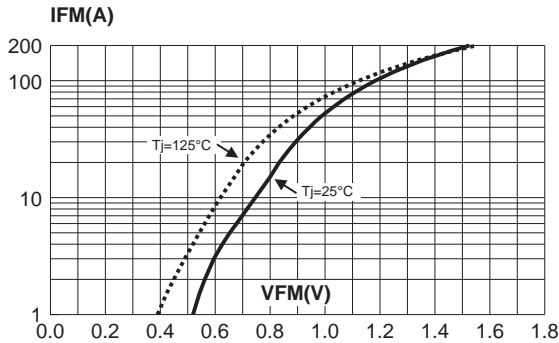


**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values, per diode).

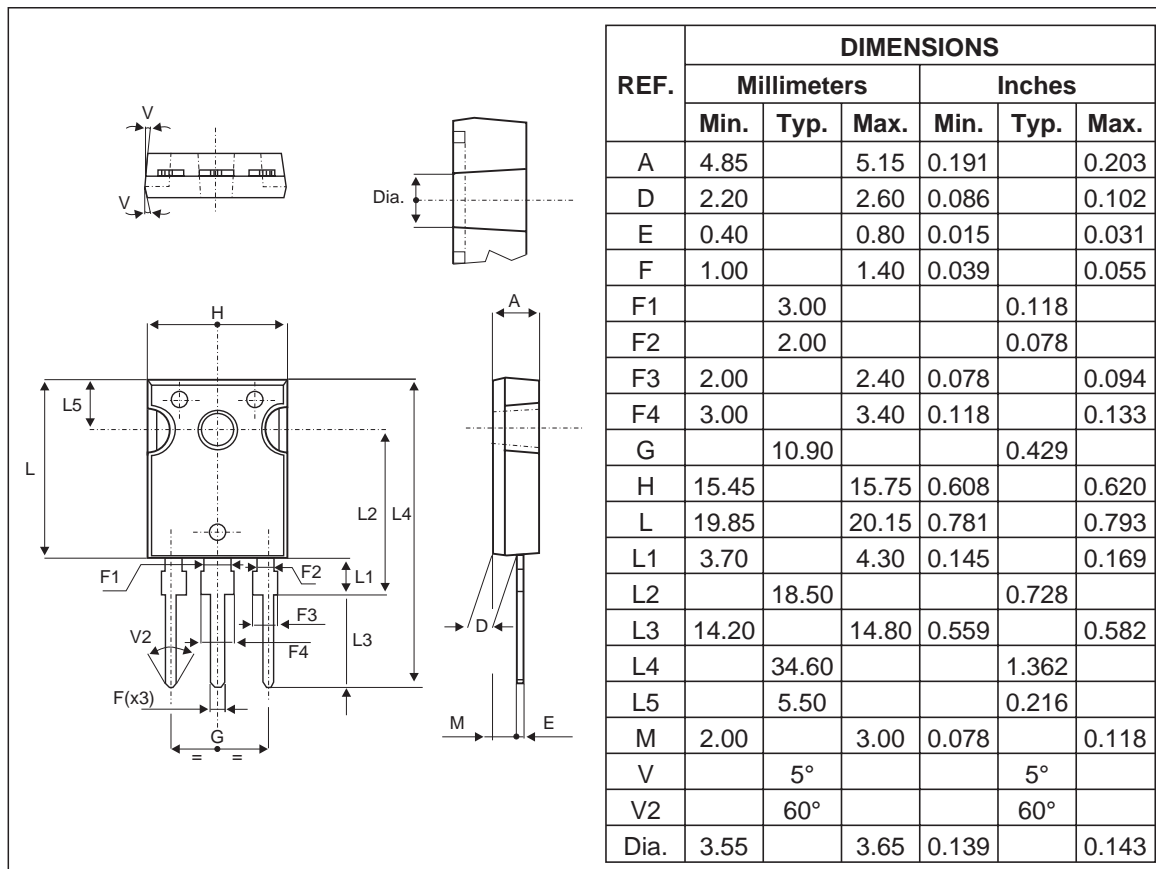


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**Fig. 9:** Forward voltage drop versus forward current (maximum values, per diode).

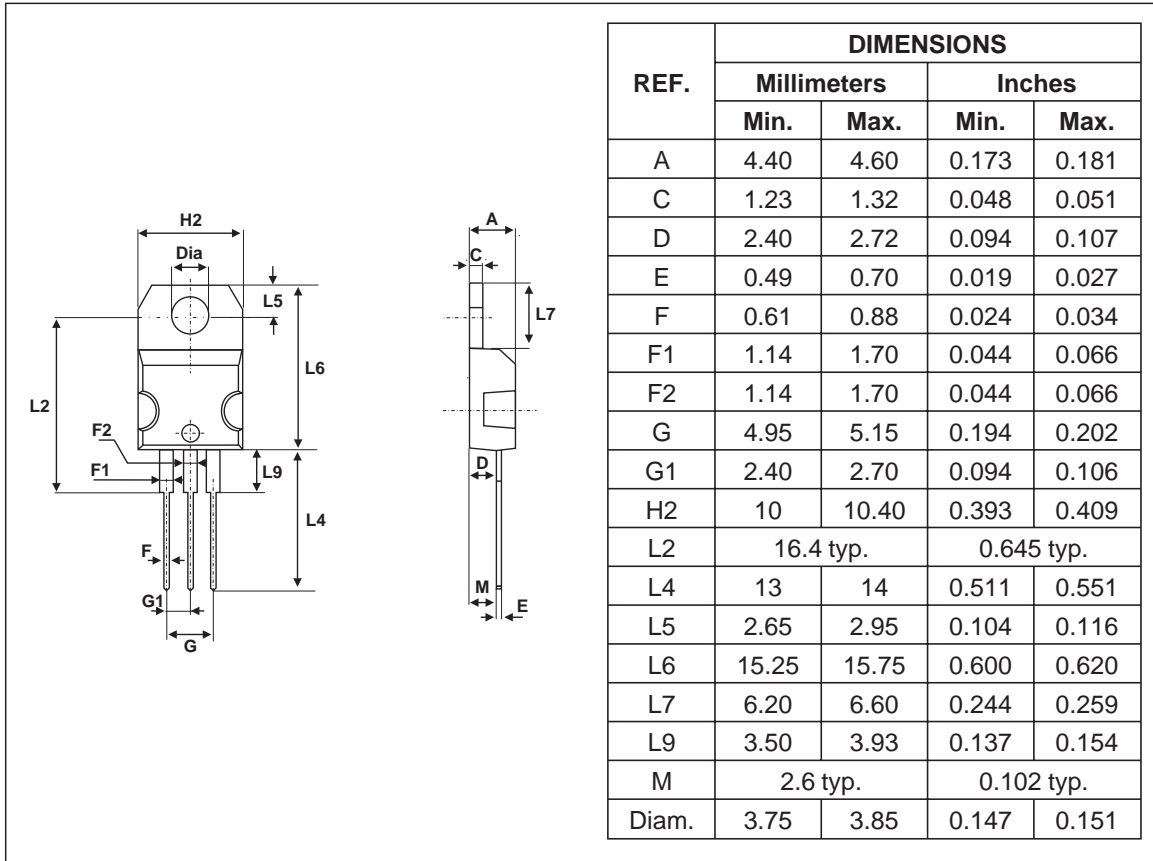


### PACKAGE MECHANICAL DATA TO-247



- COOLING METHOD: C
- RECOMMENDED TORQUE VALUE: 0.8 N.M.
- MAXIMUM TORQUE VALUE: 1 N.M.

**PACKAGE MECHANICAL DATA**  
TO-220AB



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS30H100CW	STPS30H100CW	TO-247	4.36g	30	Tube
STPS30H100CT	STPS30H100CT	TO-220AB	2.20 g	50	Tube

- EPOXY MEETS UL94,V0

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