



STPS30H100CW/CT

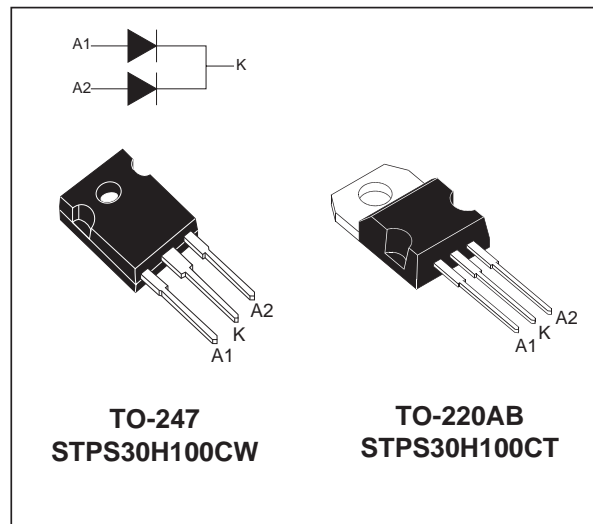
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

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°C δ = 0.5	Per diode 30	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	250	A
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs square F = 1kHz	1	A
I _{RSM}	Non repetitive peak reverse current	t _p = 100 μs square	3	A
P _{ARM}	Repetitive peak avalanche power	t _p = 1μs T _j = 25°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/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 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	μA
		$T_j = 125^{\circ}\text{C}$			2	6	mA
V_F^{**}	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 15\text{ A}$			0.80	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 : * $t_p = 5\text{ ms}$, $\delta < 2\%$

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

To evaluate the maximum conduction losses use the following equation :

$$P = 0.54 \times I_{F(AV)} + 0.0086 \times I_{F(RMS)}^2$$

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

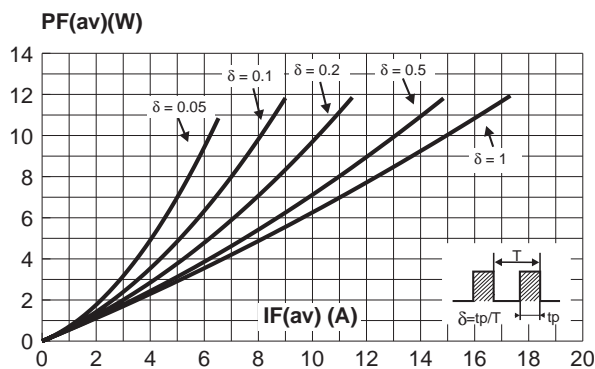


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

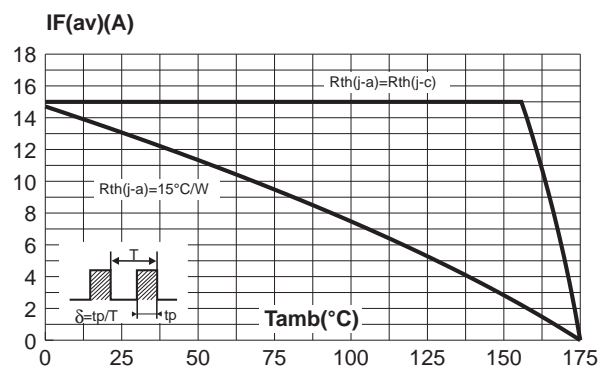


Fig. 3: Normalized avalanche power derating versus pulse duration.

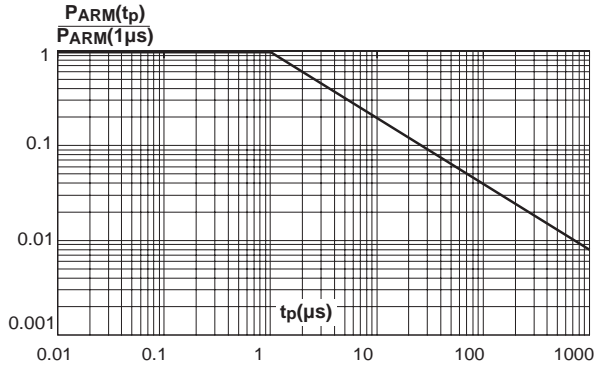


Fig. 4: Normalized avalanche power derating versus junction temperature.

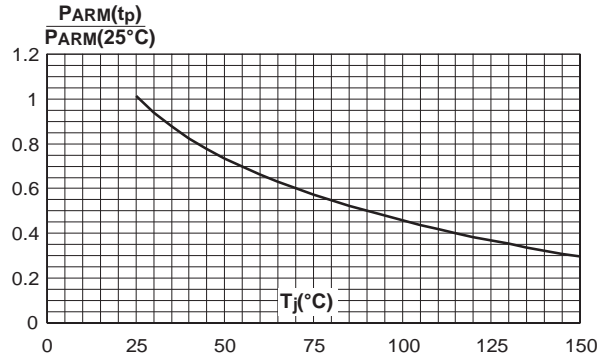


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

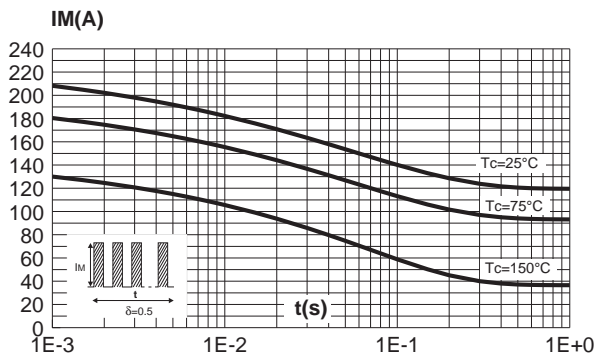


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

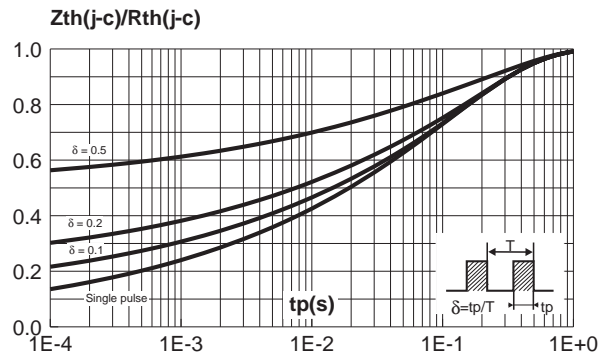


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

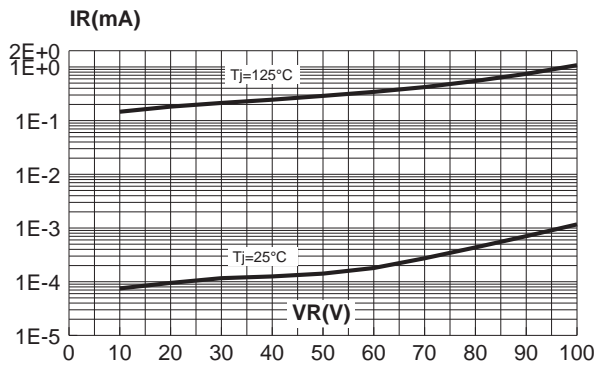
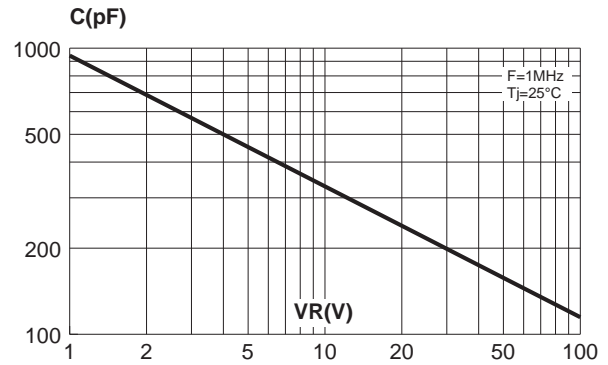
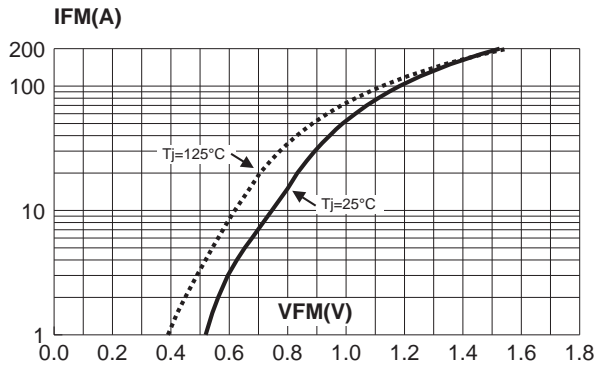


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

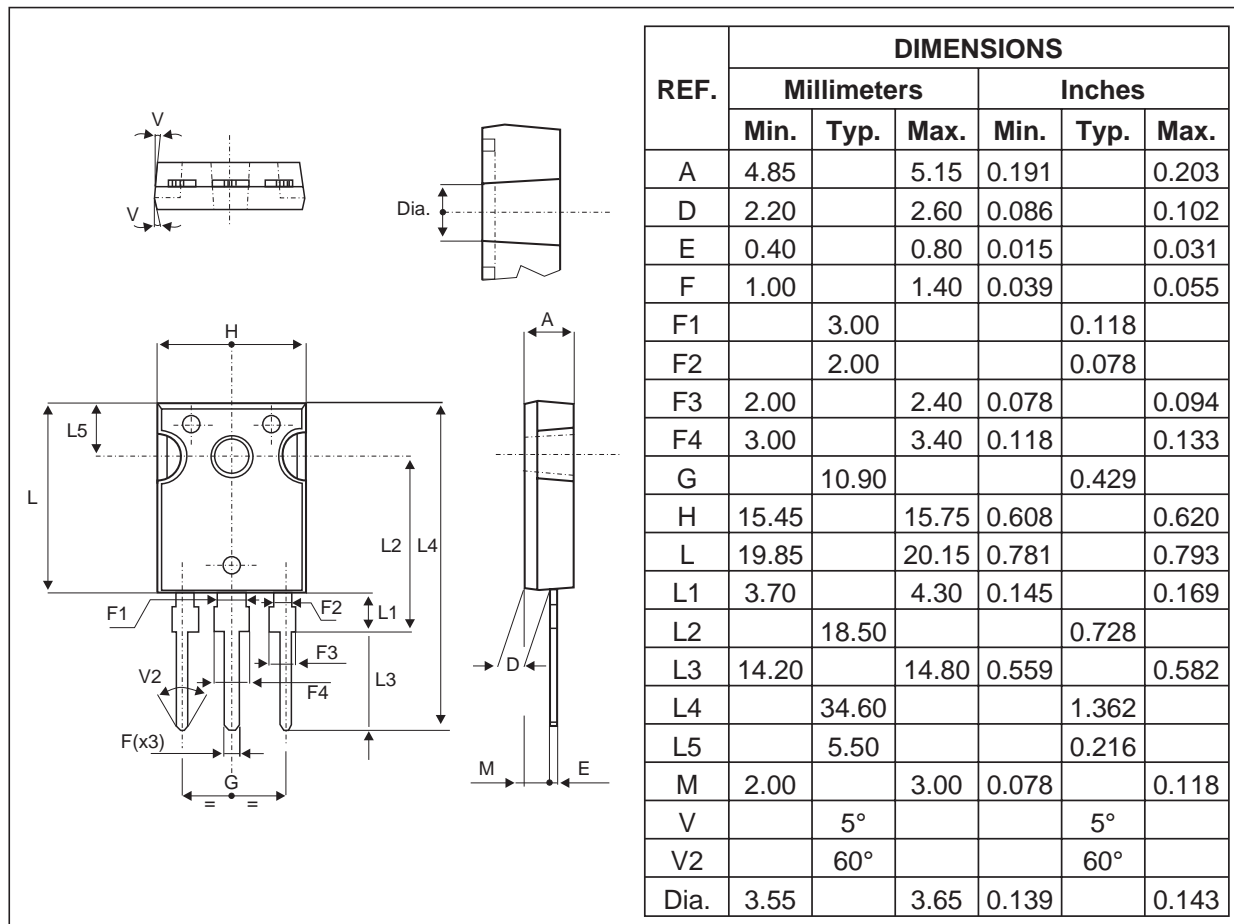


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Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).

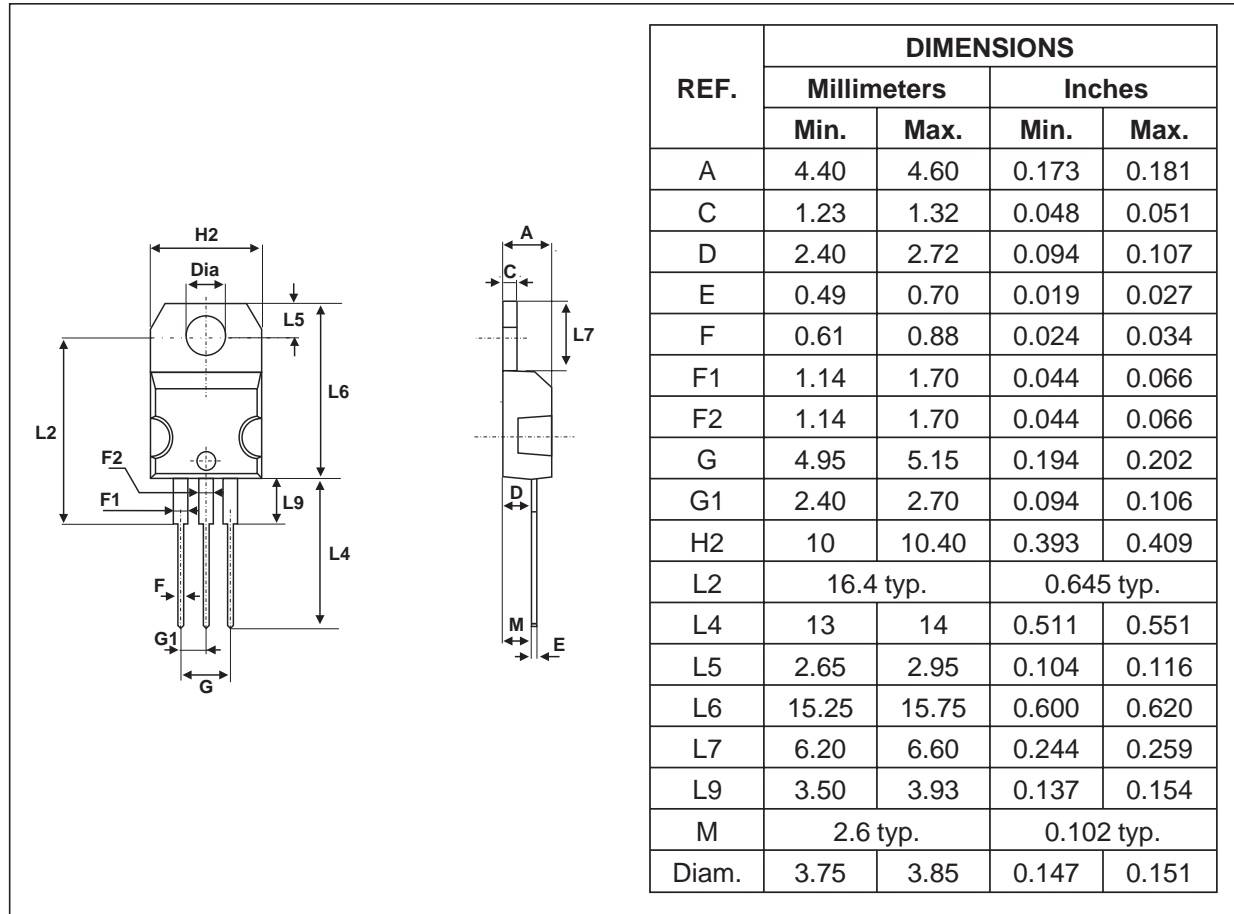


PACKAGE MECHANICAL DATA TO-247



- 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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