



STPS30H100CW/CT

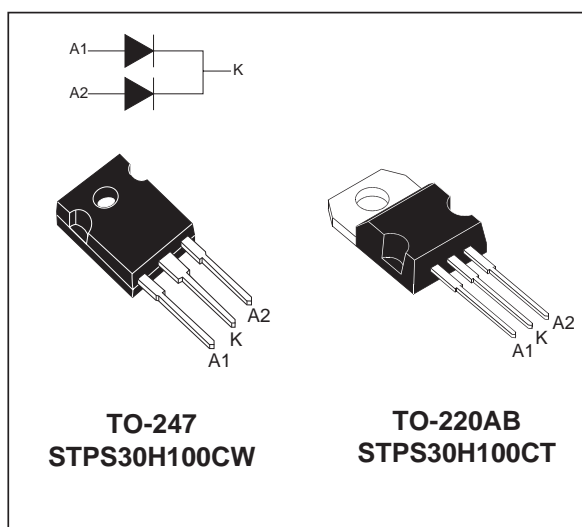
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

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	Tc = 155°C δ = 0.5	Per diode Per device	15 30	A
I _{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		250	A
I _{RRM}	Repetitive peak reverse current	tp = 2 μs square F = 1kHz		1	A
I _{RSM}	Non repetitive peak reverse current	tp = 100 μs square		3	A
P _{ARM}	Repetitive peak avalanche power	tp = 1μs Tj = 25°C		10800	W
T _{stg}	Storage temperature range			- 65 to + 175	°C
Tj	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

THERMAL RESISTANCES

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

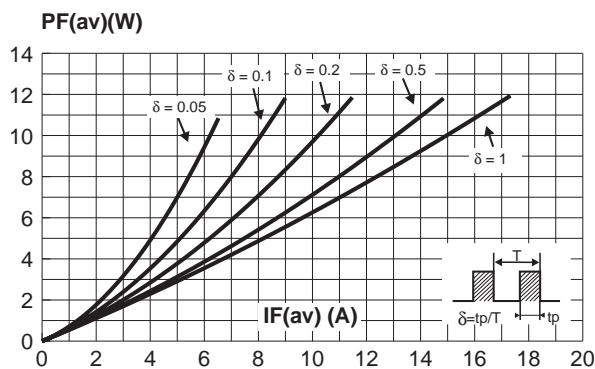


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

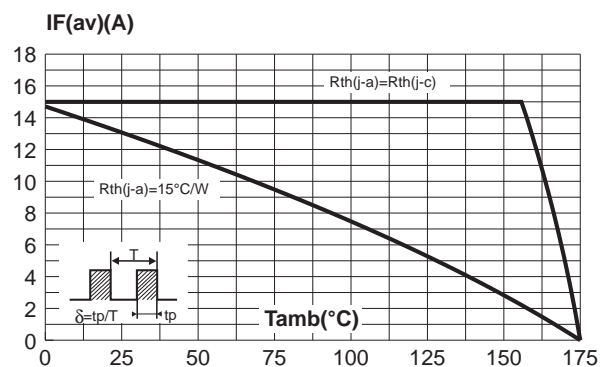


Fig. 3: Normalized avalanche power derating versus pulse duration.

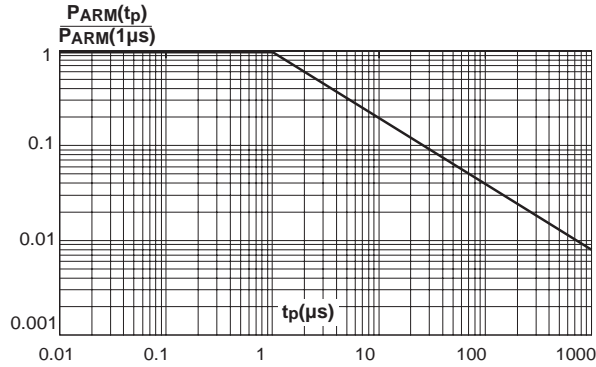


Fig. 4: Normalized avalanche power derating versus junction temperature.

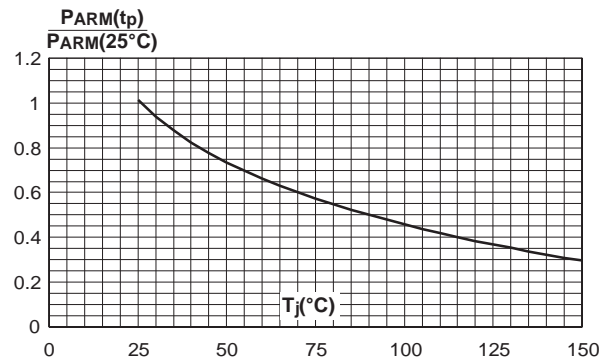


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

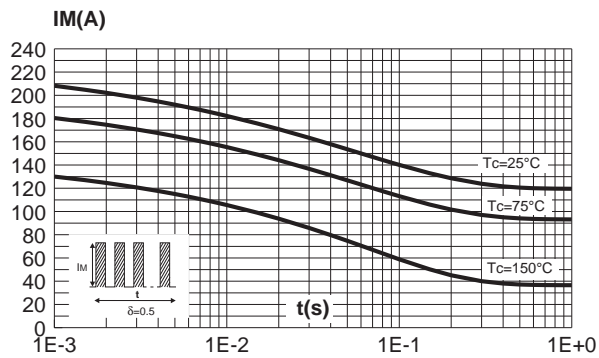


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

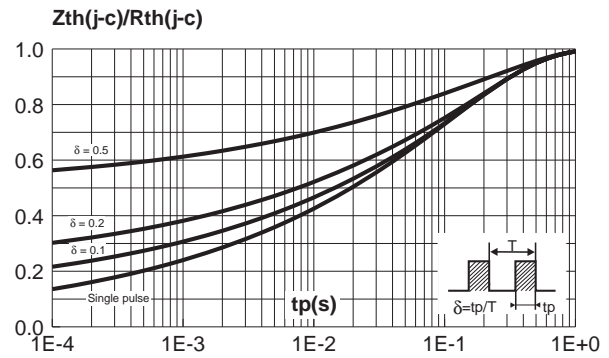


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

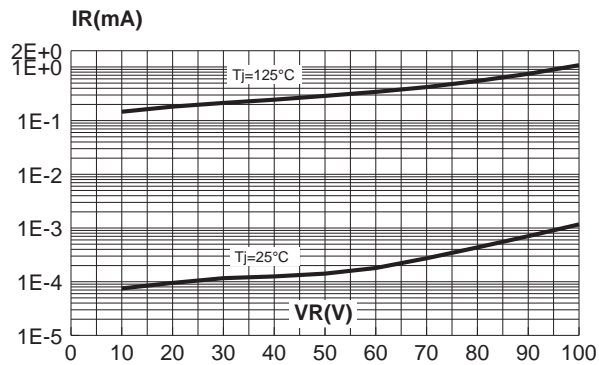
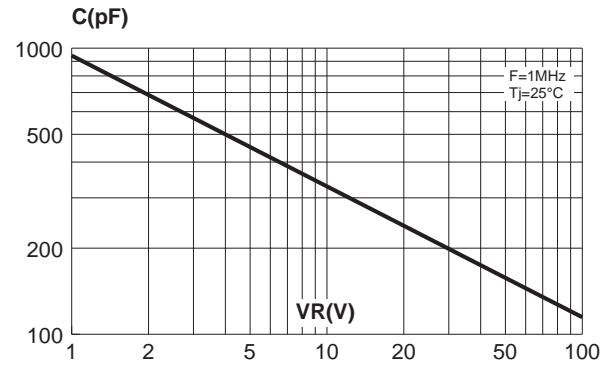
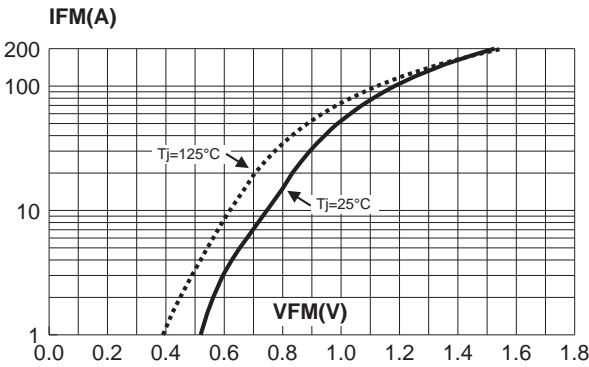


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).



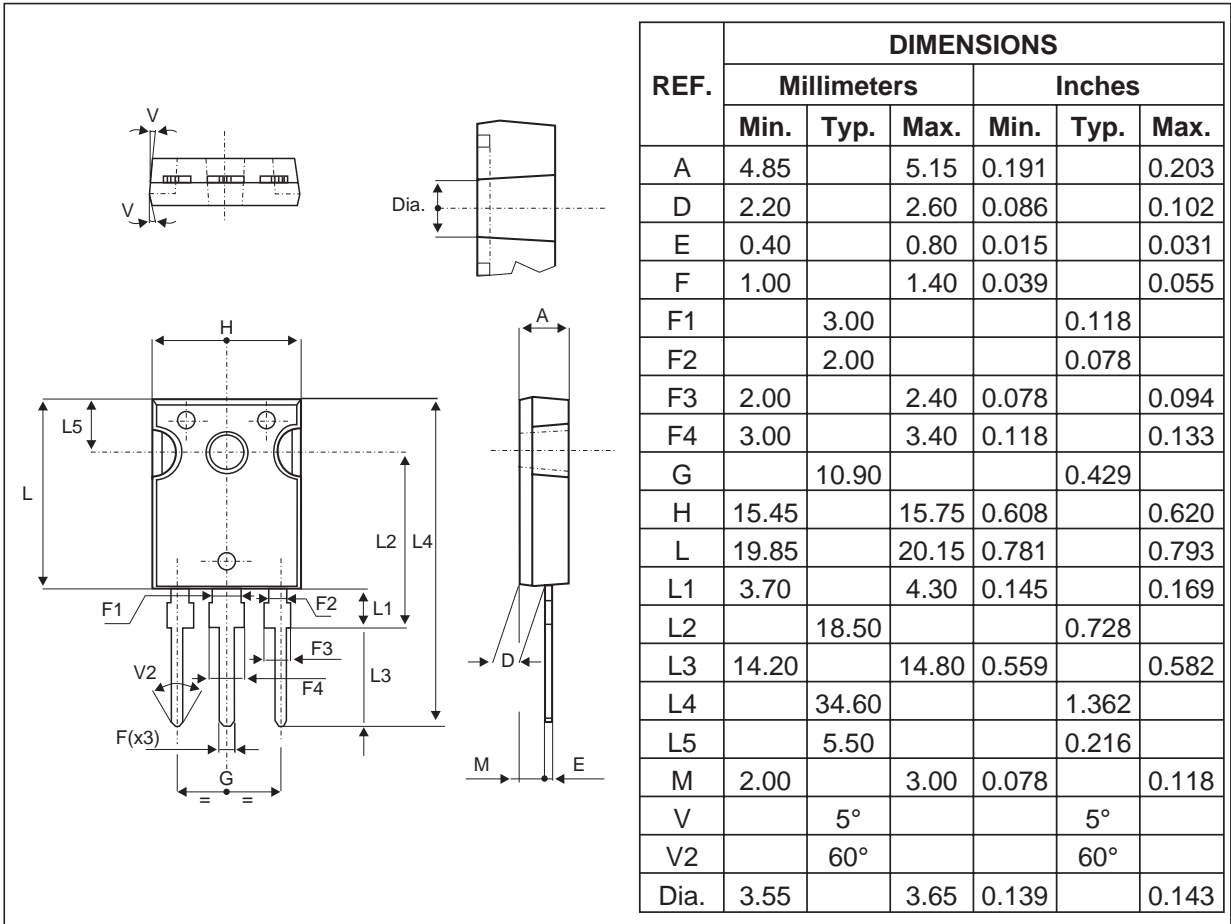
STPS30H100CW/CT

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

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

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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