



勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

STPS40H100CW

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_F(AV)$	2 x 20 A
V_{RRM}	100 V
$T_j(max)$	175 °C
$V_F(max)$	0.61 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

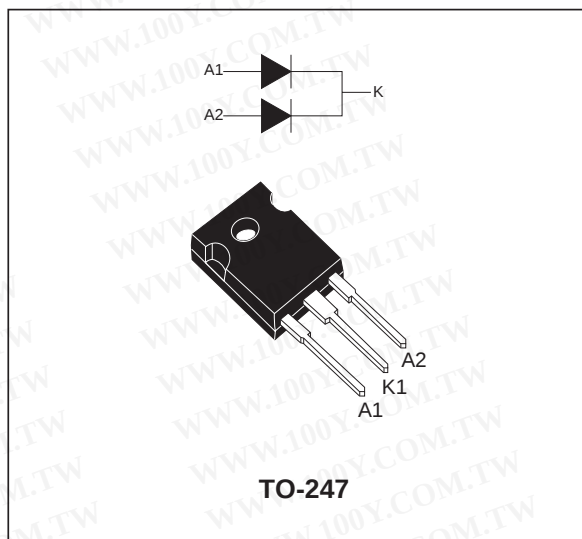
DESCRIPTION

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	$T_c = 160^\circ C$ $\delta = 0.5$	Per diode Per device	20 40	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$ sinusoidal		300	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\text{ }\mu s$ $F = 1\text{ kHz}$ square		1	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100\text{ }\mu s$ square		4	A
E_{AS}	Non repetitive avalanche energy	$T_j = 25^\circ C$ $L = 60\text{ mH}$ $I_{as} = 3\text{ A}$		36	mJ
P_{ARM}	Repetitive peak avalanche power	$t_p = 1\text{ }\mu s$ $T_j = 25^\circ C$		26400	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/ μs



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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode Total	0.9 0.55
$R_{th(c)}$	Coupling	0.1	°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

Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$V_R = V_{RRM}$		10 15	μA mA
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	$I_F = 20\text{ A}$ $I_F = 20\text{ A}$ $I_F = 40\text{ A}$ $I_F = 40\text{ A}$		0.73 0.58 0.85 0.67	V

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 :
 $P = 0.5 \times I_{F(AV)} + 0.0055 \times I_{F(RMS)}^2$

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

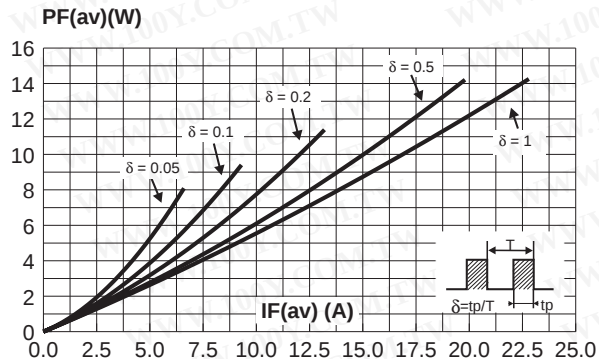


Fig. 3: Normalized avalanche power derating versus pulse duration.

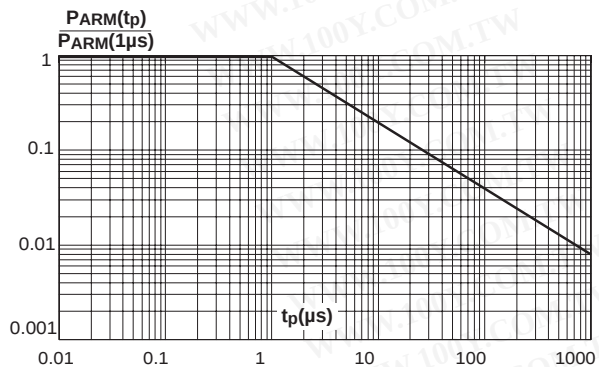


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

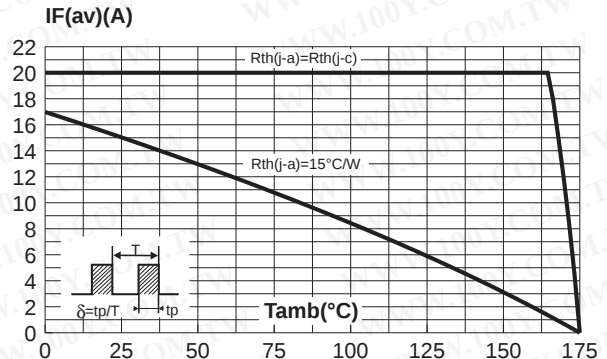


Fig. 4: Normalized avalanche power derating versus junction temperature.

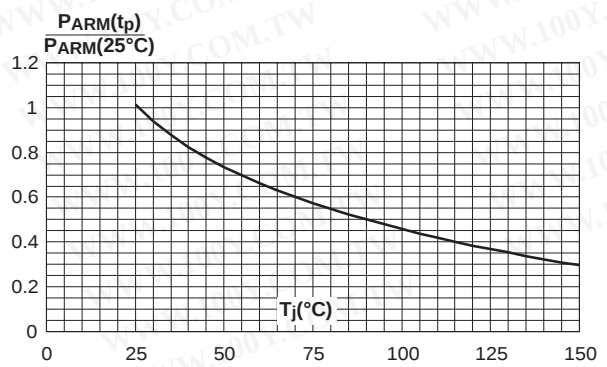


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

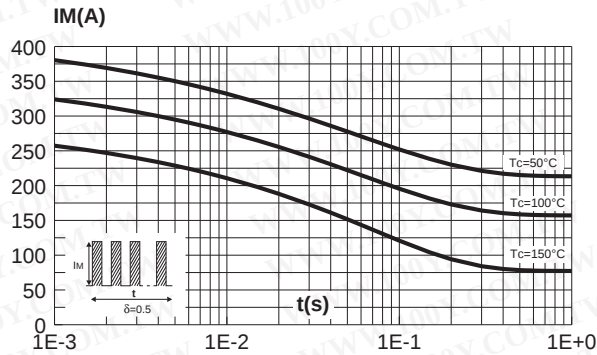


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

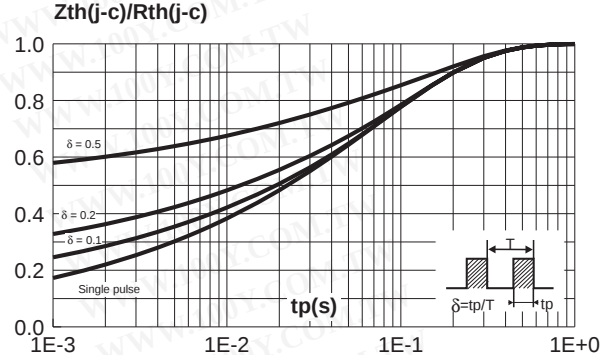


Fig. 7: Reverse leakage current versus reverse voltage applied (maximum values, per diode).

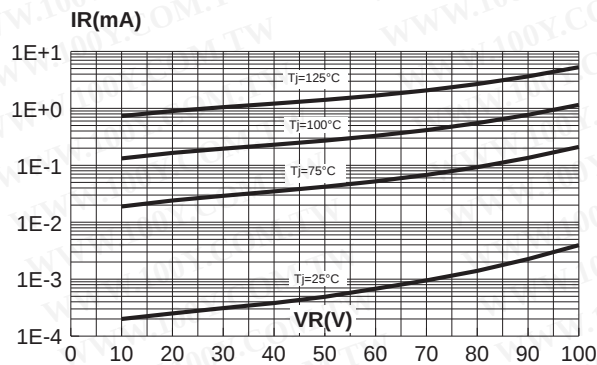


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

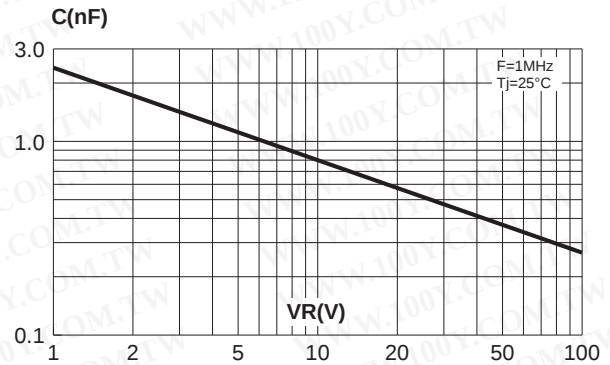
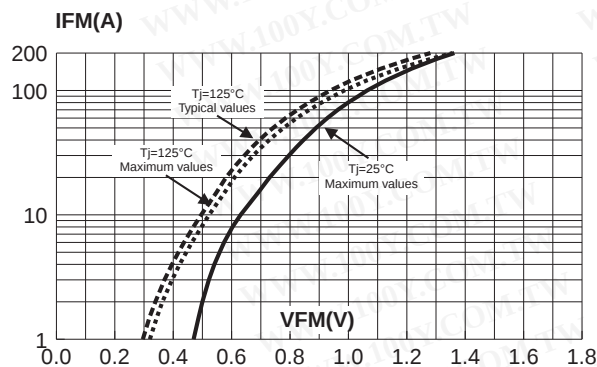
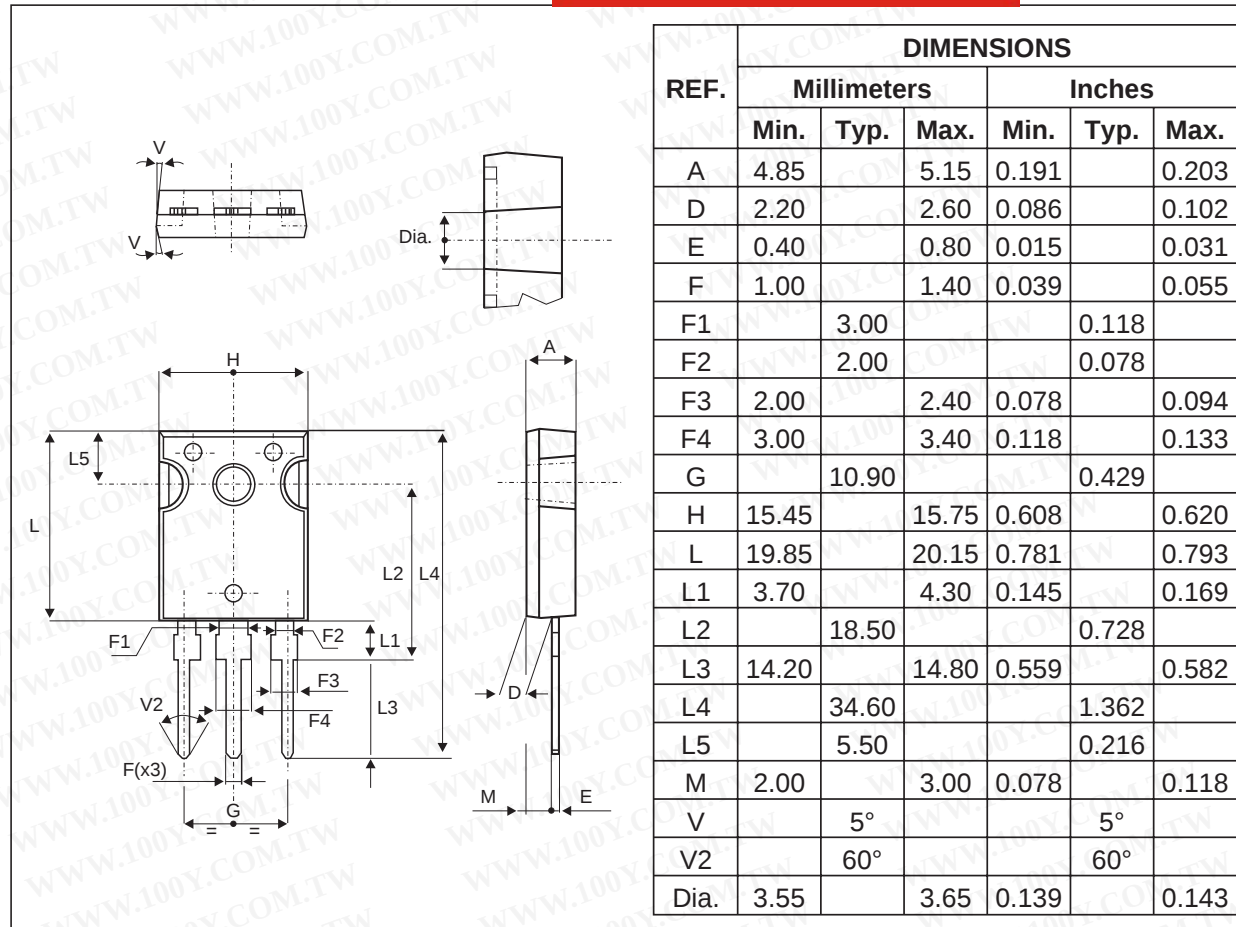


Fig. 9: Forward voltage drop versus forward current (per diode).



STPS40H100CW**PACKAGE MECHANICAL DATA**
TO-247

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- Cooling method: C
- Recommended torque value: 0.8 N.m.
- Maximum torque value: 1 N.m.

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS40H100CW	STPS40H100CW	TO-247	4.36g	30	Tube

- Epoxy meets UL94,V0

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