



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

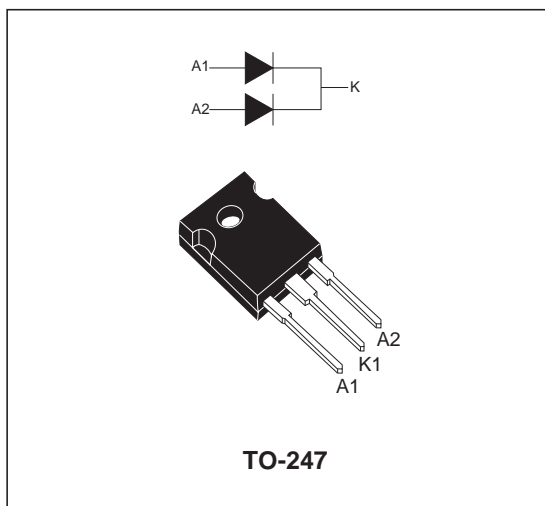
DESCRIPTION

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°C δ = 0.5	Per diode Per device	20 40	A
I _{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		300	A
I _{RRM}	Repetitive peak reverse current	tp = 2 μs F = 1kHz square		1	A
I _{RSM}	Non repetitive peak reverse current	tp = 100 μs square		4	A
E _{AS}	Non repetitive avalanche energy	Tj = 25°C L= 60 mH I _{as} = 3 A		36	mJ
P _{ARM}	Repetitive peak avalanche power	tp = 1μs Tj = 25°C		26400	W
T _{stg}	Storage temperature range			- 65 to + 175	°C
Tj	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	0.9	$^{\circ}\text{C/W}$
		Total	0.55	
$R_{th(c)}$		Coupling	0.1	

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode 1}) = P(\text{diode1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			10	μA
		$T_j = 125^{\circ}\text{C}$			5	15	mA
V_F^{**}	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 20\text{ A}$			0.73	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 20\text{ A}$		0.58	0.61	
		$T_j = 25^{\circ}\text{C}$	$I_F = 40\text{ A}$			0.85	
		$T_j = 125^{\circ}\text{C}$	$I_F = 40\text{ A}$		0.67	0.72	

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).

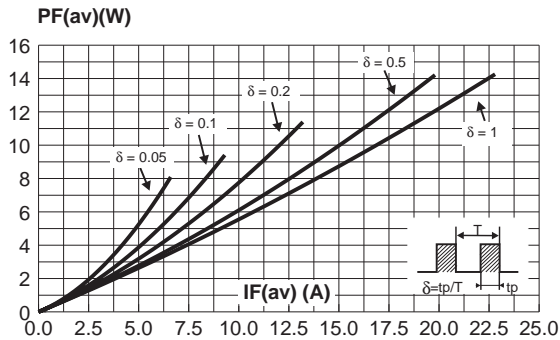


Fig. 3: Normalized avalanche power derating versus pulse duration.

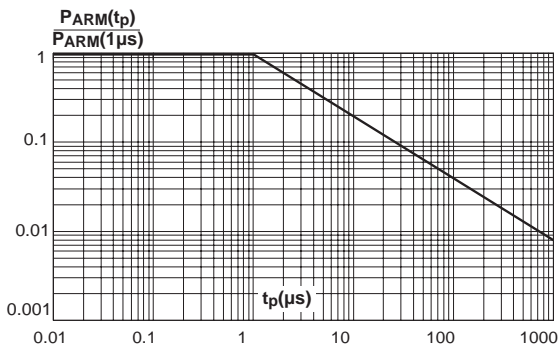


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

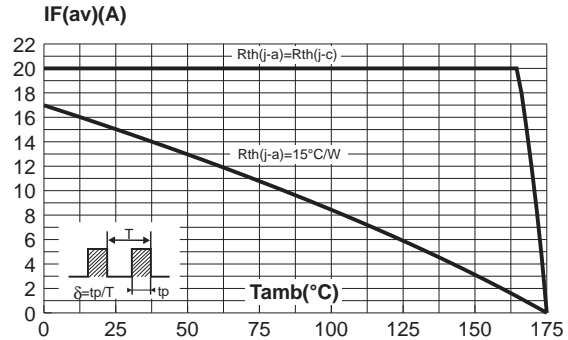
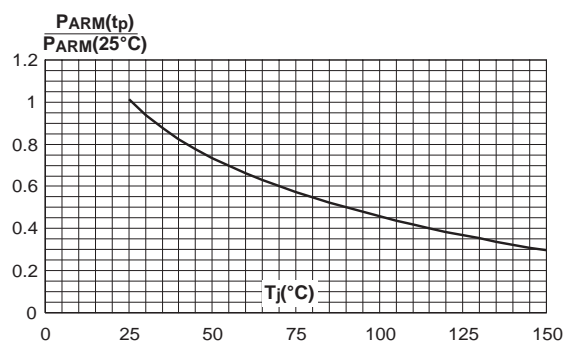
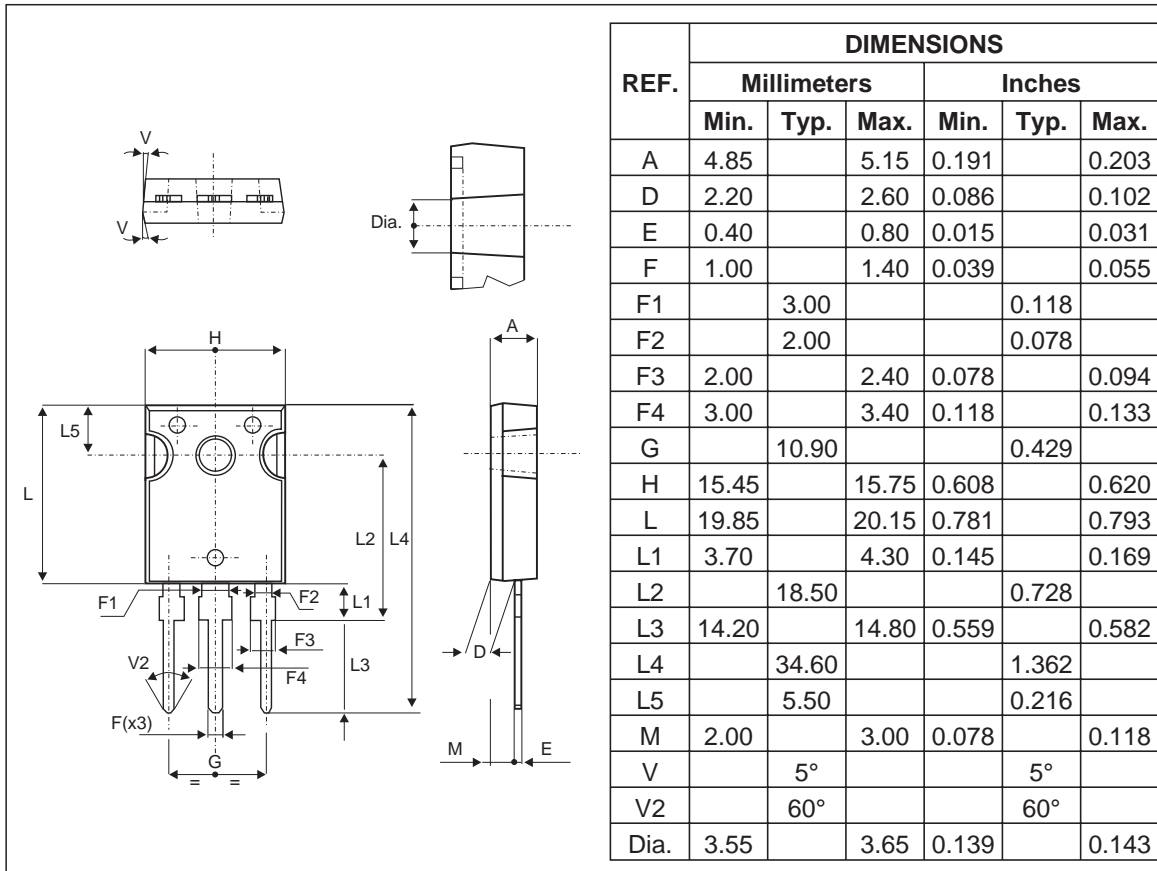


Fig. 4: Normalized avalanche power derating versus junction temperature.



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PACKAGE MECHANICAL DATA TO-247



- 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