



# STPS40H100CW

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

<b>I<sub>F(AV)</sub></b>	<b>2 x 20 A</b>
<b>V<sub>RRM</sub></b>	<b>100 V</b>
<b>T<sub>j (max)</sub></b>	<b>175 °C</b>
<b>V<sub>F (max)</sub></b>	<b>0.61 V</b>

### FEATURES AND BENEFITS

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

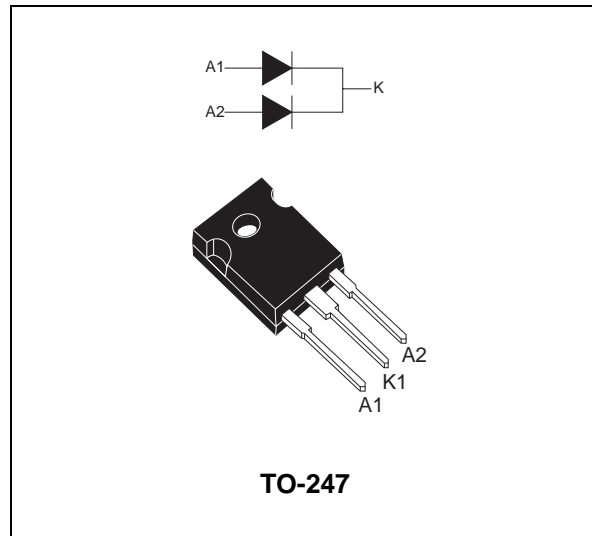
### DESCRIPTION

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 <sub>RRM</sub>	Repetitive peak reverse voltage	100	V
I <sub>F(RMS)</sub>	RMS forward current	30	A
I <sub>F(AV)</sub>	Average forward current	T <sub>c</sub> = 160°C δ = 0.5 Per diode: 20 Per device: 40	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal	300 A
I <sub>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs F = 1kHz square	1 A
I <sub>RSM</sub>	Non repetitive peak reverse current	t <sub>p</sub> = 100 μs square	4 A
E <sub>AS</sub>	Non repetitive avalanche energy	T <sub>j</sub> = 25°C L = 60 mH I <sub>as</sub> = 3 A	36 mJ
T <sub>stg</sub>	Storage temperature range	- 65 to + 175	°C
T <sub>j</sub>	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 <sub>th(j-c)</sub>	Junction to case	Per diode	0.9	°C/W
		Total	0.55	
R <sub>th(c)</sub>		Coupling	0.1	

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

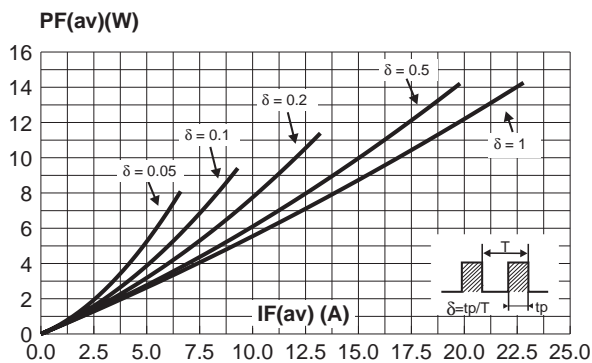
## STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			10	μA
		T <sub>j</sub> = 125°C			5	15	mA
V <sub>F</sub> **	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 20 A			0.73	V
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 20 A		0.58	0.61	
		T <sub>j</sub> = 25°C	I <sub>F</sub> = 40 A			0.85	
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 40 A		0.67	0.72	

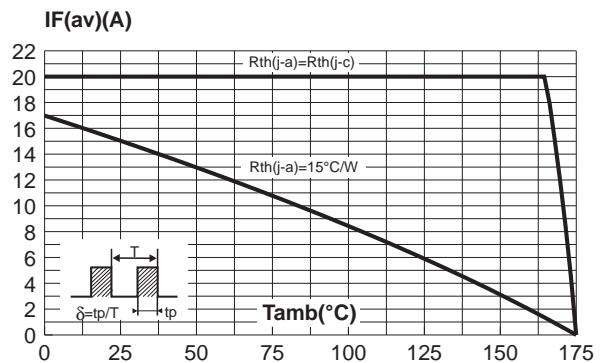
Pulse test : \* t<sub>p</sub> = 5 ms, δ < 2%  
 \*\* t<sub>p</sub> = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.5 \times I_{F(AV)} + 0.0055 \times I_{F(RMS)}^2$

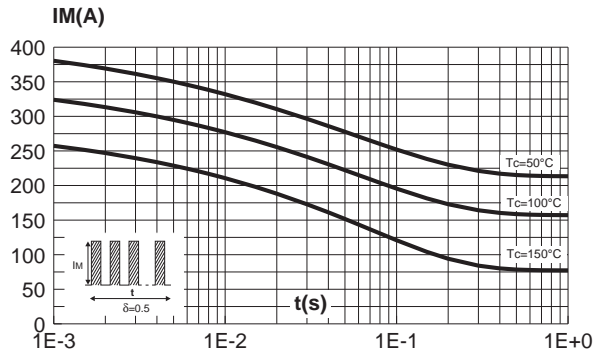
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



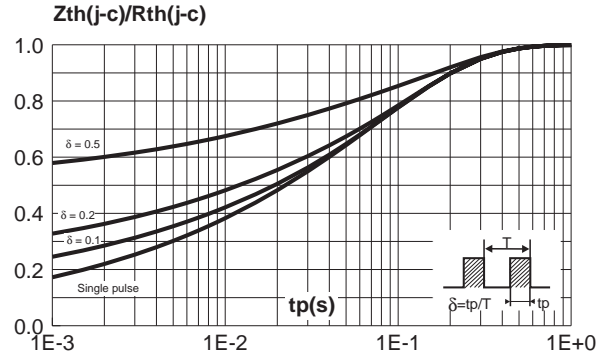
**Fig. 2:** Average forward current versus ambient temperature (δ=0.5, per diode).



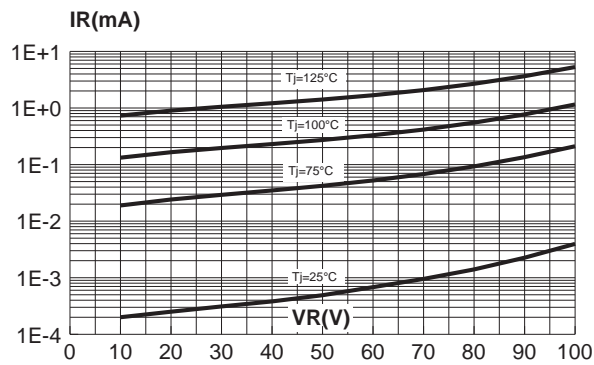
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



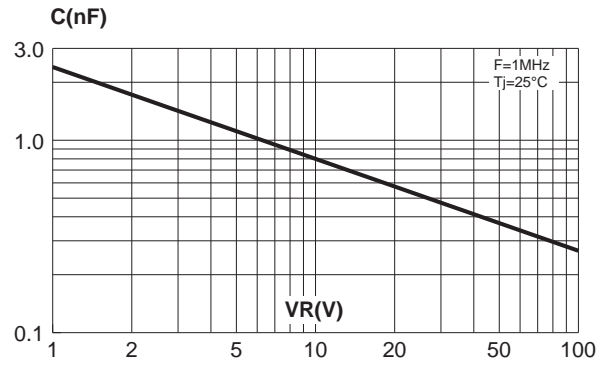
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse duration.



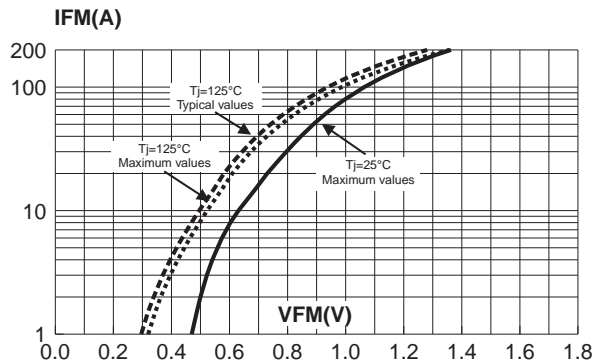
**Fig. 5:** Reverse leakage current versus reverse voltage applied (maximum values, per diode).



**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values, per diode).

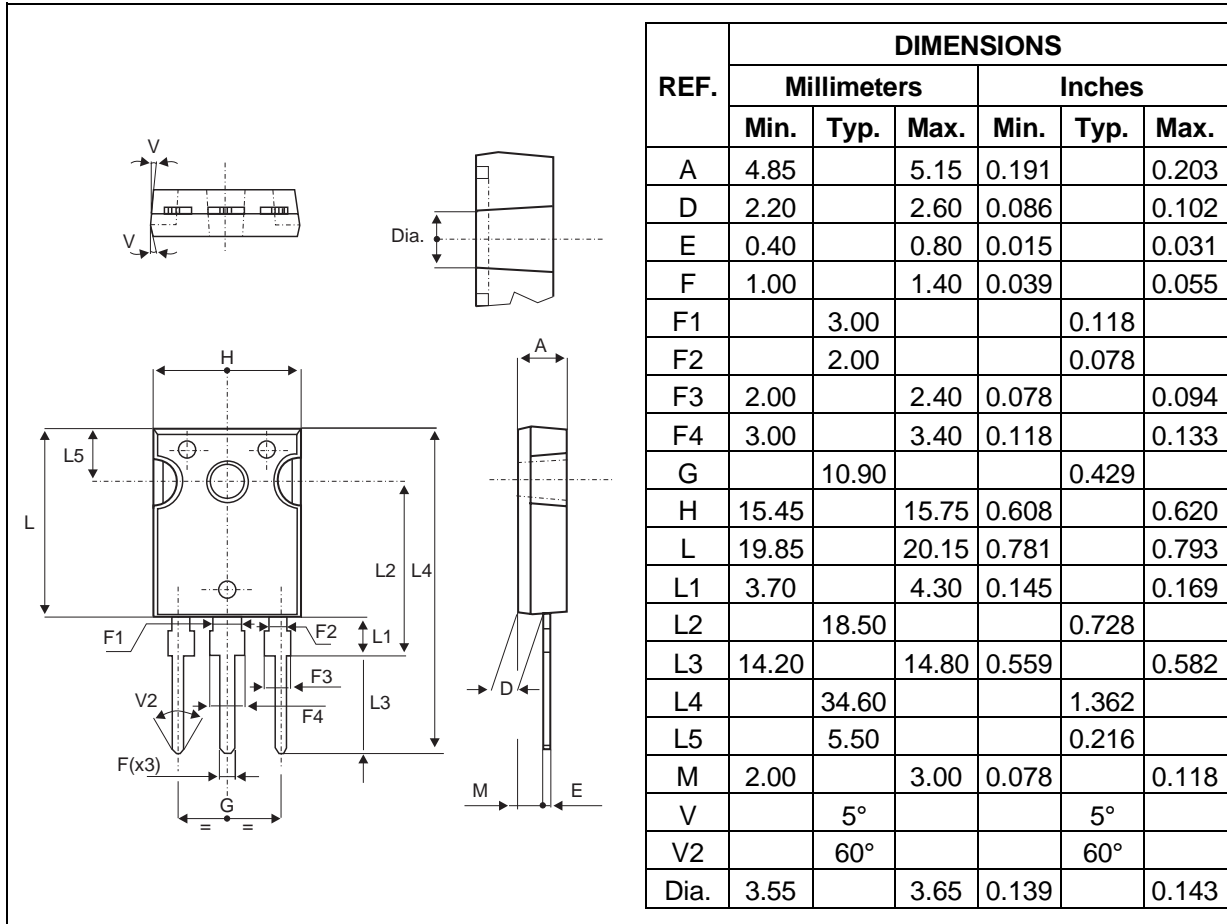


**Fig. 7:** Forward voltage drop versus forward current (per diode).



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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

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