



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 RATED

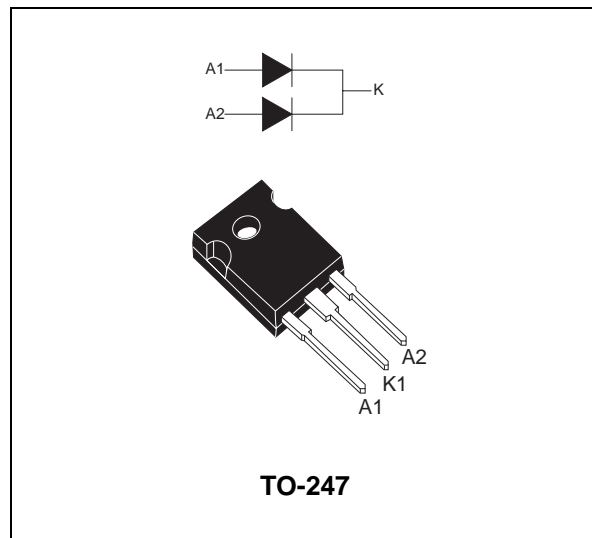
DESCRIPTION

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 _{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: 20 Per device: 40	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	300 A
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs F = 1kHz square	1 A
I _{RSM}	Non repetitive peak reverse current	t _p = 100 μs square	4 A
E _{AS}	Non repetitive avalanche energy	T _j = 25°C L = 60 mH I _{as} = 3 A	36 mJ
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	0.9	°C/W
		Total	0.55	
R _{th(c)}		Coupling	0.1	

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

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			10	μA
		T _j = 125°C			5	15	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 20 A			0.73	V
		T _j = 125°C	I _F = 20 A		0.58	0.61	
		T _j = 25°C	I _F = 40 A			0.85	
		T _j = 125°C	I _F = 40 A		0.67	0.72	

Pulse test : * t_p = 5 ms, δ < 2%
 ** t_p = 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).

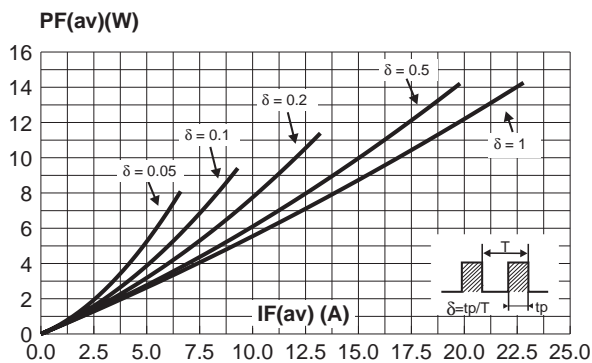


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).

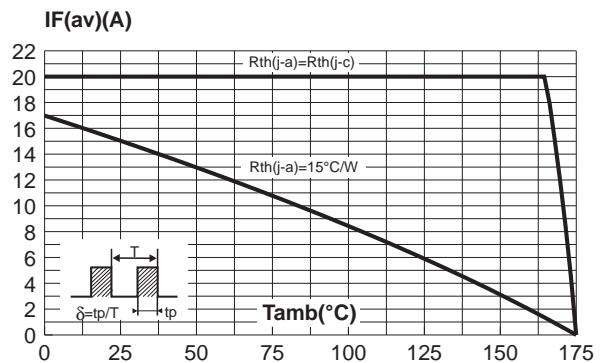


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

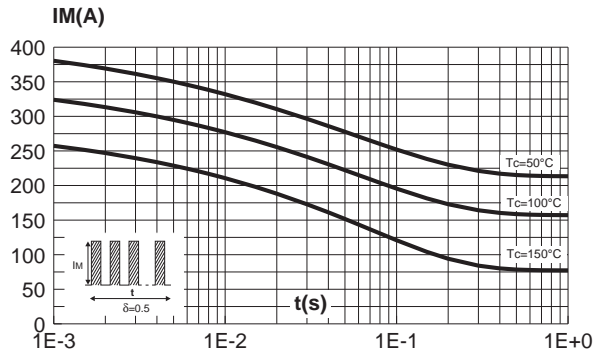


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

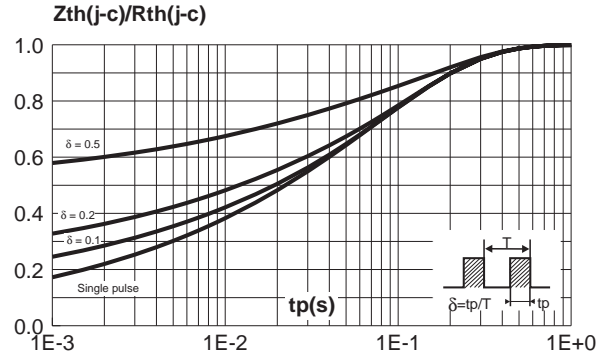


Fig. 5: Reverse leakage current versus reverse voltage applied (maximum values, per diode).

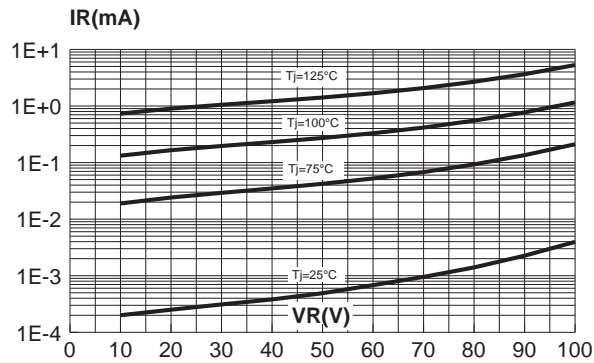


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

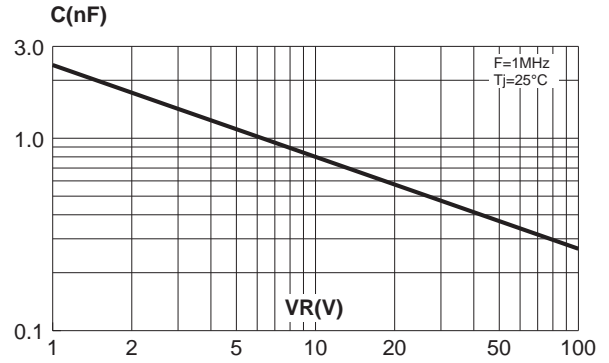
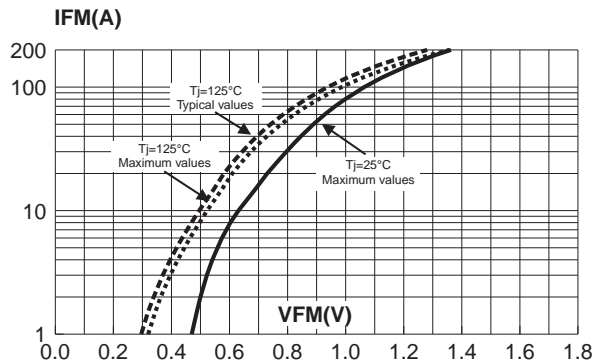
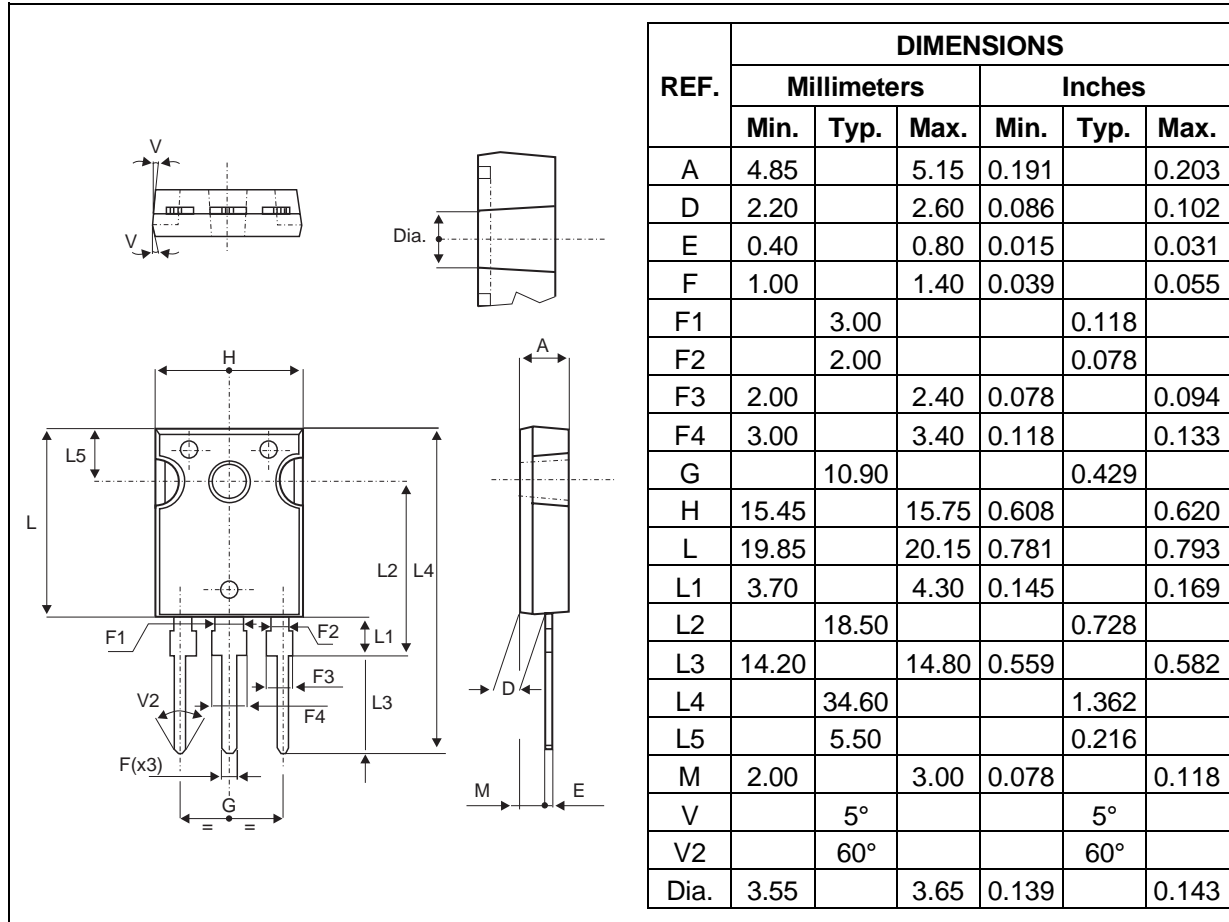


Fig. 7: Forward voltage drop versus forward current (per diode).



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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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