



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

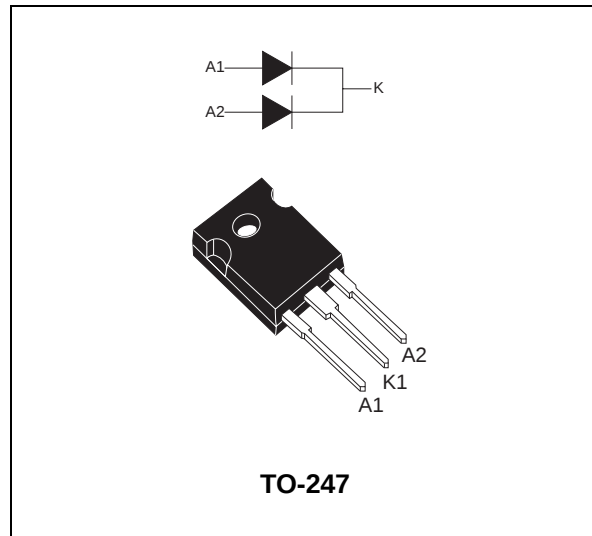
FEATURES AND BENEFITS

- 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 Per device	20 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	$^{\circ}\text{C/W}$
		Total	0.55	
$R_{th(c)}$		Coupling	0.1	

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

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).

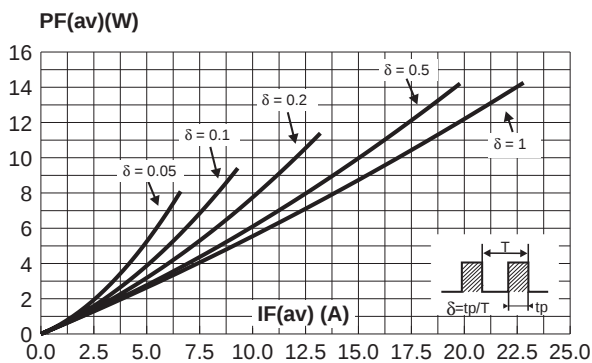


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

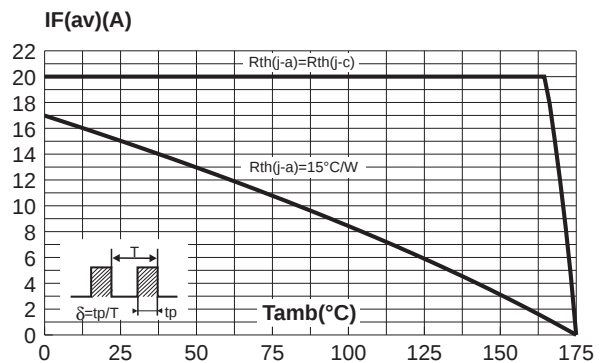


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

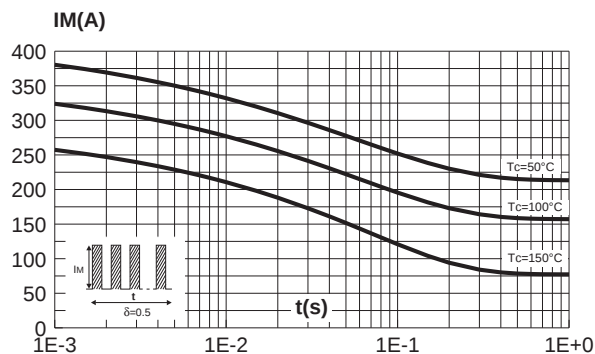


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

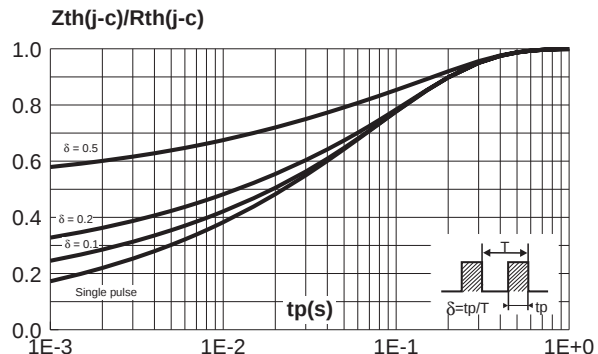


Fig. 5: Reverse leakage current versus reverse voltage applied (maximum values, per diode).

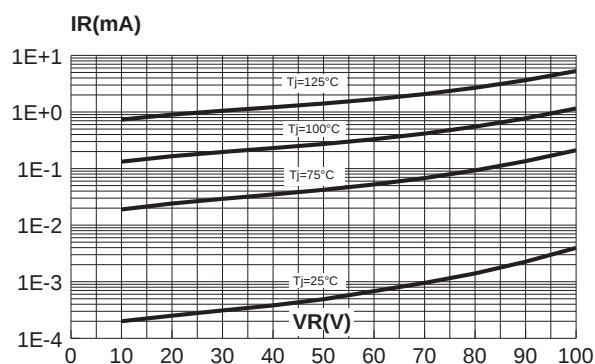


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

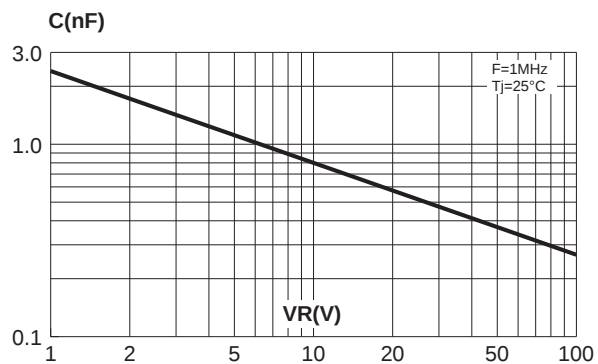
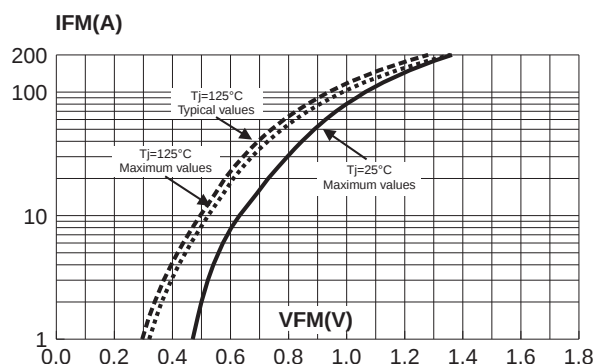


Fig. 7: Forward voltage drop versus forward current (per diode).



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PACKAGE MECHANICAL DATA TO-247

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
D	2.20		2.60	0.086		0.102
E	0.40		0.80	0.015		0.031
F	1.00		1.40	0.039		0.055
F1		3.00			0.118	
F2		2.00			0.078	
F3	2.00		2.40	0.078		0.094
F4	3.00		3.40	0.118		0.133
G		10.90			0.429	
H	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
L4		34.60			1.362	
L5		5.50			0.216	
M	2.00		3.00	0.078		0.118
V		5°			5°	
V2		60°			60°	
Dia.	3.55		3.65	0.139		0.143

- 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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