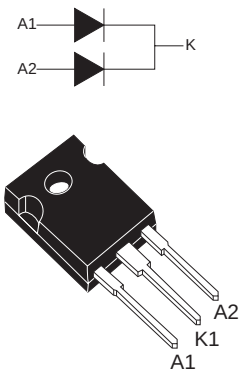
STPS30H100CW

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	100 V
Tj (max)	175 °C
V_F (max)	0.67 V



TO-247

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	Tc = 155°C δ = 0.5	Per diode Per device	15 30	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		250	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz		1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square		3	A
T_{stg}	Storage temperature range			- 65 to + 175	°C
Tj	Maximum operating junction temperature *			175	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per diode Total	1.6 0.9	°C/W
$R_{th\ (c)}$		Coupling	0.1	

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			5	µA
		Tj = 125°C			2	6	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 15 A			0.80	V
		Tj = 125°C	I_F = 15 A		0.64	0.67	
		Tj = 25°C	I_F = 30 A			0.93	
		Tj = 125°C	I_F = 30 A		0.74	0.80	

Pulse test : * tp = 5 ms, δ < 2%
** tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.54 \times I_{F(AV)} + 0.0086 \times I_F^2{}_{(RMS)}$

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

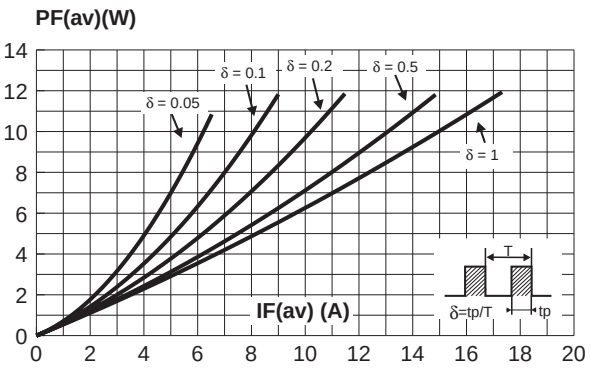


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).