STPS60L30CW

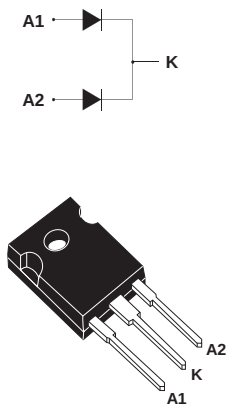
LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 30 A
V_{RRM}	30 V
Tj (max)	150 °C
V_F (max)	0.38 V

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE



TO247

DESCRIPTION

Dual center tap Schottky rectifier suited for Switch Mode Power Supply and high frequency DC to DC converters.

Packaged in TO247, this device is intended for use in low voltage, high frequency inverters, free-wheeling and polarity protection applications.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			30	V
$I_{F(RMS)}$	RMS forward current			50	A
$I_{F(AV)}$	Average forward current	Tc = 130°C δ = 0.5	Per diode Per device	30 60	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal		600	A
I_{RRM}	Peak repetitive reverse current	tp = 2 µs F = 1kHz square		2	A
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise reverse voltage			10000	V/µs

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

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per diode Total	0.8 0.45	°C/W
$R_{th\ (c)}$		Coupling	0.1	°C/W

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 (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			4	mA
		Tj = 125°C			250	500	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 30 A			0.46	V
		Tj = 125°C	I_F = 30 A		0.33	0.38	
		Tj = 25°C	I_F = 60 A			0.55	
		Tj = 125°C	I_F = 60 A		0.45	0.5	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.26x\ I_{F(AV)} + 0.004\ I_F^2{}_{(RMS)}$

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

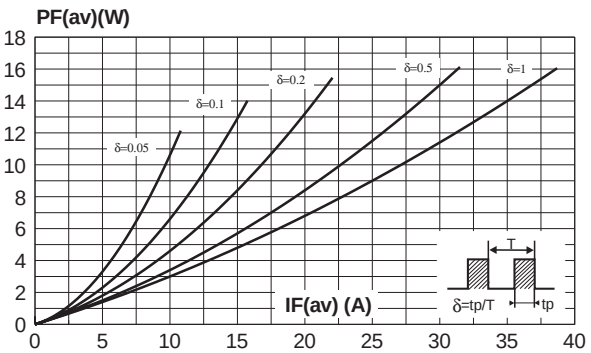


Fig. 2: Average forward current versus ambient temperature (δ=0.5) (per diode).