STPS80H100CY

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

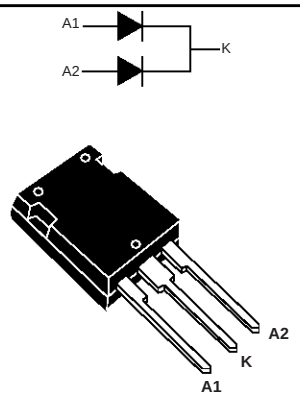
PRELIMINARY DATASHEET

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	100 V
Tj (max)	175 °C
V_F (max)	0.70 V

FEATURES AND BENEFITS

- HIGH REVERSE VOLTAGE
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW LEAKAGE CURRENT
- HIGH TEMPERATURE
- LOW THERMAL RESISTANCE



Max247

DESCRIPTION

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

Packaged in Max247, this device is intended for use in high frequency computer and telecom converters.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			100	V
$I_{F(RMS)}$	RMS forward current			50	A
$I_{F(AV)}$	Average forward current	Tc = 155°C δ = 0.5	Per diode Per device	40 80	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		400	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz		2	A
T_{stg}	Storage temperature range			- 65 to + 175	°C
T_j	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	0.7	°C/W
		Total	0.5	
$R_{th\ (c)}$		Coupling	0.3	

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	$V_R = V_{RRM}$			20	µA
		Tj = 125°C			7	20	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 40 A			0.8	V
		Tj = 125°C	I_F = 40 A		0.65	0.7	
		Tj = 25°C	I_F = 80 A			0.94	
		Tj = 125°C	I_F = 80 A		0.79	0.84	

Pulse test : * tp = 5 ms, δ < 2 %

** tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.56 \times I_{F(AV)} + 0.0035 \times I_F^2{}_{(RMS)}$

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

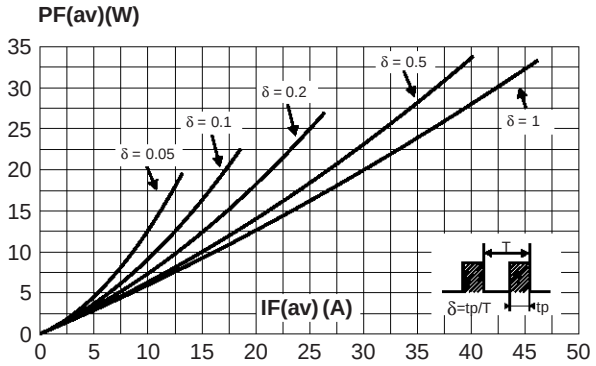


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).