

POWER SCHOTTKY RECTIFIER

PRELIMINARY DATASHEET

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	60 V
$T_j(\max)$	150 °C
$V_F(\max)$	0.56 V

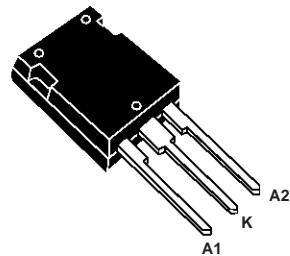
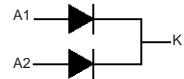
FEATURES AND BENEFITS

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

DESCRIPTION

Dual center tap Schottky rectifier suited for CAD computers and servers.

Packaged in Max247, this device is intended for use in low voltage, high frequency switching power supplies, free wheeling and polarity protection applications.


Max247

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit		
V_{RRM}	Repetitive peak reverse voltage			60	V		
$I_{F(RMS)}$	RMS forward current			50	A		
$I_{F(AV)}$	Average forward current	$T_c = 130^\circ\text{C}$	Per diode Per device	40 80	A		
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \mu\text{s}$ sinusoidal		400	A		
I_{IRRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ square $F = 1\text{kHz}$		2	A		
T_{stg}	Storage temperature range			- 65 to + 150	°C		
T_j	Maximum operating junction temperature *			150	°C		
dV/dt	Critical rate of rise of reverse voltage			10000	V/ μs		

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

STPS80L60CY

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case	Per diode	0.70
		Total	0.50
R _{th} (c)		Coupling	0.3

When the diodes 1 and 2 are used simultaneously:

$$\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{\text{th(j-c)}}(\text{Per diode}) + P(\text{diode 2}) \times R_{\text{th(c)}}$$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			1.8	mA
		T _j = 125°C			0.4	0.9	A
V _F *	Forward voltage drop	T _j = 25°C	I _F = 40 A			0.57	V
		T _j = 125°C	I _F = 40 A		0.50	0.56	
		T _j = 25°C	I _F = 80 A			0.78	
		T _j = 125°C	I _F = 80 A		0.69	0.77	

Pulse test : * tp = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.36 \times I_{F(AV)} + 0.005 \times I_{F(RMS)}^2$$