

POWER SCHOTTKY RECTIFIER

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

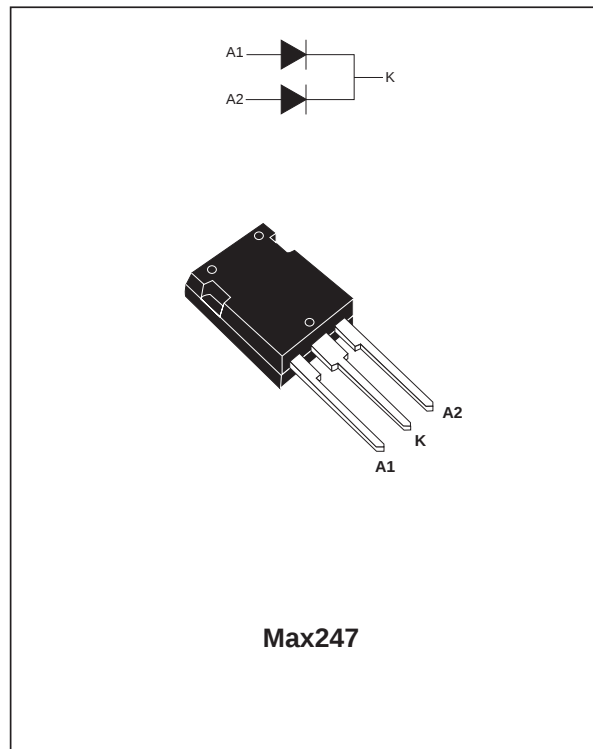
FEATURES AND BENEFITS

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

DESCRIPTION

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

Packaged in Max247, STPS80L60CY is intended for use in low voltage, high frequency switching power supplies, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			60	V
I _{F(RMS)}	RMS forward current			56	A
I _{F(AV)}	Average forward current	T _C = 130°C δ = 0.5	Per diode Per device	40 80	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal		400	A
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs square F = 1kHz		2	A
P _{ARM}	Repetitive peak avalanche power	t _p = 1μs T _j = 25°C		20000	W
T _{stg}	Storage temperature range			- 55 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

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	0.70	$^{\circ}\text{C/W}$
		Total	0.50	
$R_{th(c)}$	Coupling		0.3	

When the diodes 1 and 2 are used simultaneously :

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

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			1.8	mA
		$T_j = 125^{\circ}\text{C}$			0.4	0.9	A
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 40\text{ A}$			0.57	V
		$T_j = 125^{\circ}\text{C}$			0.50	0.56	
		$T_j = 25^{\circ}\text{C}$	$I_F = 80\text{ A}$			0.78	
		$T_j = 125^{\circ}\text{C}$			0.69	0.77	

Pulse test : * $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

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

Fig. 1: Conduction losses versus average current.

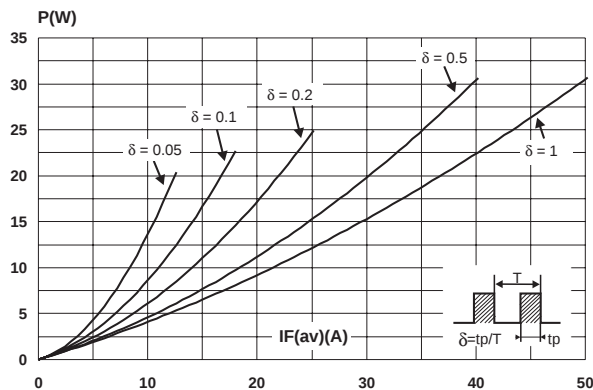


Fig. 3: Normalized avalanche power derating versus pulse duration.

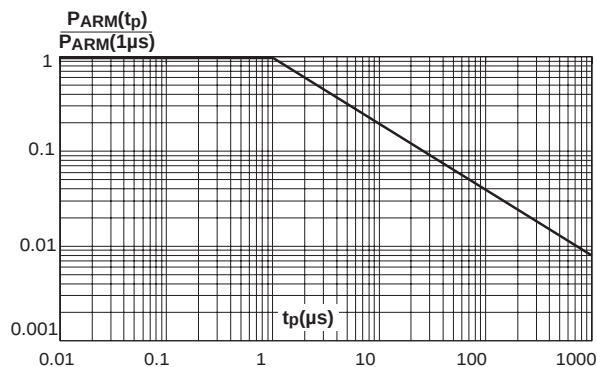


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

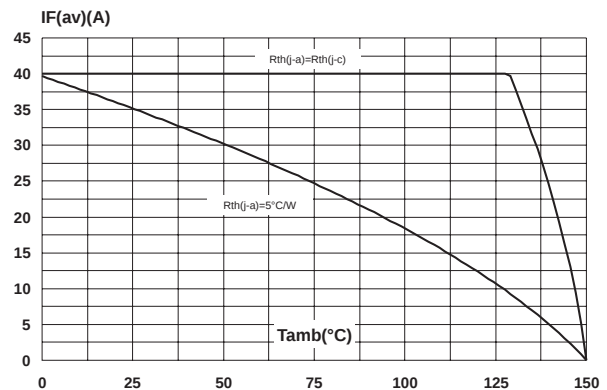


Fig. 4: Normalized avalanche power derating versus junction temperature.

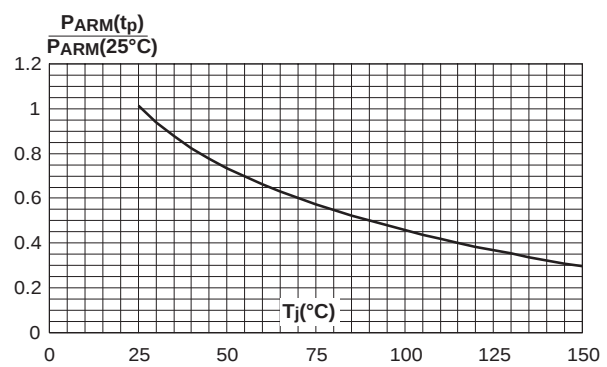


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

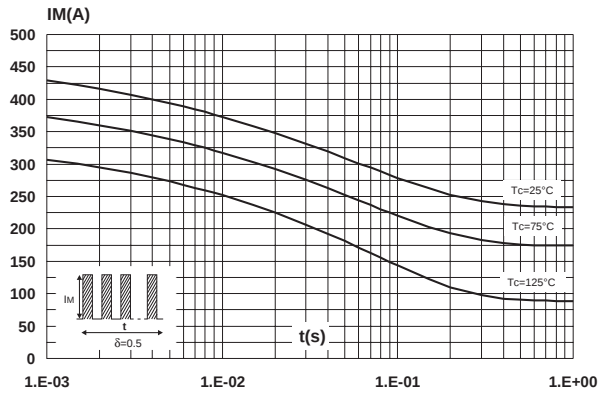


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

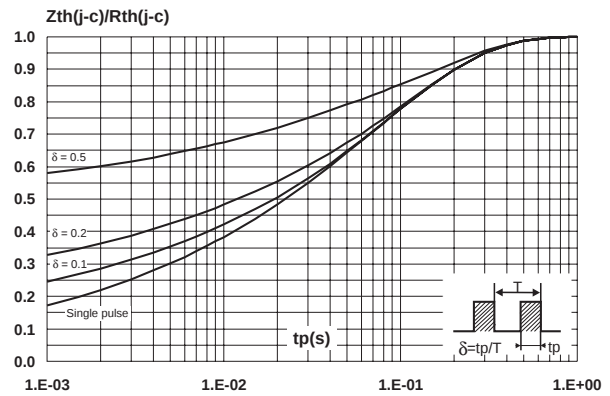


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

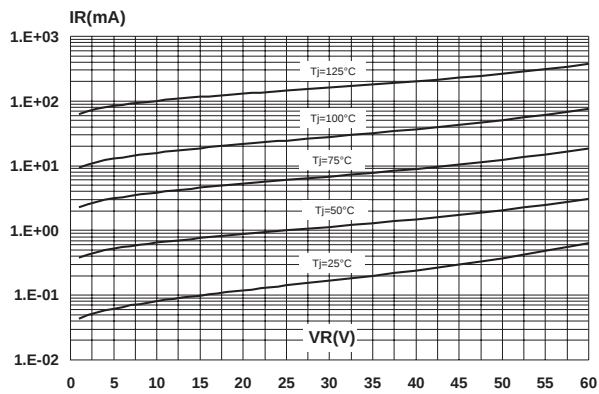


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

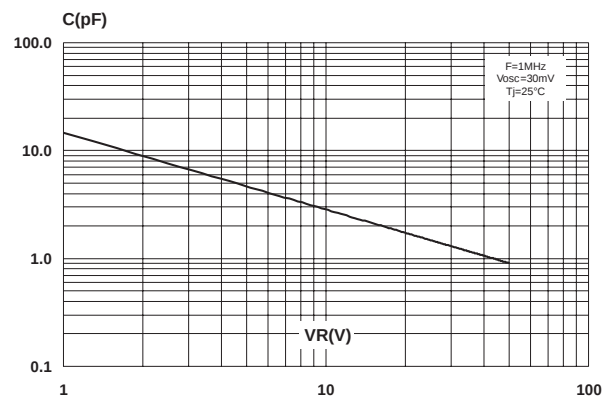
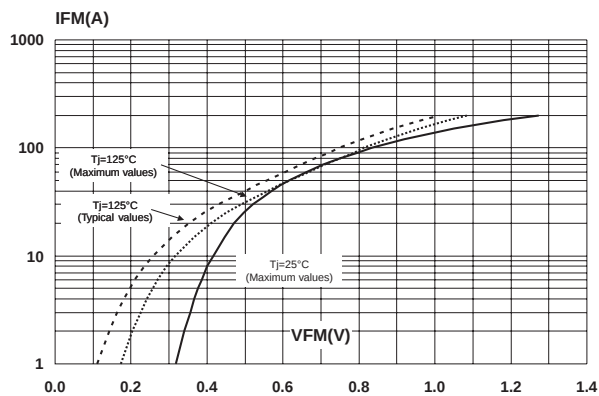


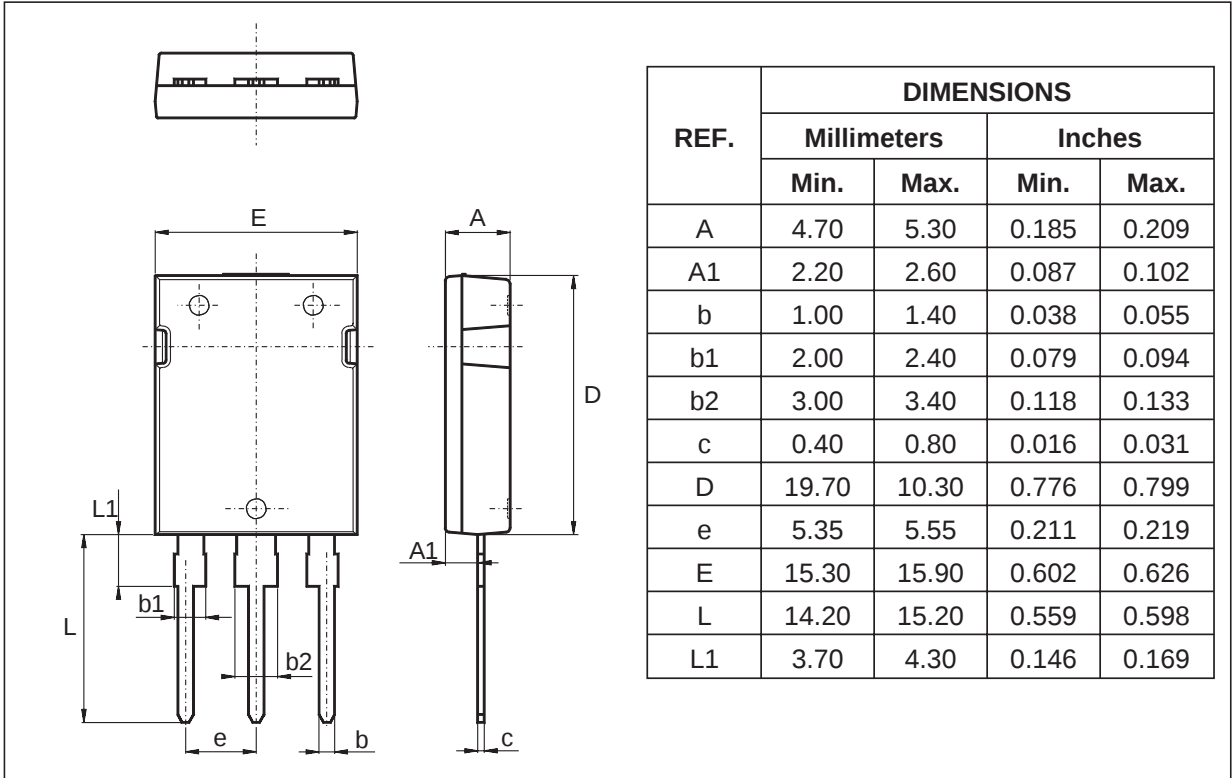
Fig. 9: Forward voltage drop versus forward current.



STPS80L60CY

PACKAGE MECHANICAL DATA

Max247



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80L60CY	STPS80L60CY	Max247	4.4g	30	Tube

■ EPOXY MEETS UL94,V0

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