



STPS80L15CY

LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

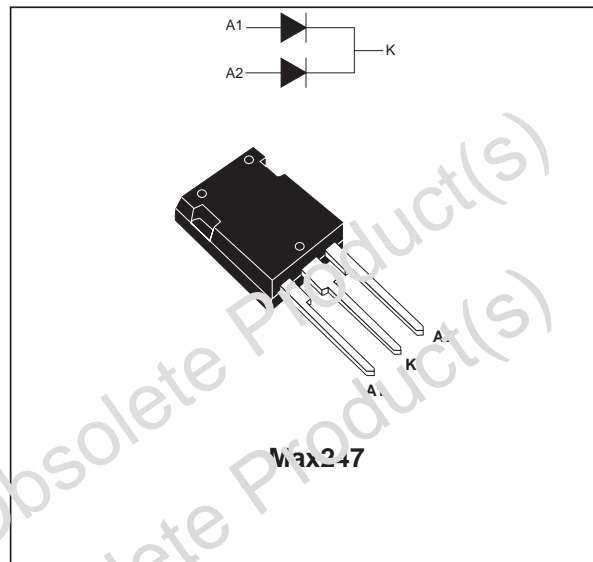
PRELIMINARY DATASHEET

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	15 V
$T_j(\text{max})$	125 °C
$V_F(\text{max})$	0.33 V

FEATURES AND BENEFITS

- Max247 PACKAGE, DUAL DIODE CONSTRUCTION, 2 x 40A
- 15V BLOCKING VOLTAGE SUITABLE FOR 5V AND 12V OR-ing
- EXTREMELY LOW VOLTAGE VOLTAGE DROP: 0.33V @ 100°C
- OPERATING JUNCTION TEMPERATURE: 125°C
- AVALANCHE CAPABILITY SPECIFIED



DESCRIPTION

The STPS80L15CY uses proprietary barrier technology to optimize forward voltage drop for OR-ing functions in n-1 fault tolerant Switch Mode Power Supplies.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	15	V
$I_{F(RMS)}$	RMS forward current	50	A
$I_{F(AV)}$	Average forward current	$T_c = 110^\circ\text{C}$ $\delta = 0.5$ Per diode: 40 Per device: 80	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ sinusoidal	400 A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$ square	2 A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu\text{s}$ $T_j = 25^\circ\text{C}$	36045 W
T_{stg}	Storage temperature range	- 65 to + 150	°C
T_j	Maximum operating junction temperature	125	°C
dV/dt	Critical rate of rise of reverse voltage	10000	V/ μs

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 :

$$\Delta T_j(\text{diode 1}) = P(\text{diode1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit		
I _R *	Reverse leakage current	T _j = 25°C	V _R = 5V			4	mA		
		T _j = 100°C			280	400			
		T _j = 25°C	V _P = 1.2V			11			
		T _j = 100°C			0.44	1.1	A		
				T _j = 25°C	V _R = 15V			16	mA
				T _j = 100°C			0.53	1.3	A
V _F *	Forward voltage drop	T _j = 25°C	I _F = 40 A			0.42	V		
		T _j = 100°C	I _F = 40 A		0.30	0.33			
		T _j = 25°C	I _F = 80 A			0.55			
		T _j = 100°C	I _F = 80 A		0.40	0.46			

Pulse test : * t_p = 360 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.120 \times I_{F(AV)} + 0.0032 \times I_{F(RMS)}^2$$

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

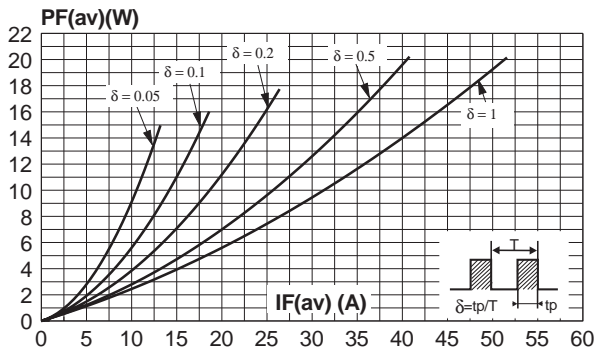


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

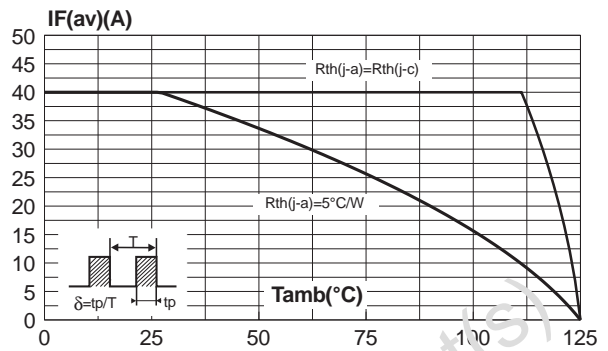


Fig. 3: Normalized avalanche power derating versus pulse duration.

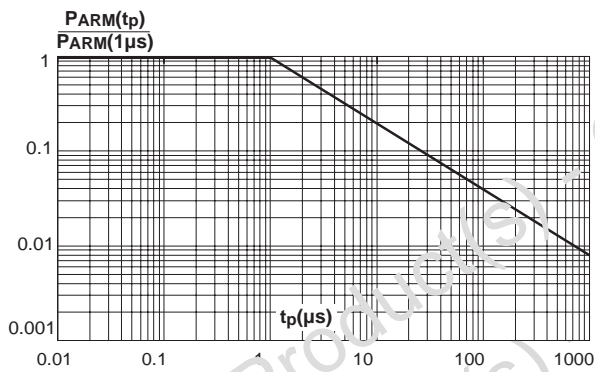


Fig. 4: Normalized avalanche power derating versus junction temperature.

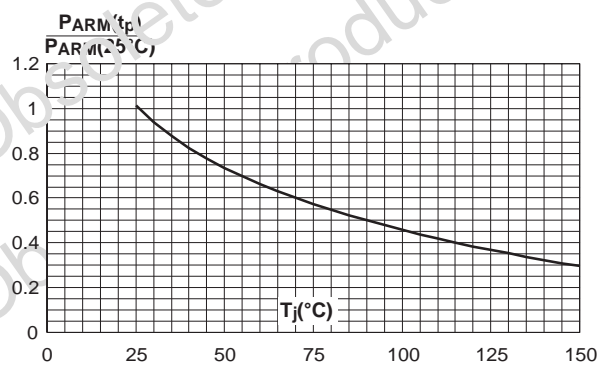


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

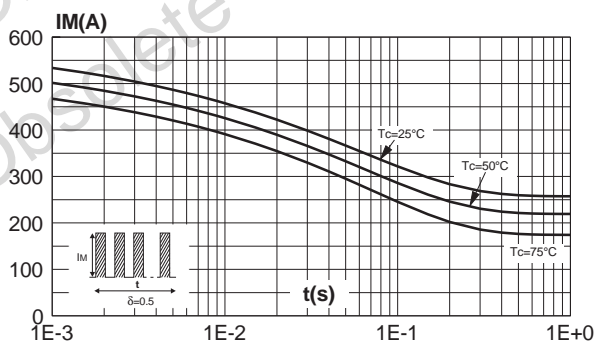


Fig. 6: Relative variation of thermal impedance junction to case versus pulse (per diode).

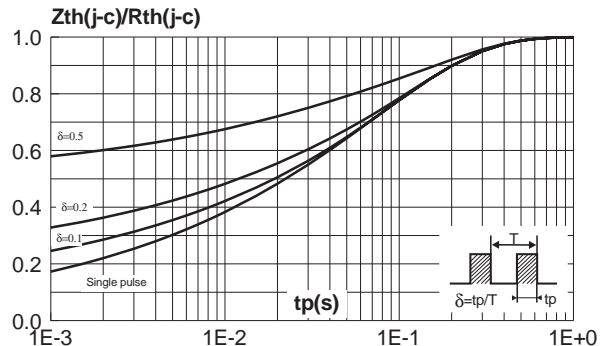


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

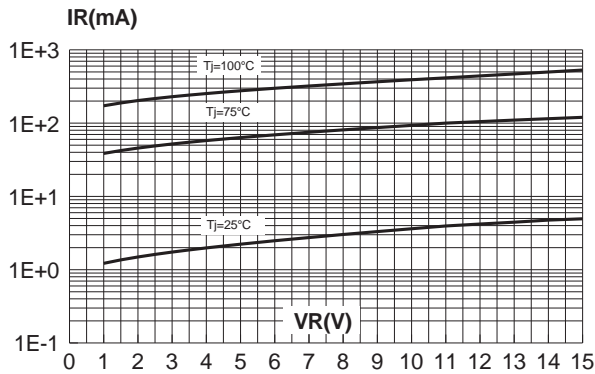


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

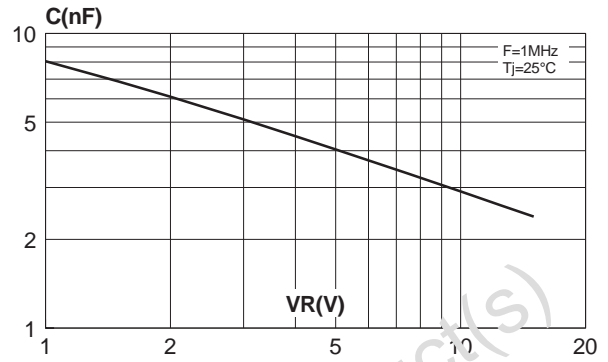
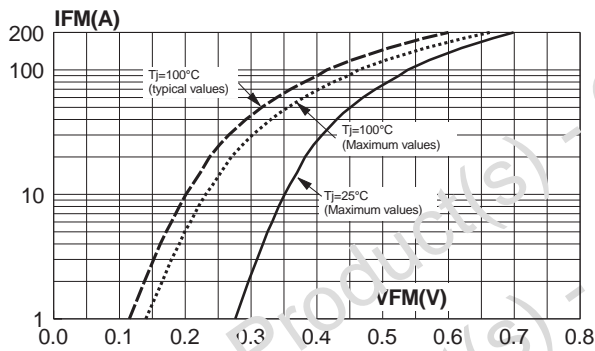
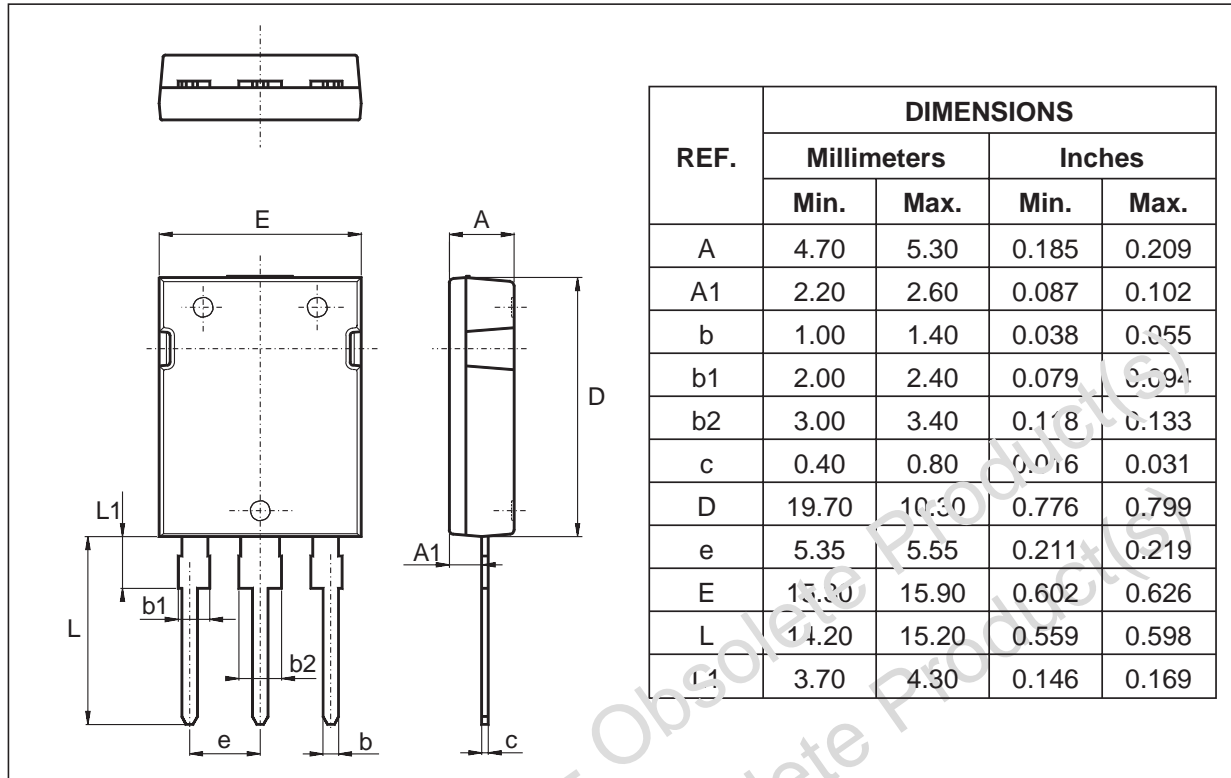


Fig. 9: Forward voltage drop versus forward current (per diode).



PACKAGE MECHANICAL DATA

Max247



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80L15CY	STPS80L15CY	Max247	4.4g	30	Tube

- Cooling method: by conduction (C)
- Epoxy meets UL94-V0

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