



# STPS80L15CY

## LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

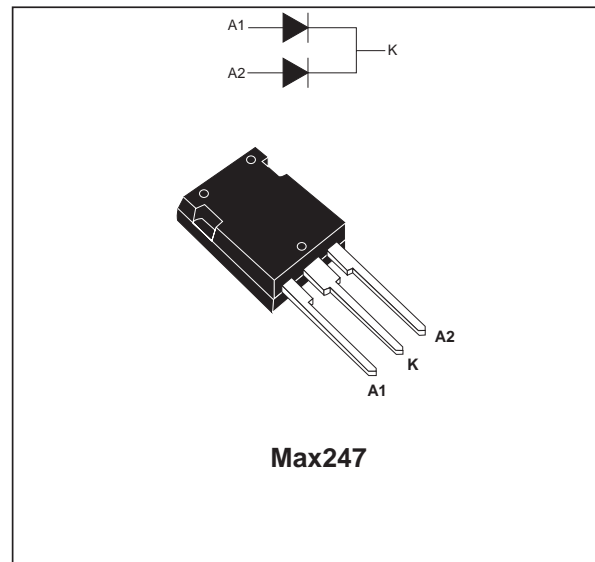
PRELIMINARY DATASHEET

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
$V_{RRM}$	15 V
$T_j(max)$	125 °C
$V_F(max)$	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 <sub>RRM</sub>	Repetitive peak reverse voltage			15	V
I <sub>F(RMS)</sub>	RMS forward current			50	A
I <sub>F(AV)</sub>	Average forward current	T <sub>C</sub> = 110°C δ = 0.5	Per diode Per device	40 80	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal		400	A
I <sub>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs F = 1kHz square		2	A
P <sub>ARM</sub>	Repetitive peak avalanche power	t <sub>p</sub> = 1μs T <sub>j</sub> = 25°C		36045	W
T <sub>stg</sub>	Storage temperature range			- 65 to + 150	°C
T <sub>j</sub>	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 :  
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

## STATIC ELECTRICAL CHARACTERISTICS (per diode)

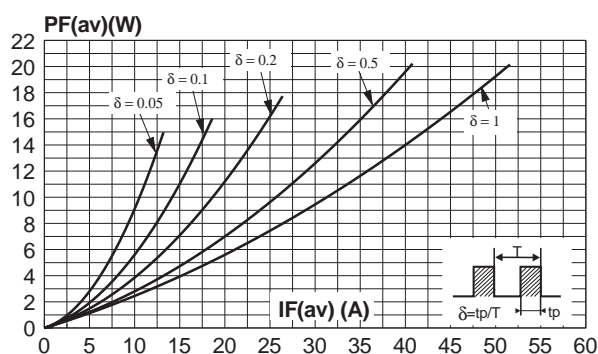
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = 5\text{V}$			4	mA
		$T_j = 100^\circ\text{C}$			280	400	
		$T_j = 25^\circ\text{C}$	$V_R = 12\text{V}$			11	
		$T_j = 100^\circ\text{C}$			0.44	1.1	A
		$T_j = 25^\circ\text{C}$	$V_R = 15\text{V}$			16	mA
		$T_j = 100^\circ\text{C}$			0.53	1.3	
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 40\text{ A}$			0.42	V
		$T_j = 100^\circ\text{C}$	$I_F = 40\text{ A}$		0.30	0.33	
		$T_j = 25^\circ\text{C}$	$I_F = 80\text{ A}$			0.55	
		$T_j = 100^\circ\text{C}$	$I_F = 80\text{ A}$		0.40	0.46	

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

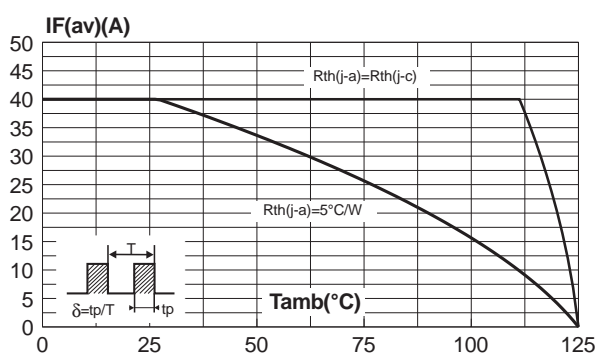
To evaluate the maximum conduction losses use the following equation :

$$P = 0.20 \times I_{F(AV)} + 0.0032 \times I_F^2(\text{RMS})$$

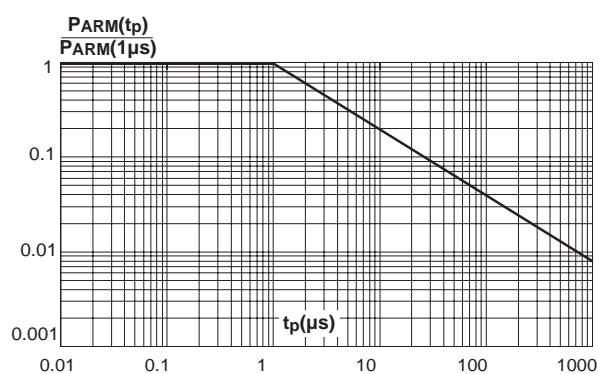
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



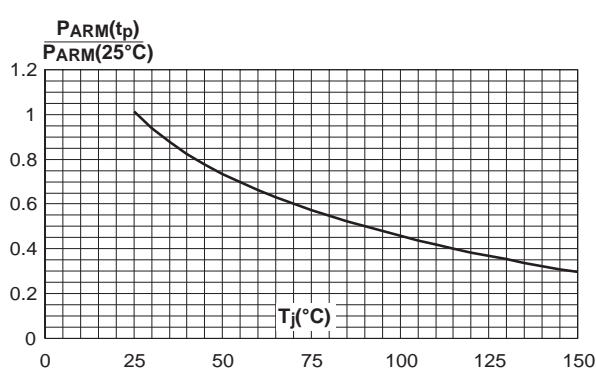
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ , per diode).



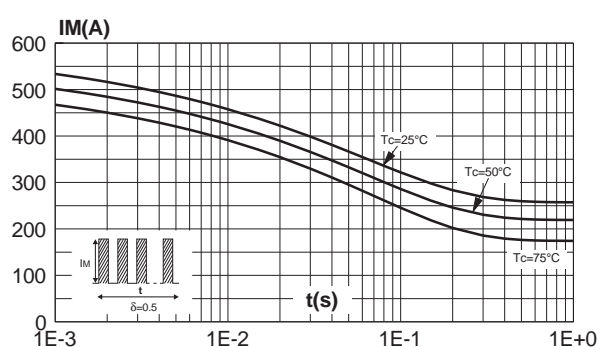
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



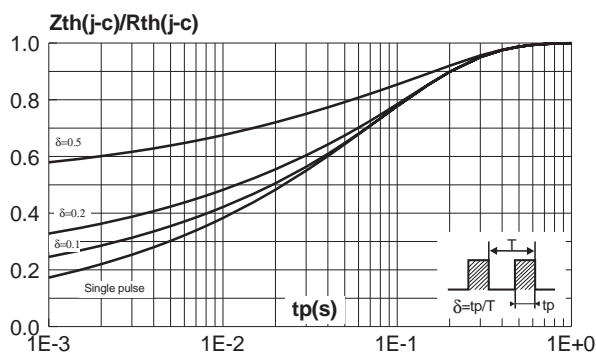
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



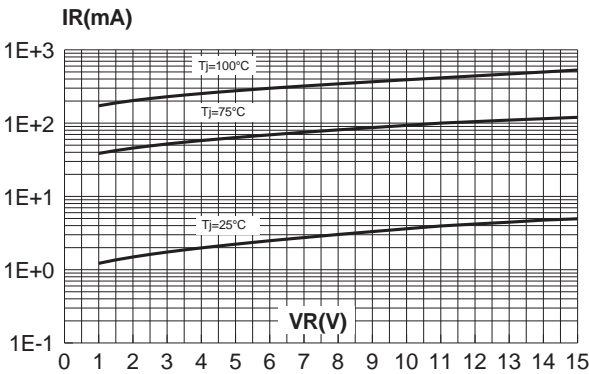
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



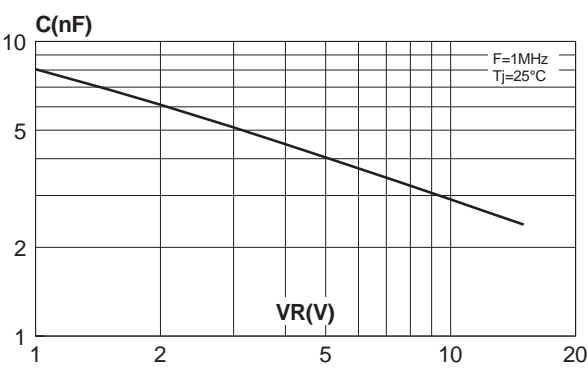
**Fig. 6:** Relative variation of thermal impedance junction to case versus pulse (per diode).



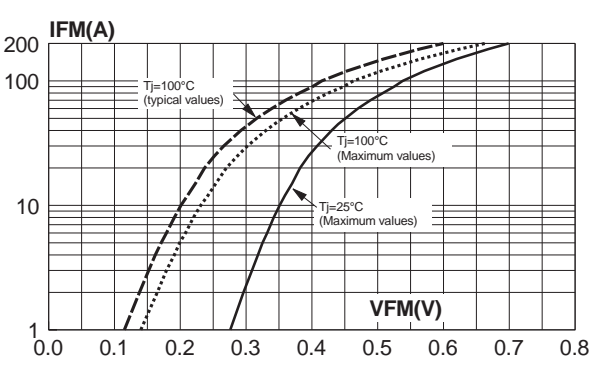
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



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

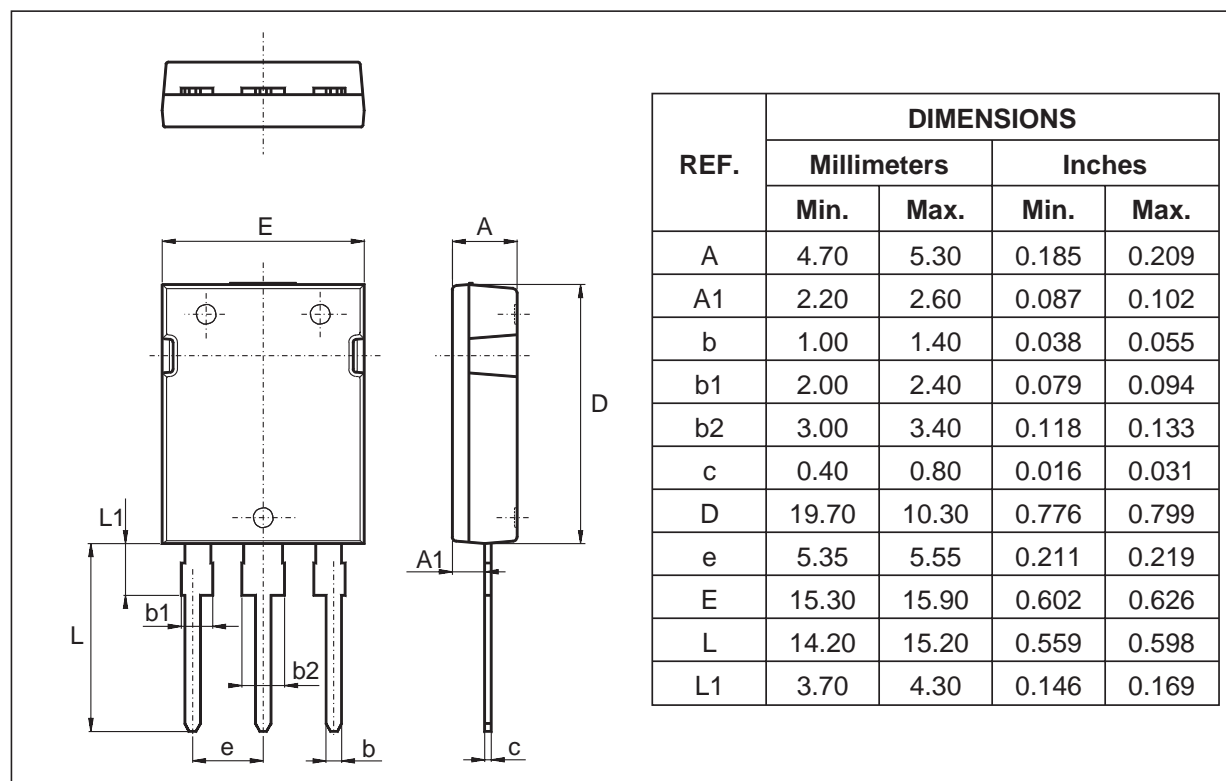


**Fig. 9:** Forward voltage drop versus forward current (per diode).



## 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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