



## LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

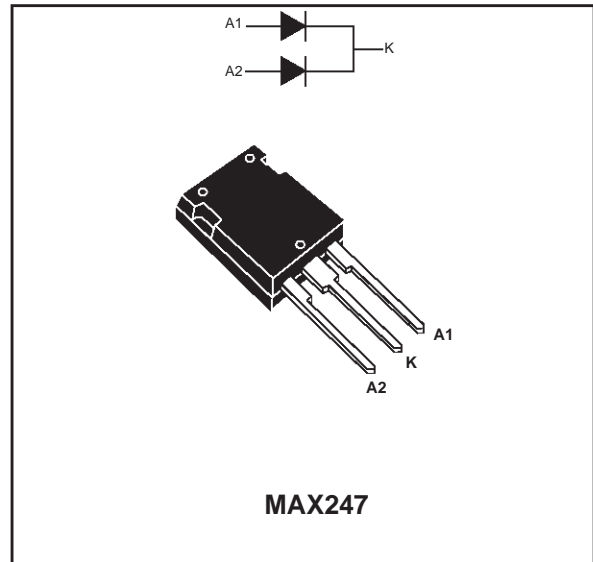
<b>I<sub>F(AV)</sub></b>	<b>2 x 40 A</b>
<b>V<sub>RRM</sub></b>	<b>15 V</b>
<b>T<sub>j (max)</sub></b>	<b>125 °C</b>
<b>V<sub>F (max)</sub></b>	<b>0.33 V</b>

### FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION AND REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY IN THE EQUIPMENTS

### DESCRIPTION

The STPS80L15CY utilizes 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	60	A
I <sub>F(AV)</sub>	Average forward current	T <sub>C</sub> = 105°C δ = 0.5 Per diode: 40 Per device: 80	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal	600 A
I <sub>R(RM)</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs F = 1kHz square	2 A
T <sub>stg</sub>	Storage temperature range	- 55 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

# STPS80L15CY

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case	Per diode	0.7
		Total	0.4
R <sub>th(c)</sub>	Coupling	0.1	°C/W

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 <sub>R</sub> *	Reverse leakage current	T <sub>j</sub> = 25°C	V <sub>R</sub> = 5V			4	mA
		T <sub>j</sub> = 100°C		210	400		
		T <sub>j</sub> = 25°C	V <sub>R</sub> = 12V			6	
		T <sub>j</sub> = 100°C		310	600		
V <sub>F</sub> **	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 40 A			0.43	V
		T <sub>j</sub> = 100°C		0.28	0.33		
		T <sub>j</sub> = 25°C	I <sub>F</sub> = 80 A			0.53	
		T <sub>j</sub> = 100°C		0.42	0.47		

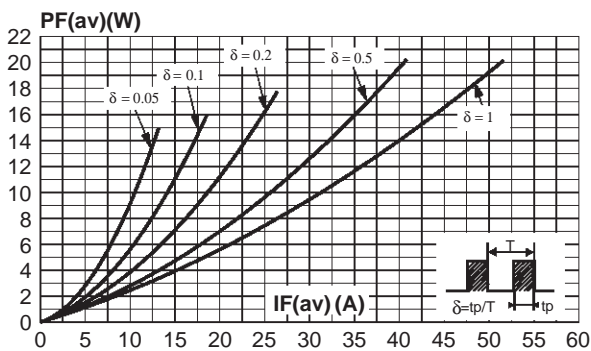
Pulse test : \* t<sub>p</sub> = 5 ms, δ < 2 %

\*\* t<sub>p</sub> = 380 μs, δ < 2%

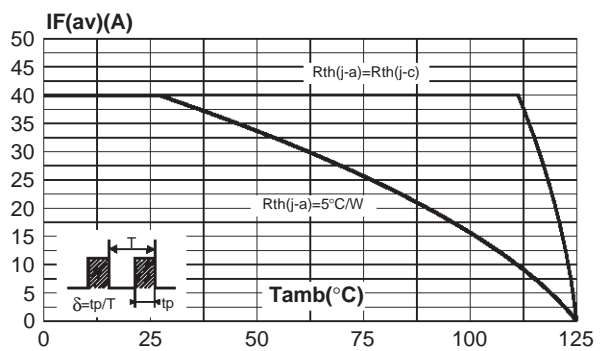
To evaluate the maximum conduction losses use the following equation :

$$P = 0.19 \times I_{F(AV)} + 0.0035 \times I_{F(RMS)}^2$$

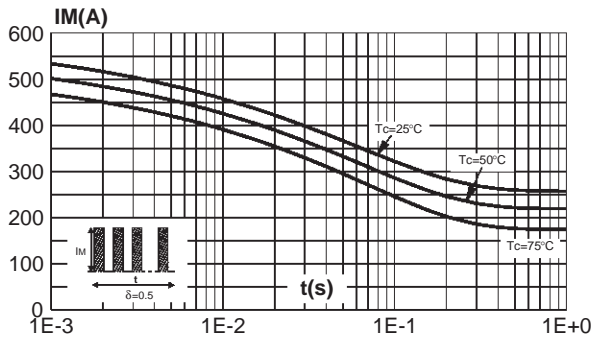
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



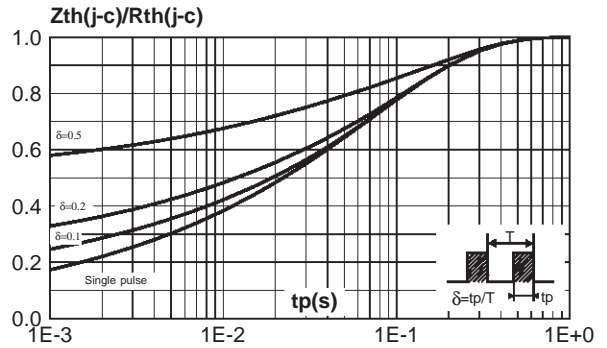
**Fig. 2:** Average forward current versus ambient temperature (δ=0.5, per diode).



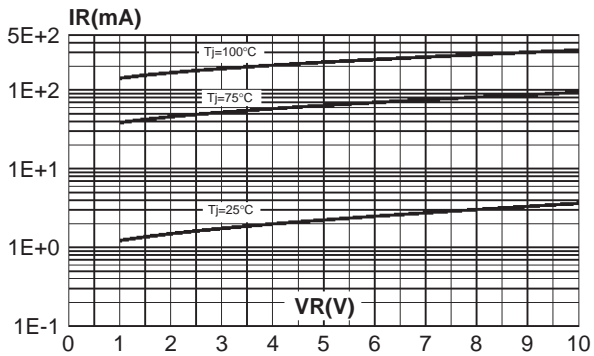
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



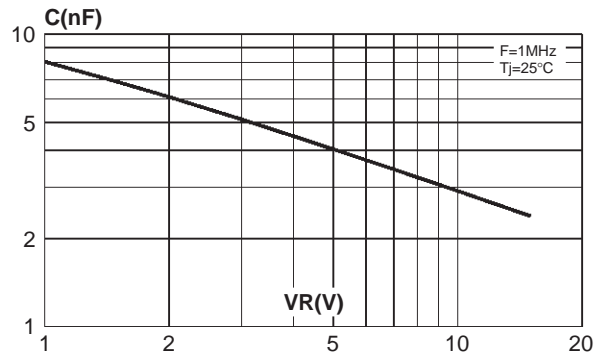
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse (per diode).



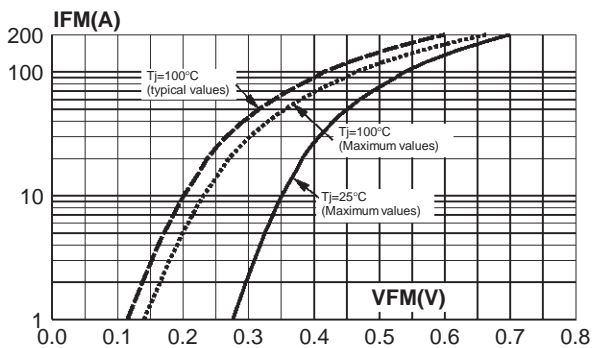
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values, per diode).

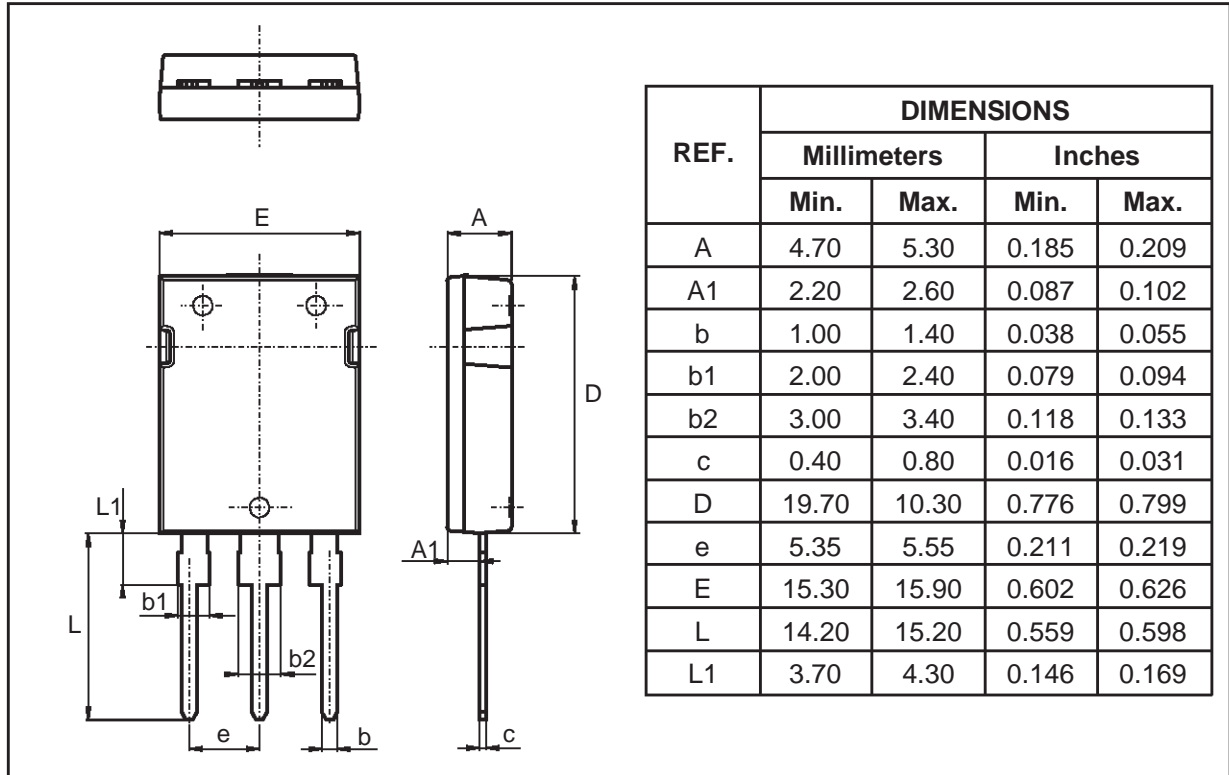


**Fig. 7:** Forward voltage drop versus forward current (per diode).



# STPS80L15CY

## PACKAGE MECHANICAL DATA MAX247



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80L15CY	STPS80L15CY	MAX247	5g	30	Tube

- Epoxy meets UL94,V0
- Cooling method: C

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