



## LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

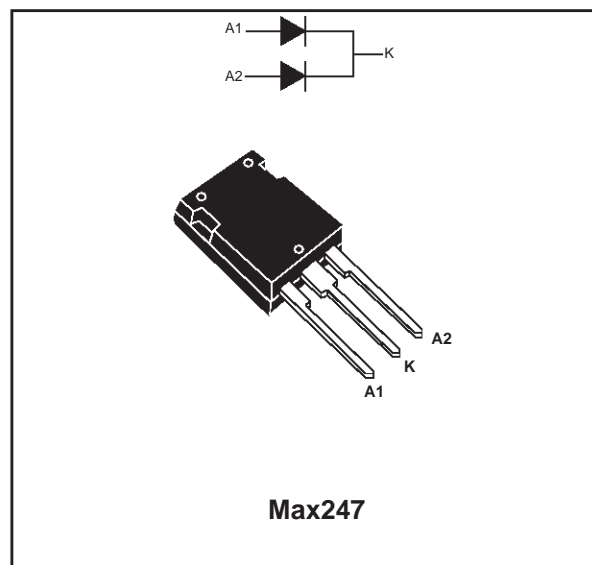
PRELIMINARY DATASHEET

### 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



### 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
$T_{stg}$	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/ $\mu\text{s}$

# STPS80L15CY

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case	Per diode	0.7
		Total	0.5
R <sub>th(c)</sub>	Coupling	0.3	°C/W

When the diodes 1 and 2 are used simultaneously:  
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

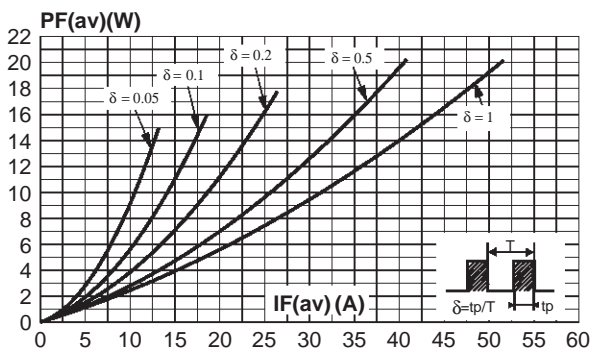
## STATIC ELECTRICAL CHARACTERISTICS (per diode)

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		280	400				
		T <sub>j</sub> = 25°C	V <sub>R</sub> = 12V			11		A	
		T <sub>j</sub> = 100°C		0.44	1.1				
		V <sub>F</sub> *	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 40 A			0.42	V
				T <sub>j</sub> = 100°C		0.30	0.33		
V <sub>F</sub> *	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 80 A			0.55			
		T <sub>j</sub> = 100°C		0.40	0.46				

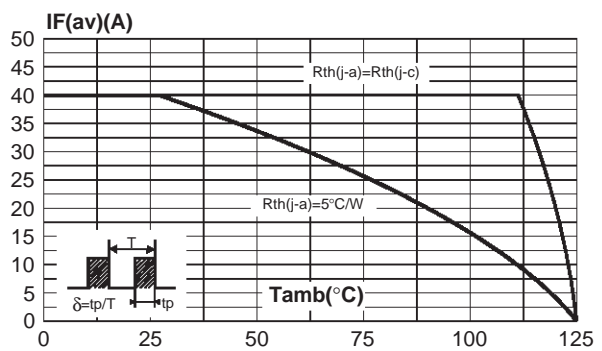
Pulse test : \* t<sub>p</sub> = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.20 \times I_{F(AV)} + 0.0032 \times I_{F(RMS)}^2$

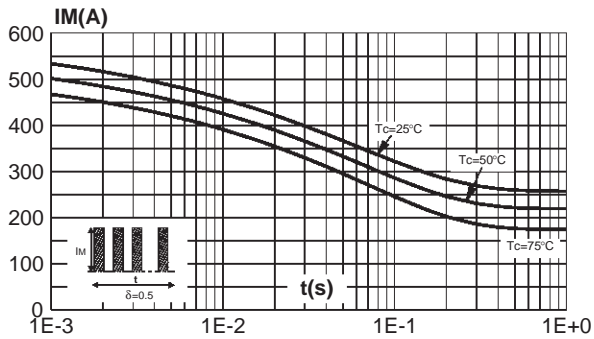
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



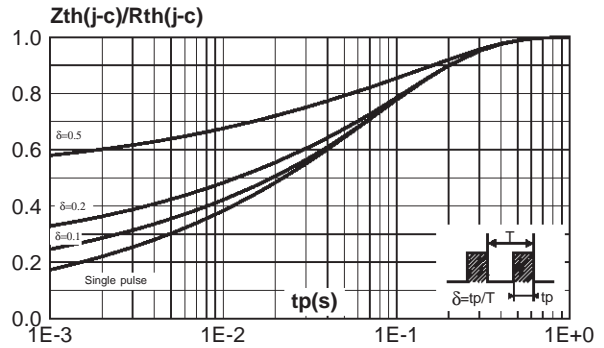
**Fig. 2:** Average forward current versus ambient temperature (δ=0.5, per diode).



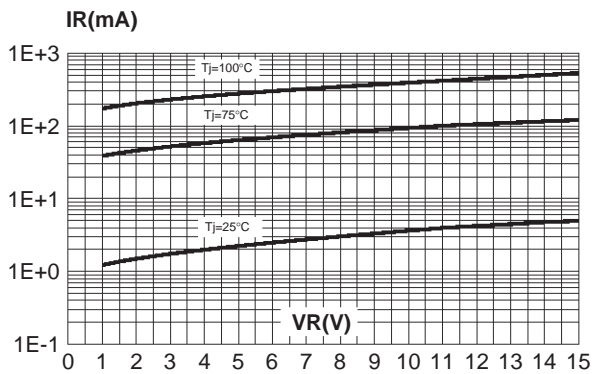
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



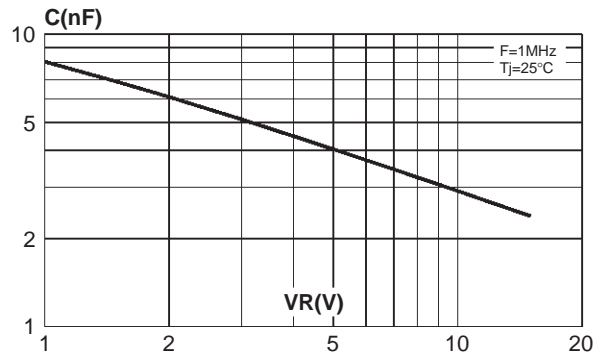
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse (per diode).



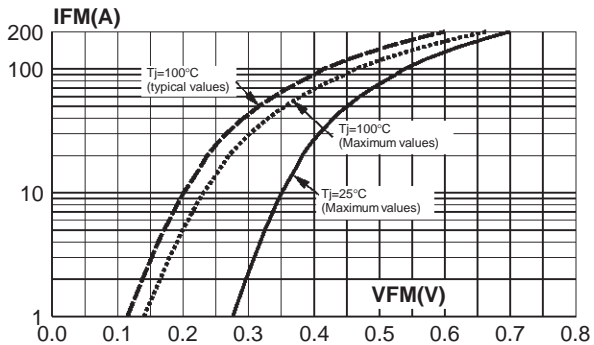
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



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



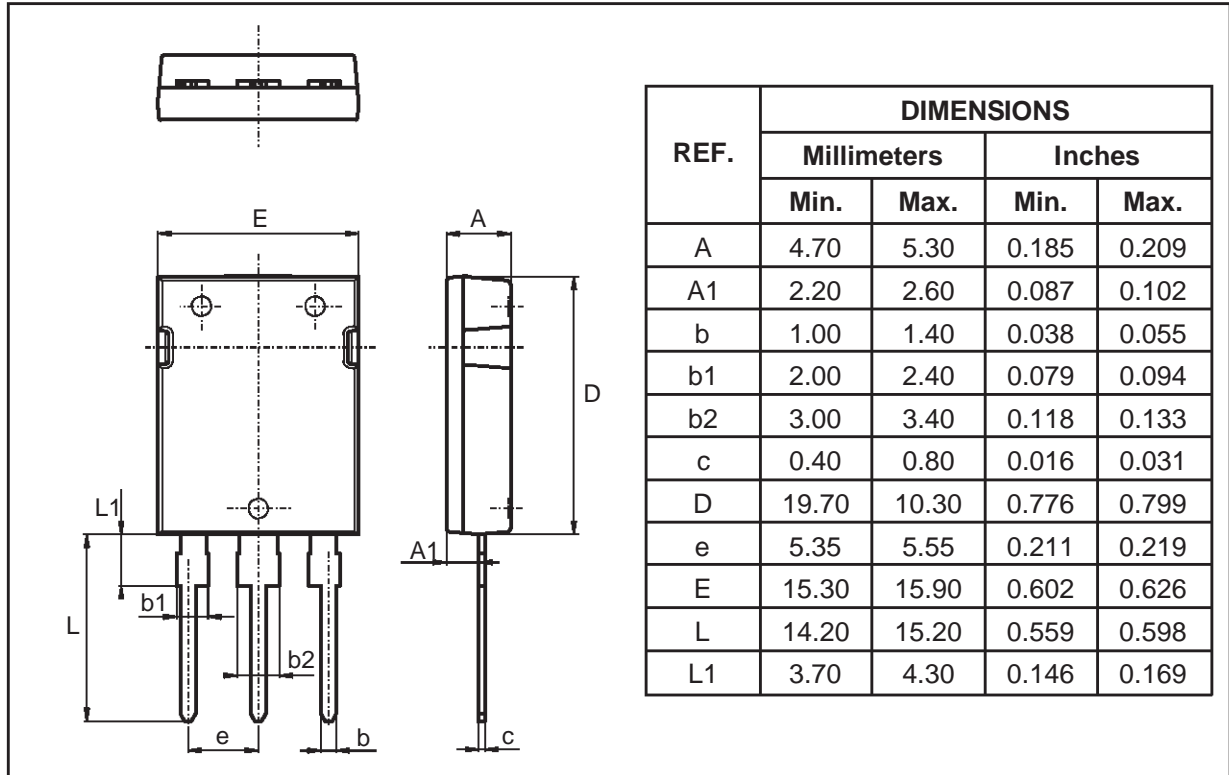
**Fig. 7:** Forward voltage drop versus forward current (per diode).



# STPS80L15CY

## PACKAGE MECHANICAL DATA

Max247



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

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

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