



STPS80L15CY

LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

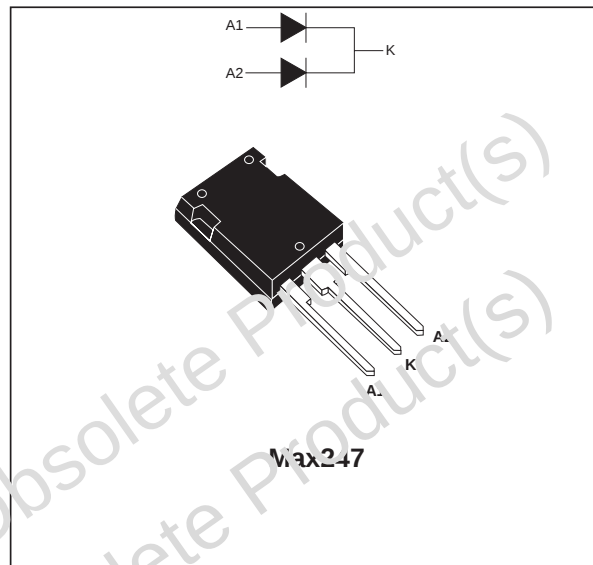
PRELIMINARY DATASHEET

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_{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 Per device	40 80	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$ sinusoidal		400	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\text{ }\mu\text{s}$ $F = 1\text{kHz}$ 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	$^{\circ}\text{C}$
T_j	Maximum operating junction temperature			125	$^{\circ}\text{C}$
dV/dt	Critical rate of rise of reverse voltage			10000	$\text{V}/\mu\text{s}$

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	$T_j = 25^\circ\text{C}$	$V_R = 5\text{V}$			4	mA
		$T_j = 100^\circ\text{C}$			280	400	
		$T_j = 25^\circ\text{C}$	$V_P = 1.2\text{V}$			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	A
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 : * $t_p = 360\text{ }\mu\text{s}$, $\delta < 2\%$

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).

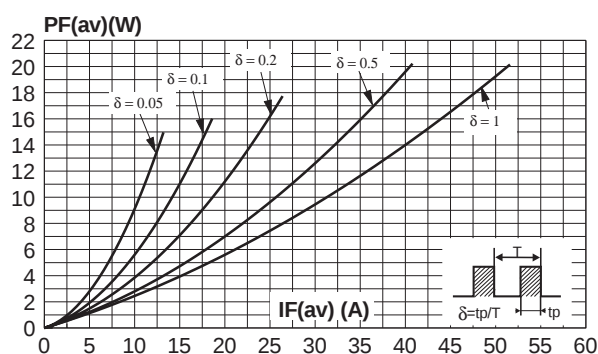


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$, per diode).

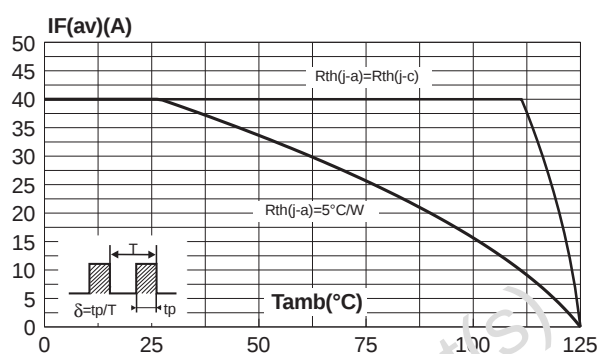


Fig. 3: Normalized avalanche power derating versus pulse duration.

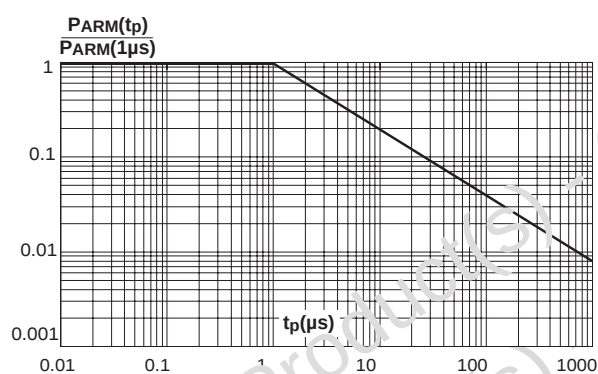


Fig. 4: Normalized avalanche power derating versus junction temperature.

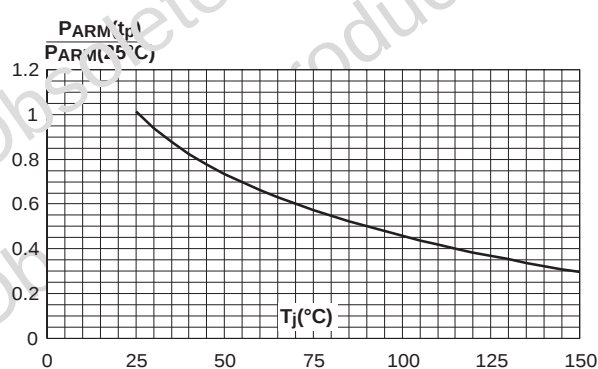


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

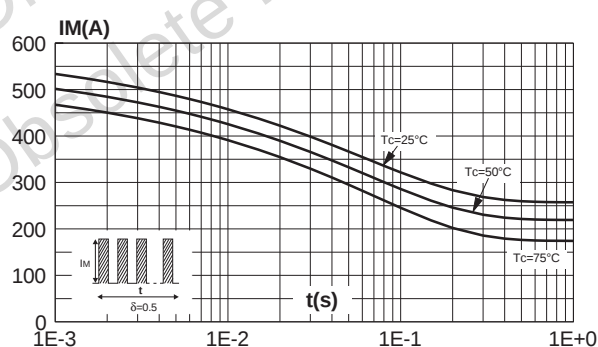


Fig. 6: Relative variation of thermal impedance junction to case versus pulse (per diode).

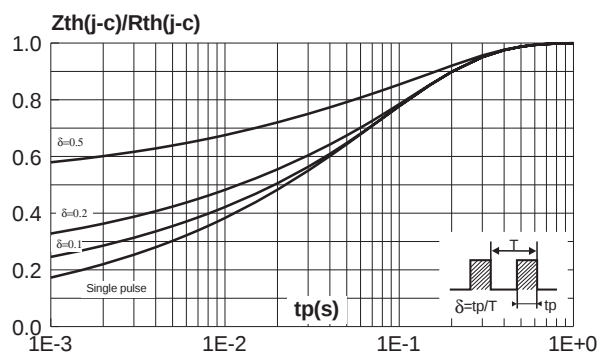


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

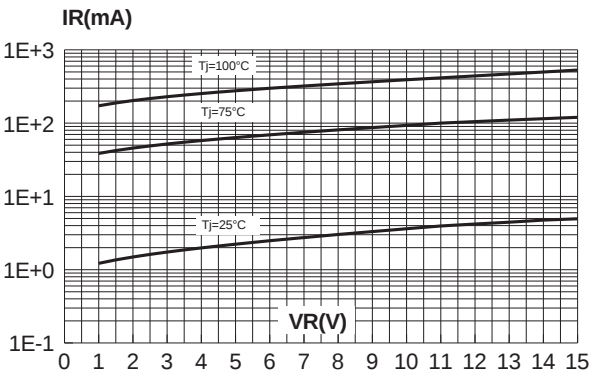


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

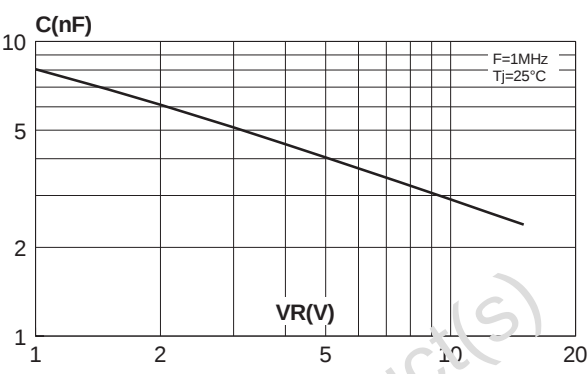
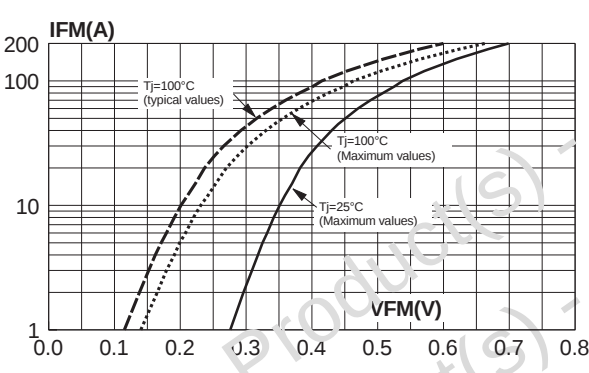
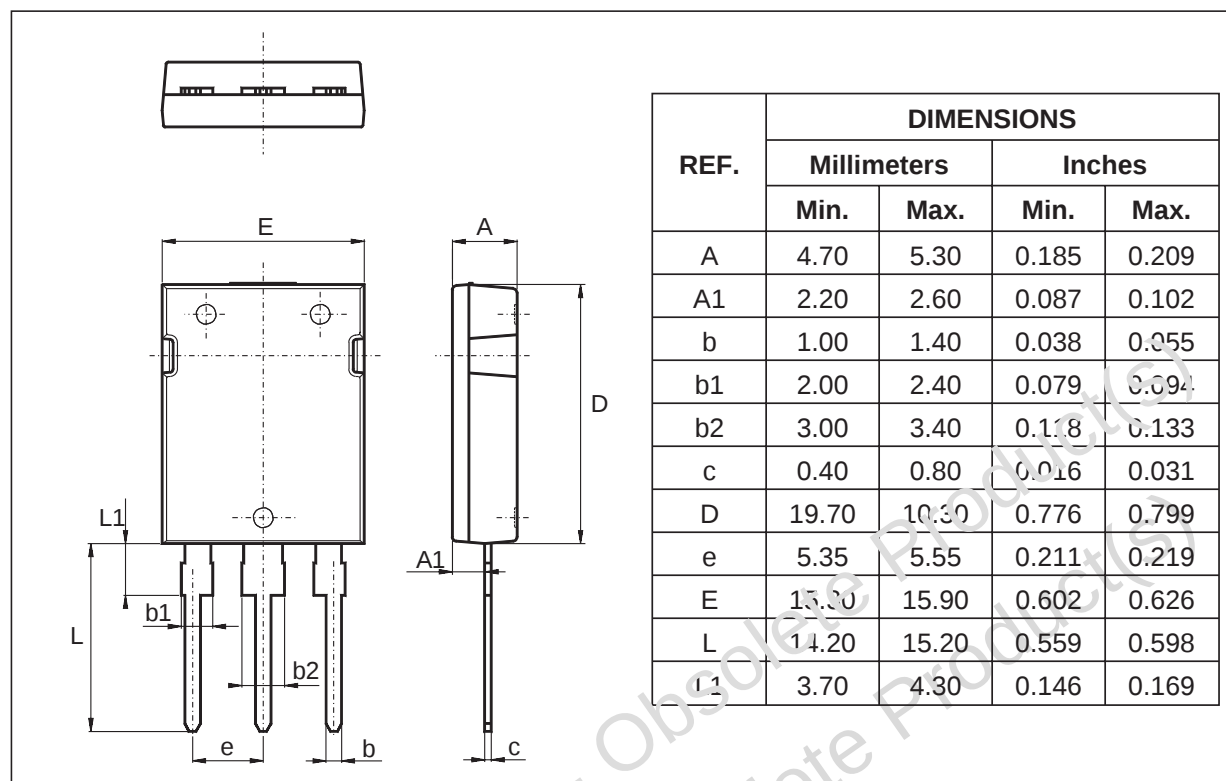


Fig. 9: Forward voltage drop versus forward current (per diode).



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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