

## LOW DROP POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 30 A
$V_{RRM}$	30 V
$T_j(max)$	150 °C
$V_F(max)$	0.38 V

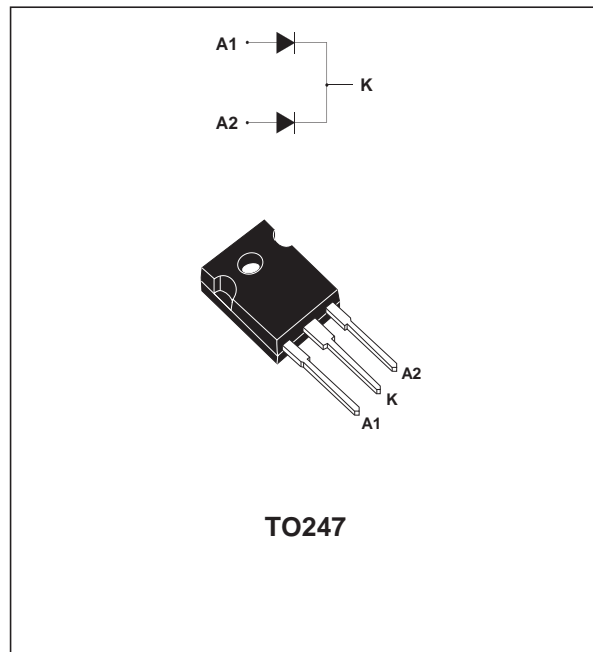
### FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Dual center tap Schottky rectifier suited for Switch Mode Power Supply and high frequency DC to DC converters.

Packaged in TO247, this device is intended for use in low voltage, high frequency inverters, free-wheeling and polarity protection applications.



TO247

### ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		30	V
$I_{F(RMS)}$	RMS forward current		50	A
$I_{F(AV)}$	Average forward current	$T_c = 130^\circ\text{C}$ $\delta = 0.5$	Per diode: 30 Per device: 60	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ ms}$ Sinusoidal	600	A
$I_{RRM}$	Peak repetitive reverse current	$t_p = 2\ \mu\text{s}$ $F = 1\text{ kHz}$ square	2	A
$P_{ARM}$	Repetitive peak avalanche power	$t_p = 1\ \mu\text{s}$ $T_j = 25^\circ\text{C}$	11000	W
$T_{stg}$	Storage temperature range		- 65 to + 150	°C
$T_j$	Maximum operating junction temperature *		150	°C
$dV/dt$	Critical rate of rise reverse voltage		10000	V/ $\mu\text{s}$

\* :  $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

# STPS60L30CW

## THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	0.8	$^{\circ}\text{C}/\text{W}$
		Total	0.45	
$R_{th(c)}$		Coupling	0.1	$^{\circ}\text{C}/\text{W}$

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

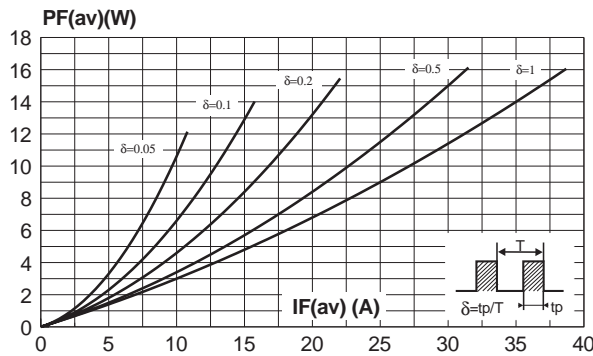
## STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$		4	mA
		$T_j = 125^{\circ}\text{C}$		250	500	
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 30\text{ A}$		0.46	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 30\text{ A}$	0.33	0.38	
		$T_j = 25^{\circ}\text{C}$	$I_F = 60\text{ A}$		0.55	
		$T_j = 125^{\circ}\text{C}$	$I_F = 60\text{ A}$	0.45	0.5	

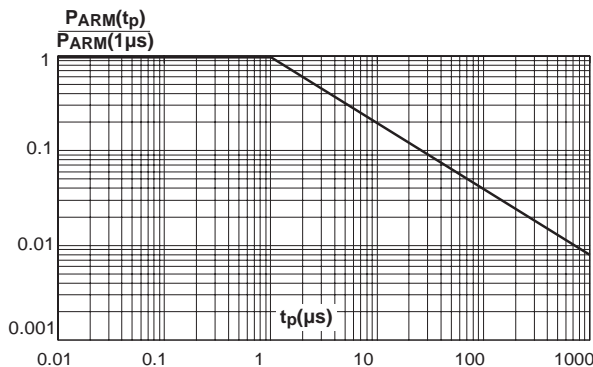
Pulse test : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

To evaluate the conduction losses use the following equation :  
 $P = 0.26x I_{F(AV)} + 0.004 I_{F(RMS)}^2$

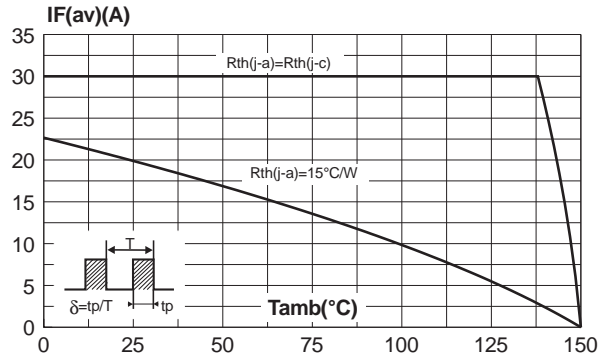
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



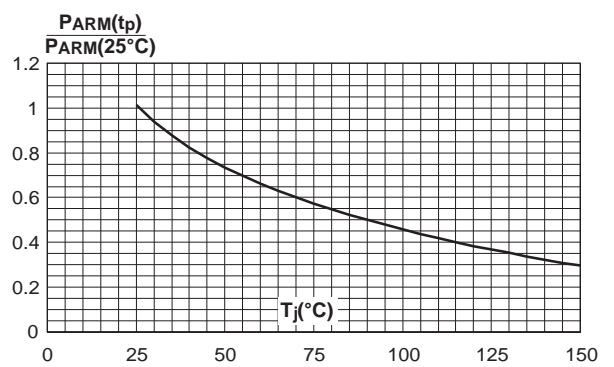
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



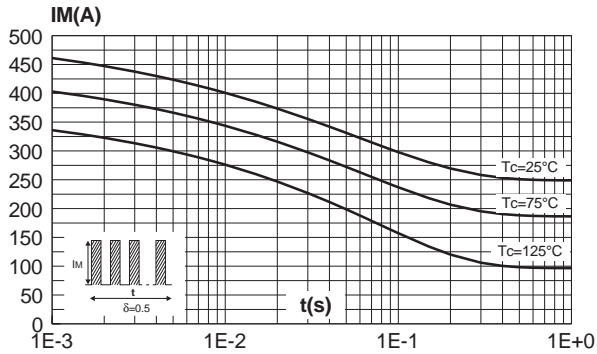
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ) (per diode).



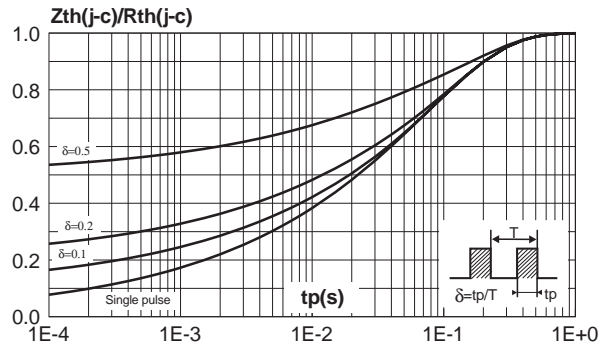
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



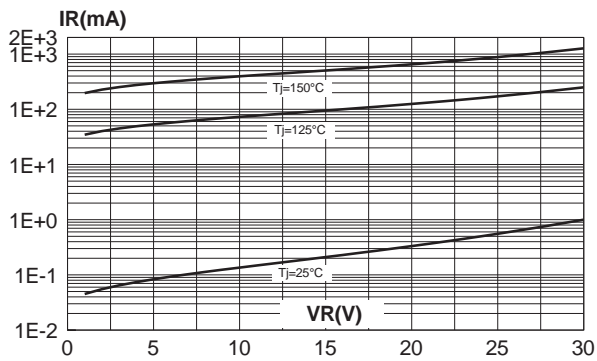
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).



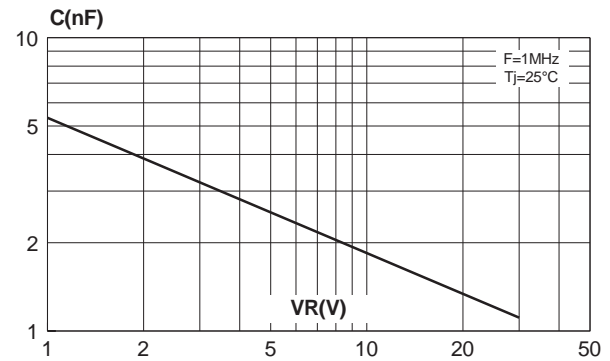
**Fig. 6:** Relative variation of thermal impedance junction to case versus pulse duration.



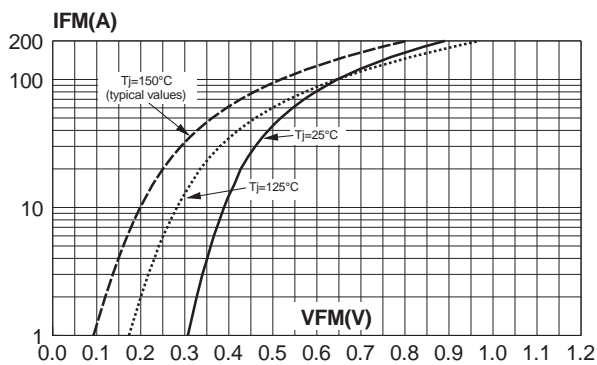
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values) (per diode).



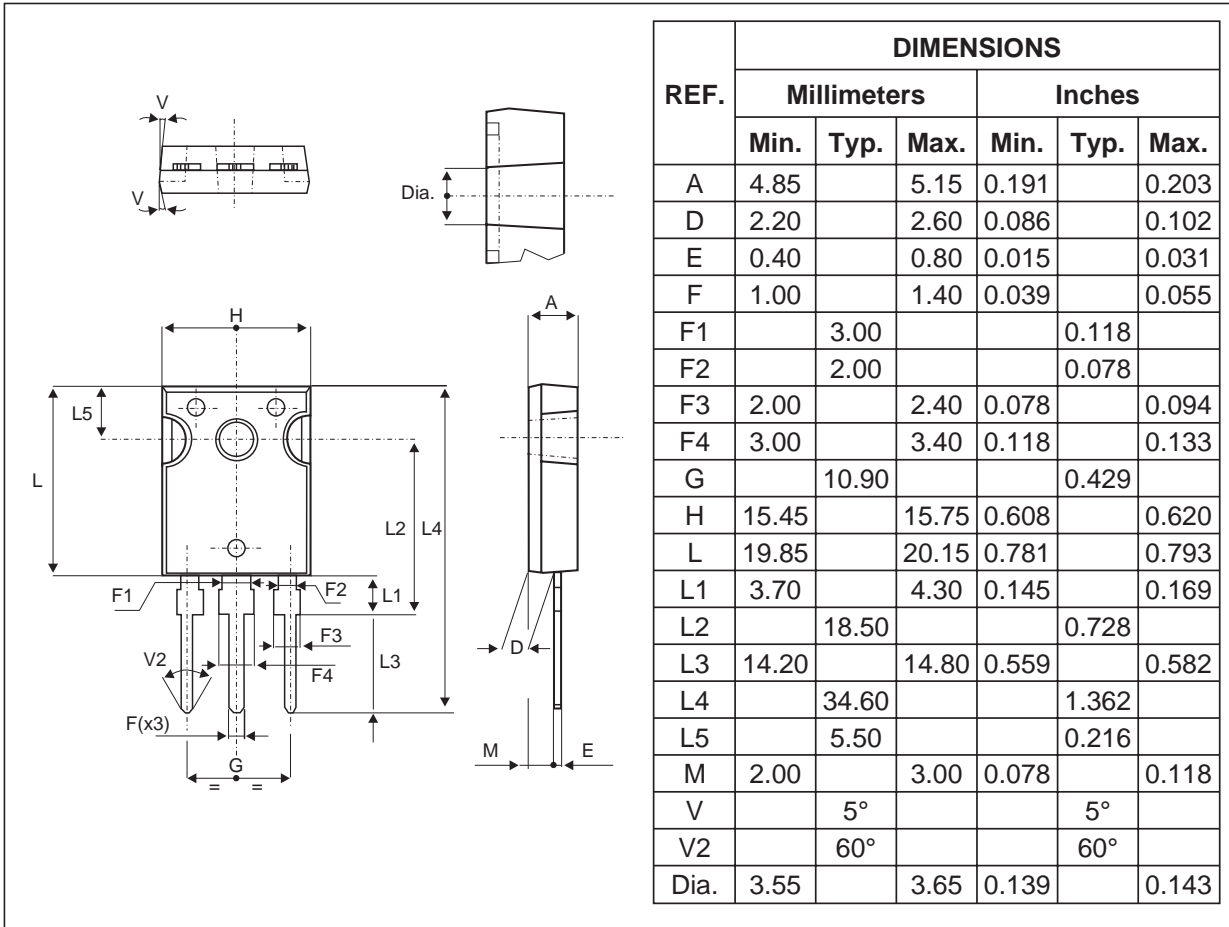
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values) (per diode).



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



**STPS60L30CW**  
**PACKAGE MECHANICAL DATA**  
 TO247



- Cooling method: C
- Recommended torque value: 0.8 m.N
- Maximum torque value: 1 m.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS60L30CW	STPS60L30CW	TO247	4.36g	30	Tube

- Epoxy meets UL94,V0

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