

## LOW DROP POWER SCHOTTKY RECTIFIER

### MAIN PRODUCTS CHARACTERISTICS

<b>I<sub>F(AV)</sub></b>	<b>2 x 30 A</b>
<b>V<sub>RRM</sub></b>	<b>40 V</b>
<b>T<sub>j</sub> (max)</b>	<b>150°C</b>
<b>V<sub>F</sub> (max)</b>	<b>0.50 V</b>

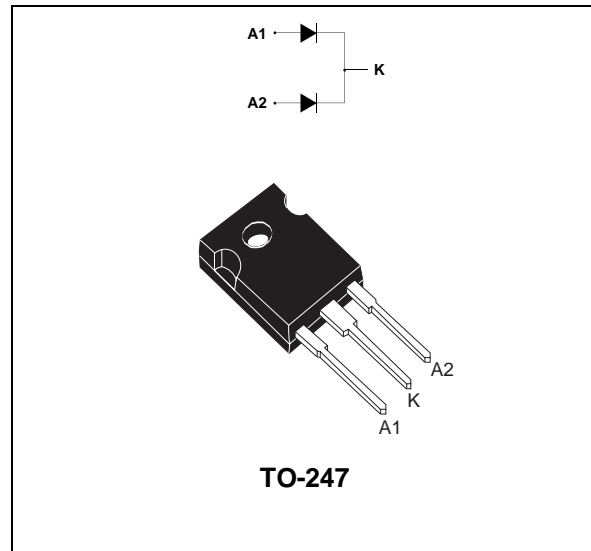
### FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION
- NEGLIGIBLE SWITCHING LOSSES ALLOWING HIGH FREQUENCY OPERATION
- AVALANCHE RATED

### DESCRIPTION

Dual center tap Schottky barrier rectifier designed for high frequency Switched Mode Power Supplies and DC to DC converters.

Packaged in TO-247 this device is intended for use in low voltage, high frequency inverters, free-wheeling and polarity protection applications.



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

Symbol	Parameter		Value	Unit	
V <sub>RRM</sub>	Repetitive peak reverse voltage		40	V	
I <sub>F(RMS)</sub>	RMS forward current		50	A	
I <sub>F(AV)</sub>	Average forward current	T <sub>c</sub> = 135°C δ = 0.5	Per diode	30	A
			Per device	60	
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms Sinusoidal	600	A	
I <sub>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs square F = 1kHz	2	A	
I <sub>RSM</sub>	Non repetitive peak reverse current	t <sub>p</sub> = 100 μs square	4	A	
T <sub>stg</sub>	Storage temperature range		- 65 to + 150	°C	
T <sub>j</sub>	Maximum operating junction temperature *		150	°C	
dV/dt	Critical rate of rise of reverse voltage		10000	V/μs	

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

## STPS60L40CW

### THERMAL RESISTANCES

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

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

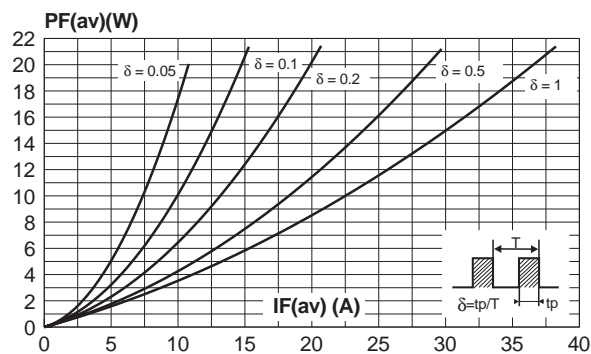
### STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			1.5	mA
		$T_j = 100^{\circ}\text{C}$			30	110	mA
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 30\text{ A}$			0.55	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 30\text{ A}$		0.44	0.5	
		$T_j = 25^{\circ}\text{C}$	$I_F = 60\text{ A}$			0.73	
		$T_j = 125^{\circ}\text{C}$	$I_F = 60\text{ A}$		0.64	0.72	

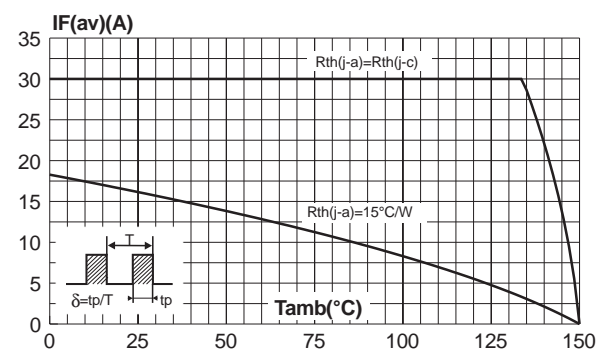
Pulse test : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.28 \times I_{F(AV)} + 0.0073 I_{F(RMS)}^2$

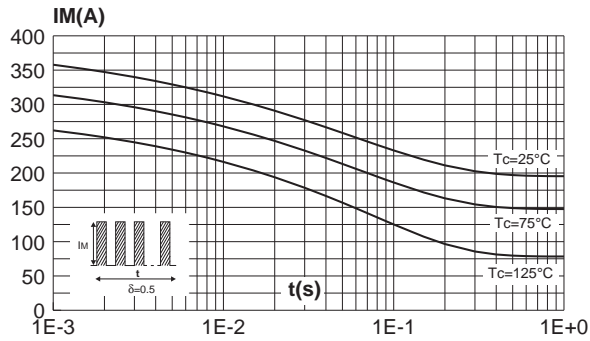
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



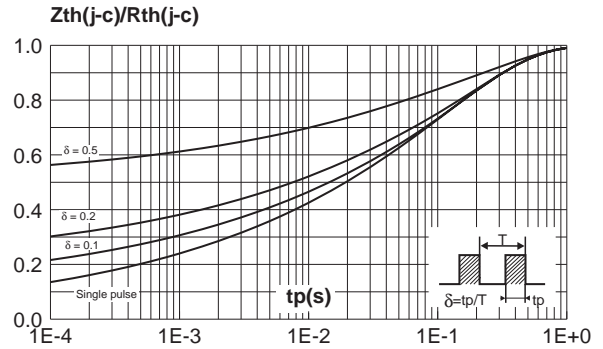
**Fig. 2:** Average current versus ambient temperature ( $\delta = 0.5$ ) (per diode).



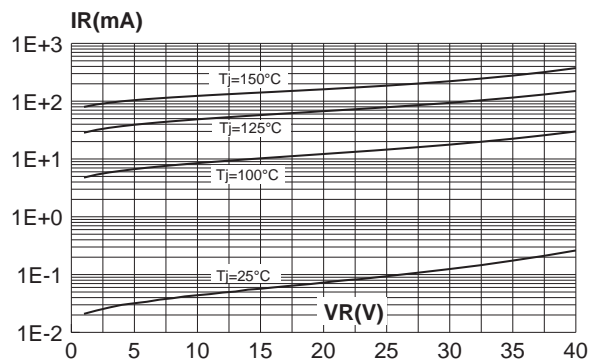
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



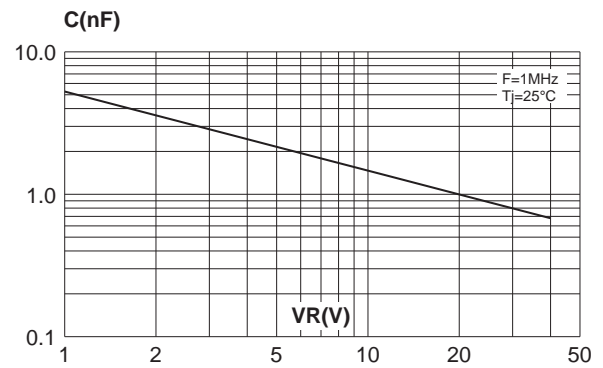
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse duration.



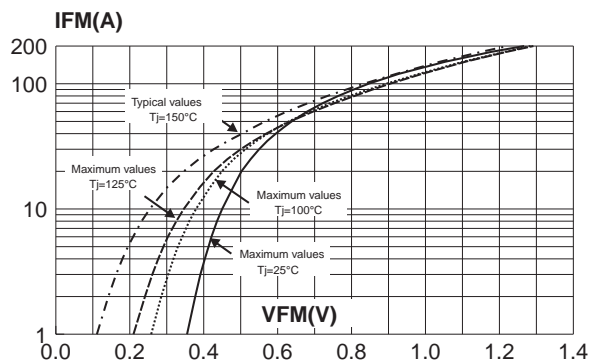
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



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

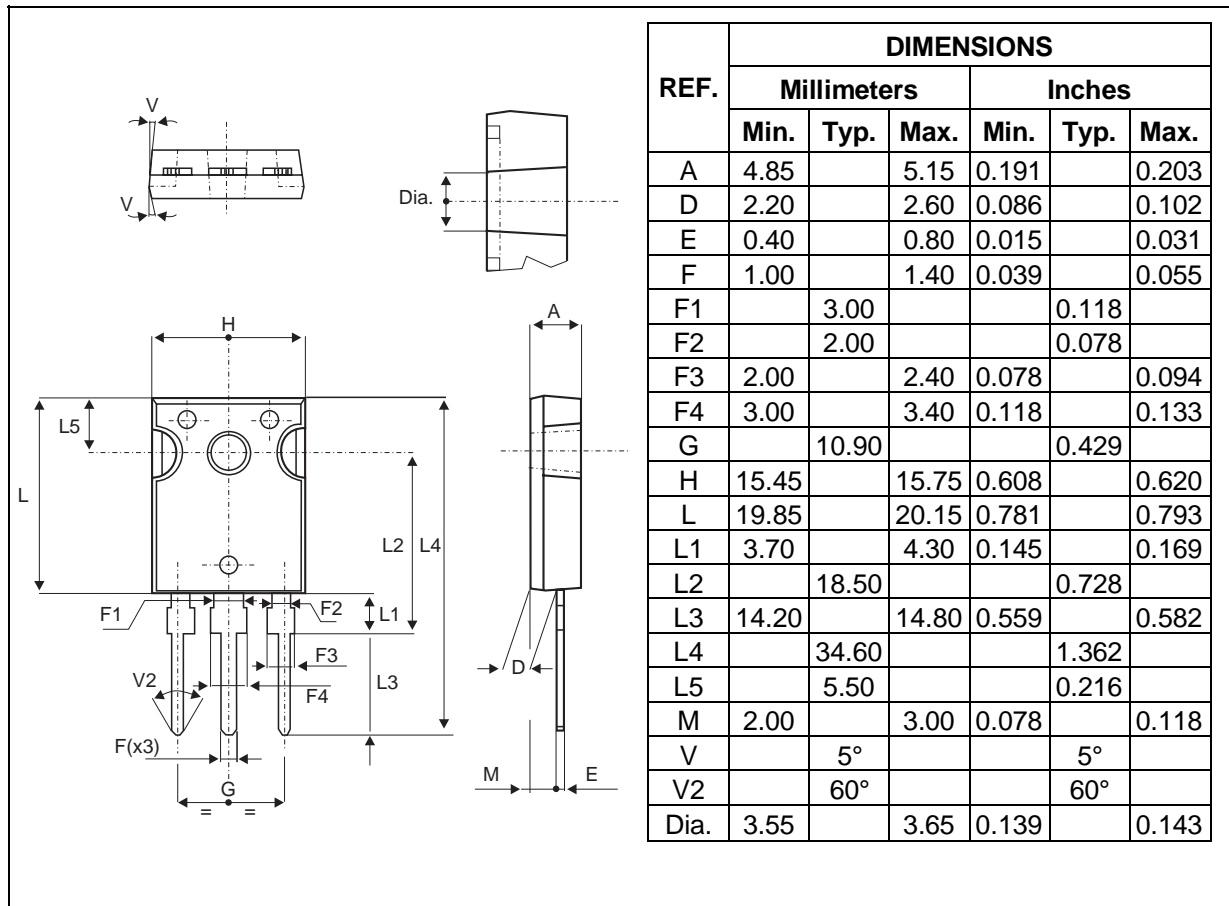


**Fig. 7:** Forward voltage drop versus forward current (per diode).



# STPS60L40CW

## PACKAGE MECHANICAL DATA TO-247



- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS60L40CW	STPS60L40CW	TO-247	4.4g	30	Tube

- Epoxy meets UL94,V0

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