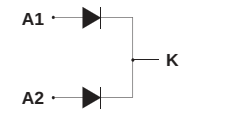
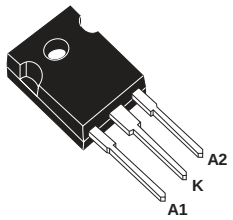
STPS60L30CW

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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





TO247

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.

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	Tc = 130°C δ = 0.5	Per diode Per device	30 60	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal		600	A
I_{RRM}	Peak repetitive reverse current	tp = 2 µs F = 1kHz square		2	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C		11000	W
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise reverse voltage			10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCE

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

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

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

Pulse test : * tp = 380 µs, δ < 2%

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

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

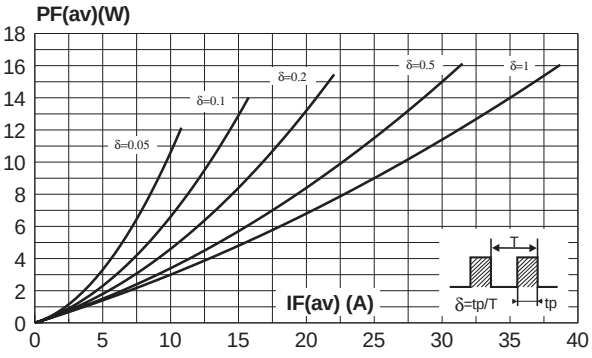


Fig. 2: Average forward current versus ambient temperature (δ=0.5) (per diode).

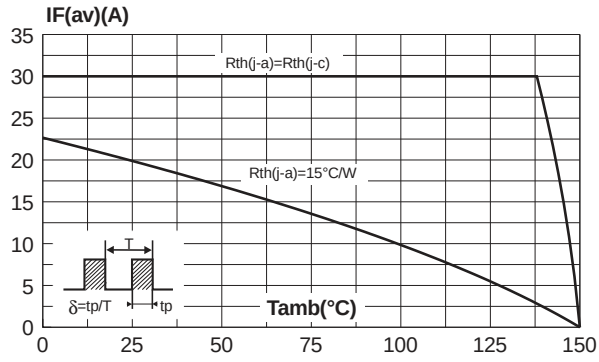


Fig. 3: Normalized avalanche power derating versus pulse duration.

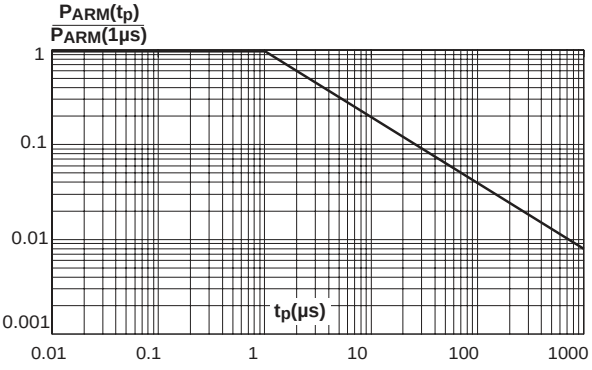


Fig. 4: Normalized avalanche power derating versus junction temperature.

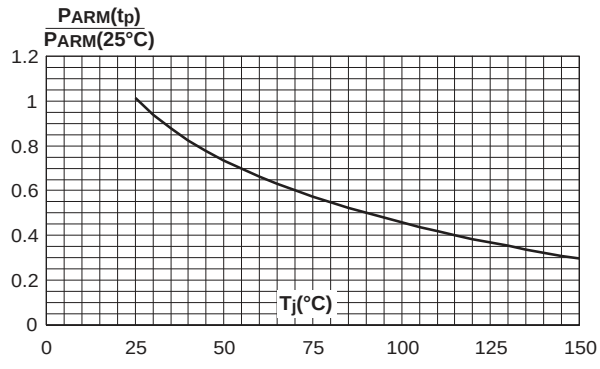


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

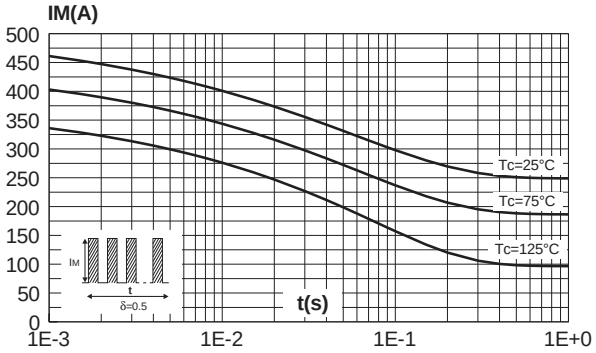


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

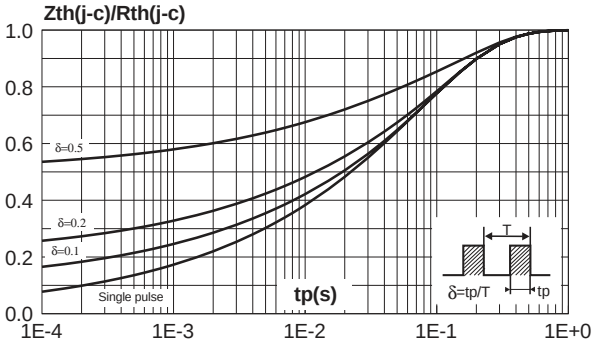


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

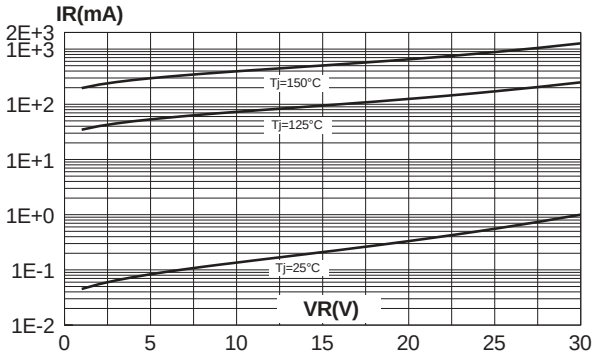


Fig. 8: Junction capacitance versus reverse voltage applied (typical values) (per diode).

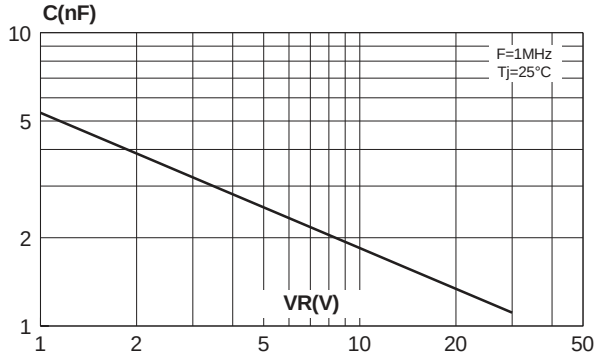
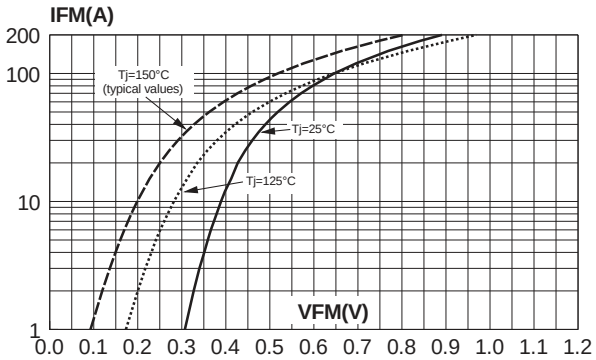


Fig. 9: Forward voltage drop versus forward current (maximum values - per diode).



PACKAGE MECHANICAL DATA

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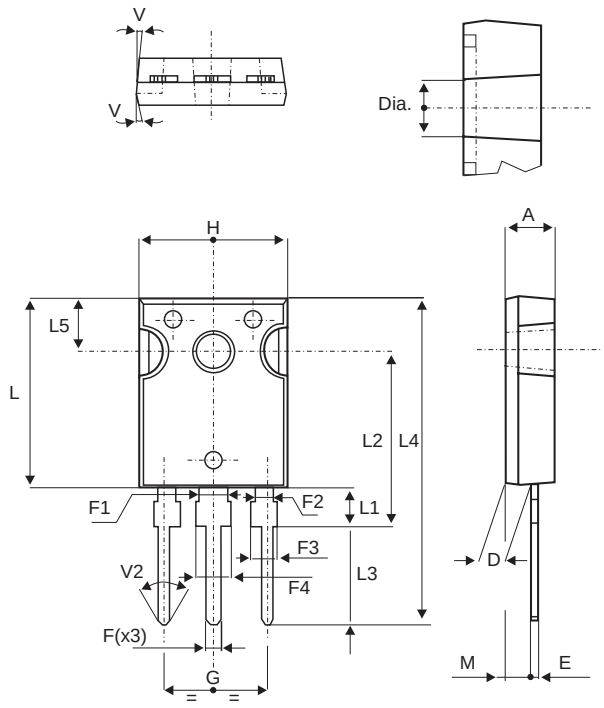

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
D	2.20		2.60	0.086		0.102
E	0.40		0.80	0.015		0.031
F	1.00		1.40	0.039		0.055
F1		3.00			0.118	
F2		2.00			0.078	
F3	2.00		2.40	0.078		0.094
F4	3.00		3.40	0.118		0.133
G		10.90			0.429	
H	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
L4		34.60			1.362	
L5		5.50			0.216	
M	2.00		3.00	0.078		0.118
V		5°			5°	
V2		60°			60°	
Dia.	3.55		3.65	0.139		0.143

- 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