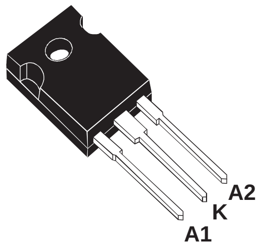
STPS6030CW

LOW DROP POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	2 x 30 A
V_{RRM}	30 V
Tj (max)	150°C
V_F (max)	0.45 V



TO-247
STPS6030CW

FEATURES AND BENEFITS

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

DESCRIPTION

Dual Schottky rectifier suited for switch Mode Power Supply and high frequency 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_{RRM}	Repetitive peak reverse voltage			30	V
$I_{F(RMS)}$	RMS forward current			45	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		300	A
I_{RRM}	Peak repetitive reverse current	tp=2 µs square F=1kHz		2	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C		7700	W
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage (rated V_R, Tj = 25°C)			10000	V/µs

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

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode Total	0.9 0.6	°C/W
$R_{th(c)}$		Coupling	0.3	°C/W

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$		0.7	1.5	mA
		Tj = 125°C			200	400	
V_F *	Forward voltage drop	Tj = 25°C	I_F = 30 A		0.46	0.52	V
		Tj = 125°C	I_F = 30 A		0.39	0.45	
		Tj = 25°C	I_F = 60 A		0.58	0.65	
		Tj = 125°C	I_F = 60 A		0.56	0.63	

Pulse test : * tp = 380 *s, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.27 \times I_{F(AV)} + 0.006\, I_{F}^{2}{}_{(RMS)}$

Fig. 1: Conduction losses versus average current.

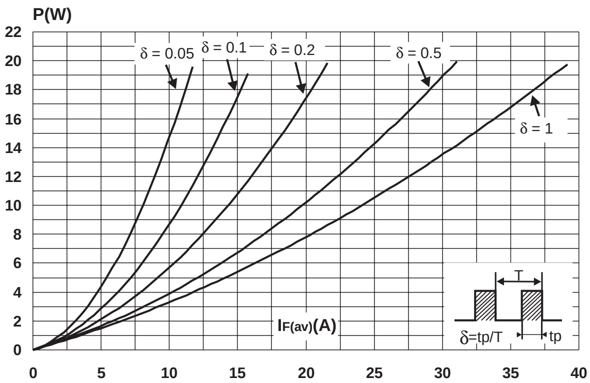


Fig. 2: Average forward current versus ambient temperature(δ = 0.5).

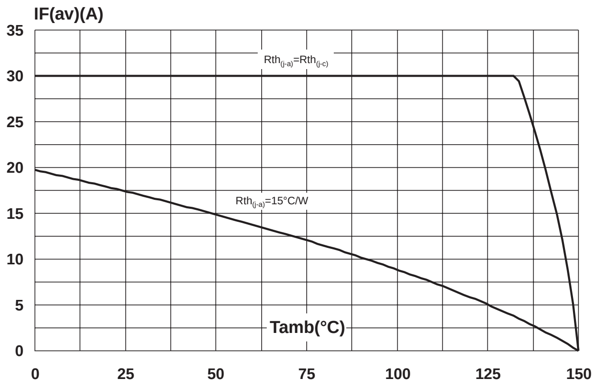


Fig. 3: Normalized avalanche power derating versus pulse duration.

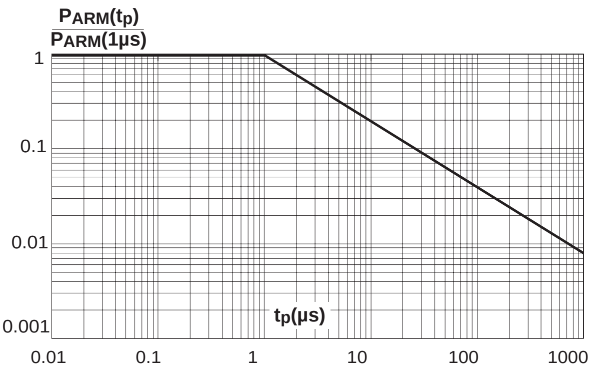


Fig. 4: Normalized avalanche power derating versus junction temperature.

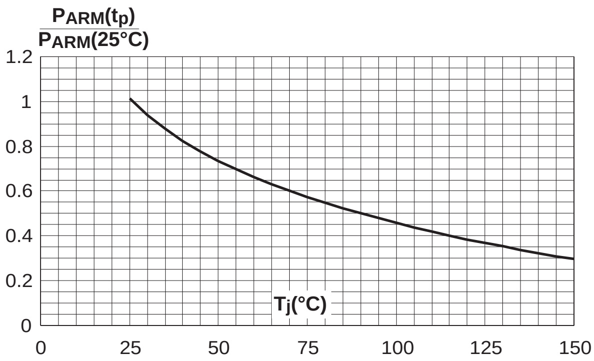


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

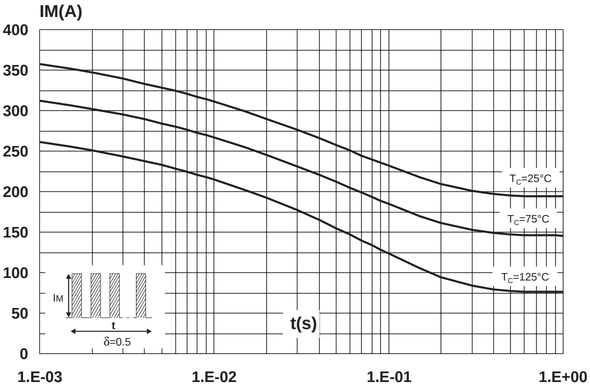


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

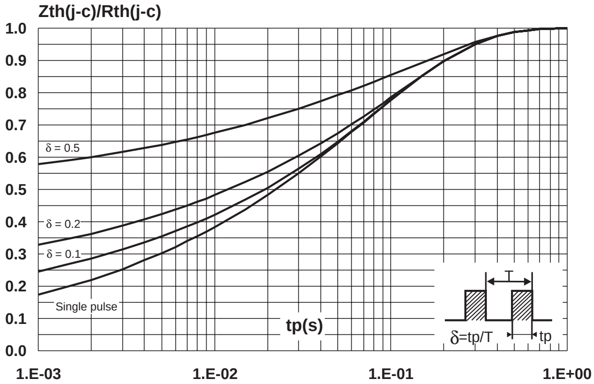


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

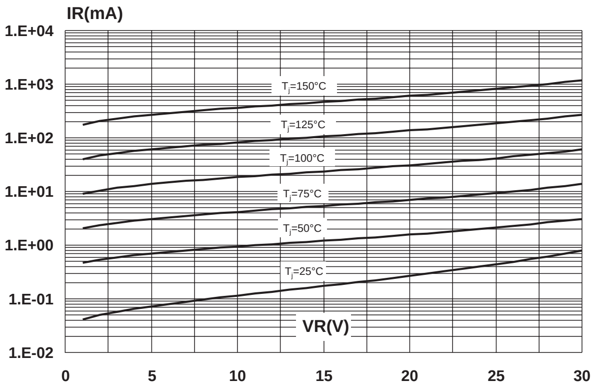


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

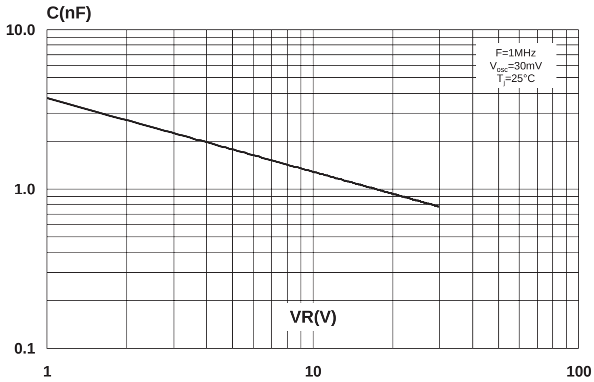
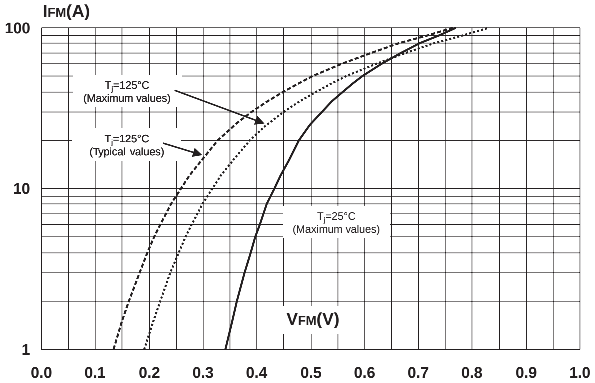
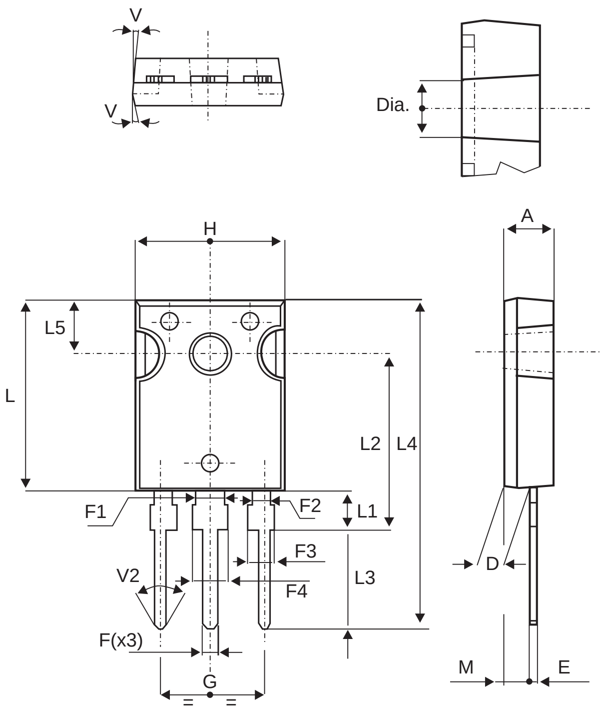


Fig. 9: Forward voltage drop versus forward current.



PACKAGE MECHANICAL DATA

TO-247



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

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS6030CW	STPS6030CW	TO-247	4.4 g	30	Tube

- EPOXY MEETS UL94,V0