

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	30 V
$T_j(\text{max})$	150 °C
$V_F(\text{max})$	0.37 V

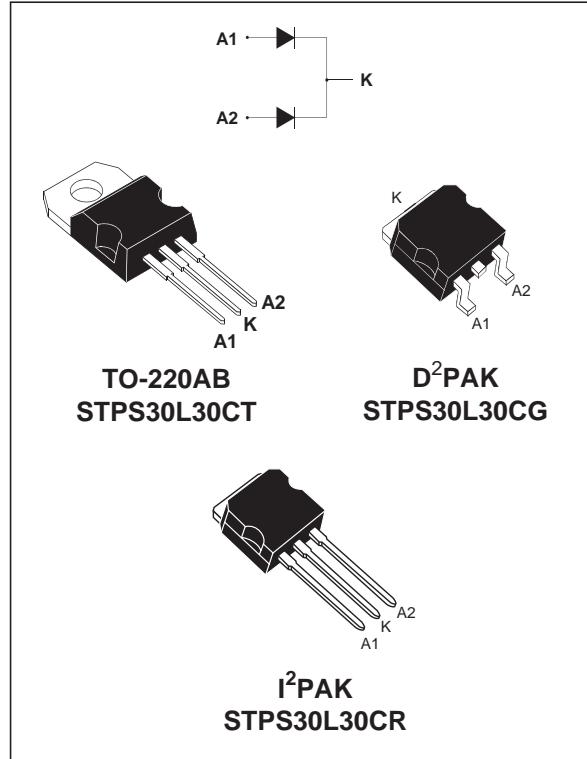
FEATURES AND BENEFITS

- 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 rectifiers suited for Switch Mode Power Supply and high frequency DC to DC converters.

Packaged in TO-220AB, D²PAK and I²PAK, these devices are 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
$I_{F(\text{RMS})}$	RMS forward current			30	A
$I_{F(AV)}$	Average forward current	$T_c = 140^\circ\text{C}$	Per diode Per device	15 30	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms Sinusoidal}$		220	A
I_{RRM}	Peak repetitive reverse current	$t_p = 2 \mu\text{s } F = 1\text{kHz square}$		1	A
I_{RSR}	Non repetitive peak reverse current	$t_p = 100\mu\text{s square}$		3	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1\mu\text{s } T_j = 25^\circ\text{C}$		5300	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/μs

STPS30L30CT/CG/CR

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	1.5 °C/W
		Total	0.8 °C/W
$R_{th(c)}$		Coupling	0.1 °C/W

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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			1.5	mA
		$T_j = 125^\circ\text{C}$			170	350	mA
V_F^*	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 15 \text{ A}$			0.46	V
		$T_j = 125^\circ\text{C}$	$I_F = 15 \text{ A}$			0.33	
		$T_j = 25^\circ\text{C}$	$I_F = 30 \text{ A}$			0.57	
		$T_j = 125^\circ\text{C}$	$I_F = 30 \text{ A}$			0.43	

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

To evaluate the conduction losses use the following equation :

$$P = 0.24x I_F(\text{AV}) + 0.009 I_F^2(\text{RMS})$$

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

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

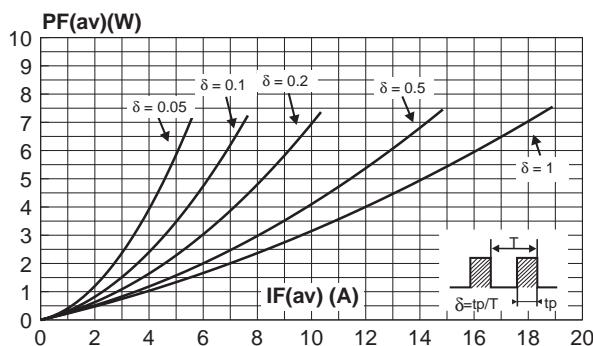


Fig. 3: Normalized avalanche power derating versus pulse duration.

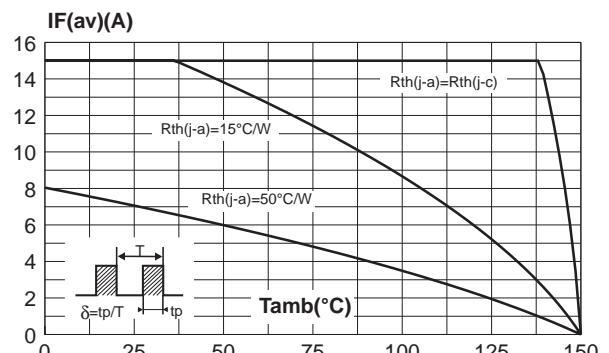
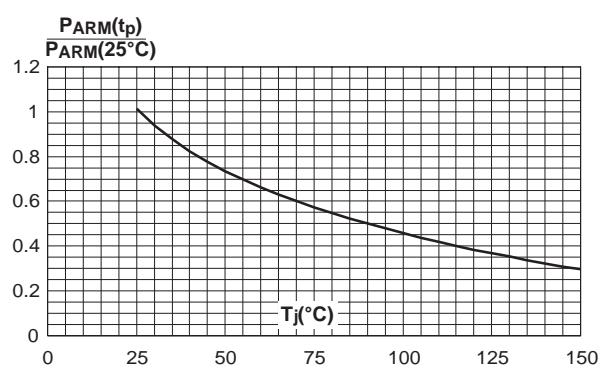
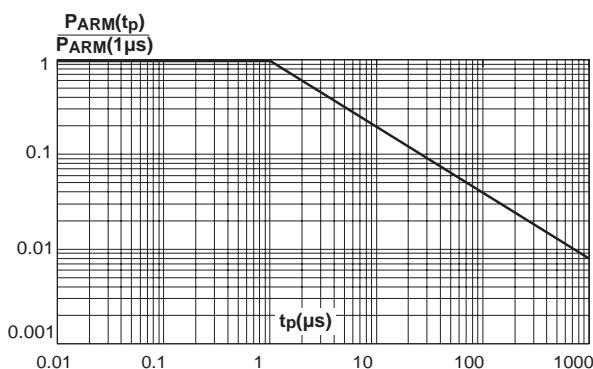
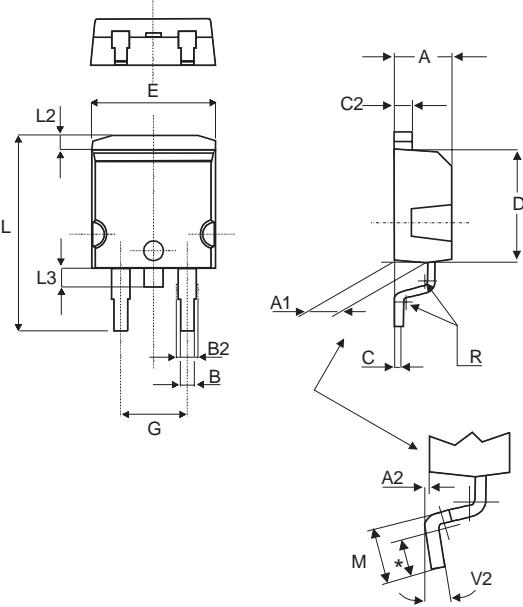


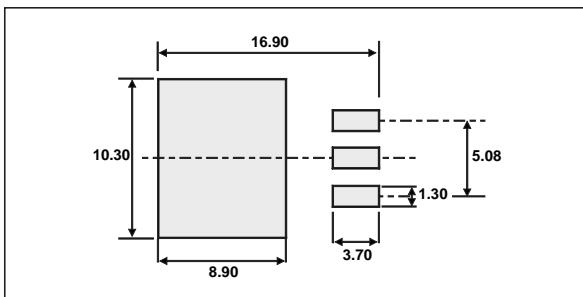
Fig. 4: Normalized avalanche power derating versus junction temperature.



PACKAGE MECHANICAL DATA
D²PAK


* FLAT ZONE NO LESS THAN 2mm

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
A1	2.49	2.69	0.098	0.106
A2	0.03	0.23	0.001	0.009
B	0.70	0.93	0.027	0.037
B2	1.14	1.70	0.045	0.067
C	0.45	0.60	0.017	0.024
C2	1.23	1.36	0.048	0.054
D	8.95	9.35	0.352	0.368
E	10.00	10.40	0.393	0.409
G	4.88	5.28	0.192	0.208
L	15.00	15.85	0.590	0.624
L2	1.27	1.40	0.050	0.055
L3	1.40	1.75	0.055	0.069
M	2.40	3.20	0.094	0.126
R	0.40 typ.		0.016 typ.	
V2	0°	8°	0°	8°

FOOT PRINT (in millimeters)

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS30L30CT	STPS30L30CT	TO-220AB	2g	50	Tube
STPS30L30CG	STPS30L30CG	D ² PAK	1.8g	50	Tube
STPS30L30CG-TR	STPS30L30CG	D ² PAK	1.8g	1000	Tape & reel
STPS30L30CR	STPS30L30CR	I ² PAK	1.49g	50	Tube

- Epoxy meets UL94, V0