

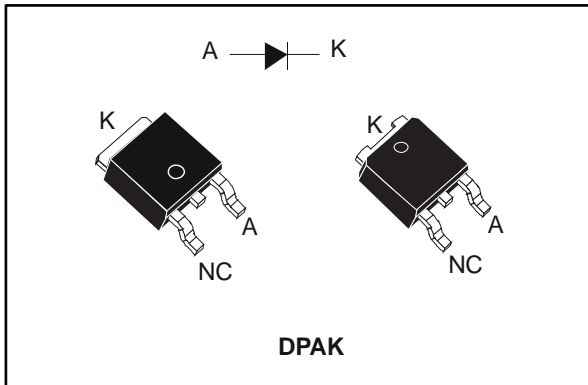


THE DATASHEET OF STPS8L30B-TR



Low drop power Schottky rectifier

Datasheet - production data



Description

Single Schottky rectifier suited to switched mode power supplies and high frequency DC to DC converters.

Packaged in DPAK, this device is especially intended for use as a rectifier at the secondary of 3.3 V SMPS or DC/DC units, freewheeling and polarity protection applications.

Table 1: Device summary

Symbol	Value
$I_{F(AV)}$	8 A
V_{RRM}	30 V
T_j (max.)	150 °C
V_F (typ.)	0.35 V

Features

- Low cost device with low drop forward voltage for less power dissipation and reduced heatsink
- Optimized conduction/reverse losses trade-off which leads to the highest yield in the application
- High power surface mount miniature package
- Avalanche capability specified
- ECOPACK[®]2 compliant component for DPAK on demand

1 Characteristics

Table 2: Absolute ratings (limiting values at 25 °C, unless otherwise specified)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		30	V
I _{F(RMS)}	Forward rms current		7	A
I _{F(AV)}	Average forward current δ = 0.5, square wave	T _C = 135 °C	8	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	75	A
P _{ARM}	Repetitive peak avalanche power	t _p = 10 μs, T _j = 125 °C	215	W
T _{stg}	Storage temperature range		-65 to +150	°C
T _j	Maximum operating junction temperature ⁽¹⁾		150	°C

Notes:

⁽¹⁾(dP_{tot}/dT_j) < (1/R_{th(j-a)}) condition to avoid thermal runaway for a diode on its own heatsink.

Table 3: Thermal parameters

Symbol	Parameter	Max. value	Unit
R _{th(j-c)}	Junction to case	2.5	°C/W

Table 4: Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
		T _j	V _R				
I _R ⁽¹⁾	Reverse leakage current	T _j = 25 °C	V _R = V _{RRM}	-		1	mA
		T _j = 100 °C		-	15	40	
V _F ⁽¹⁾	Forward voltage drop	T _j = 25 °C	I _F = 8 A	-		0.49	V
		T _j = 125 °C		-	0.35	0.40	
		T _j = 25 °C	I _F = 16 A	-		0.63	
		T _j = 125 °C		-	0.448	0.57	

Notes:

⁽¹⁾Pulse test: t_p = 380 μs, δ < 2%

To evaluate the conduction losses, use the following equation:

$$P = 0.23 \times I_{F(AV)} + 0.021 \times I_{F(RMS)}^2$$

1.1 Characteristics (curves)

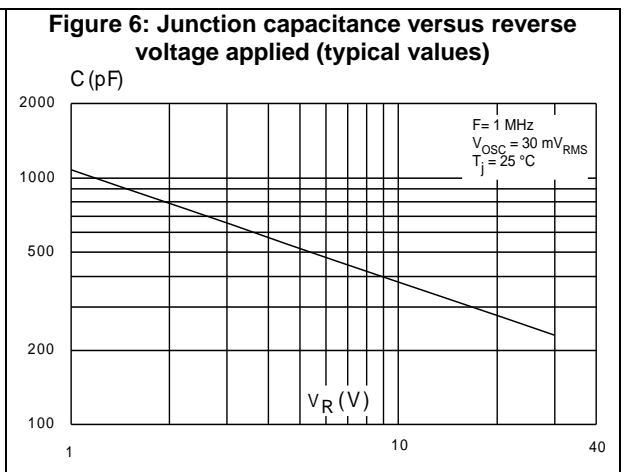
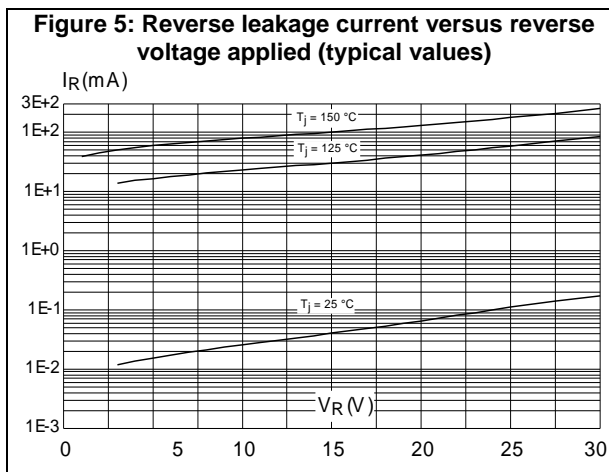
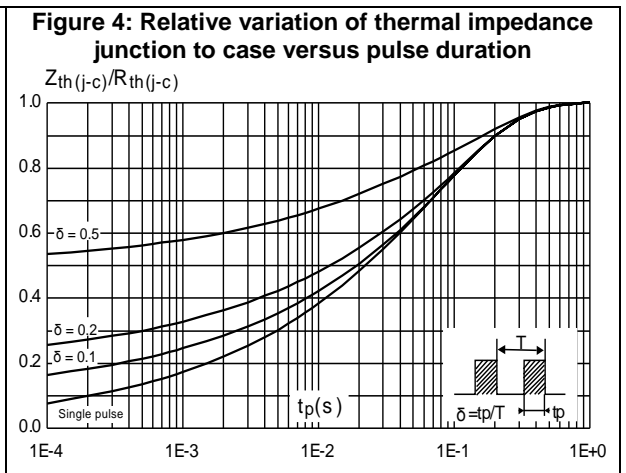
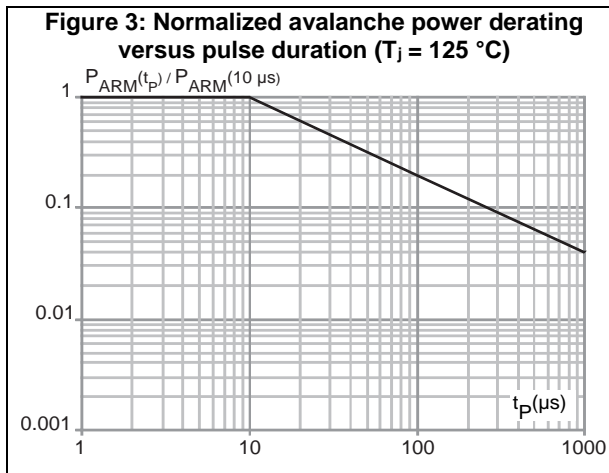
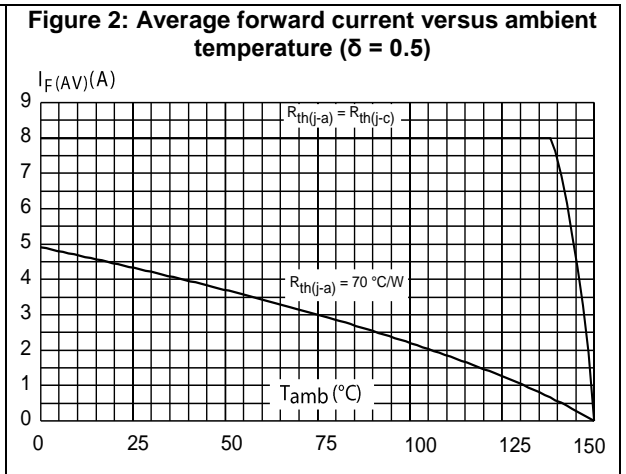
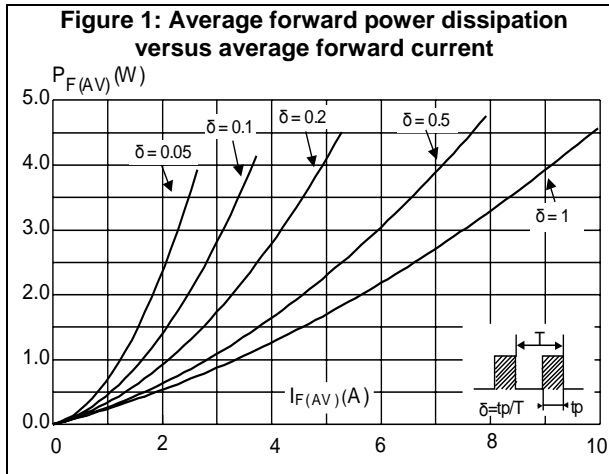


Figure 7: Forward voltage drop versus forward current

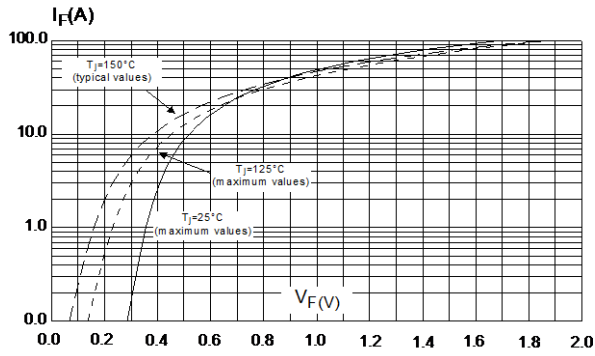
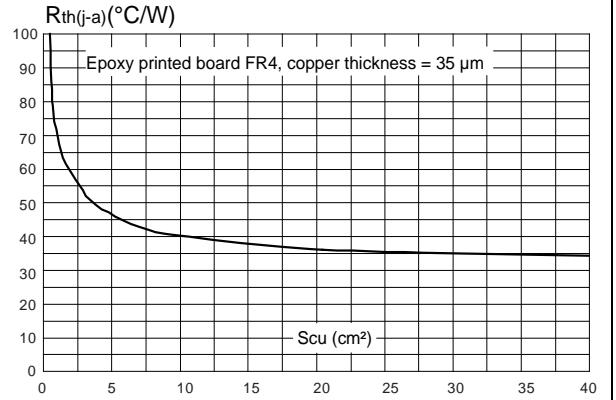


Figure 8: Thermal resistance junction to ambient versus copper surface under tab



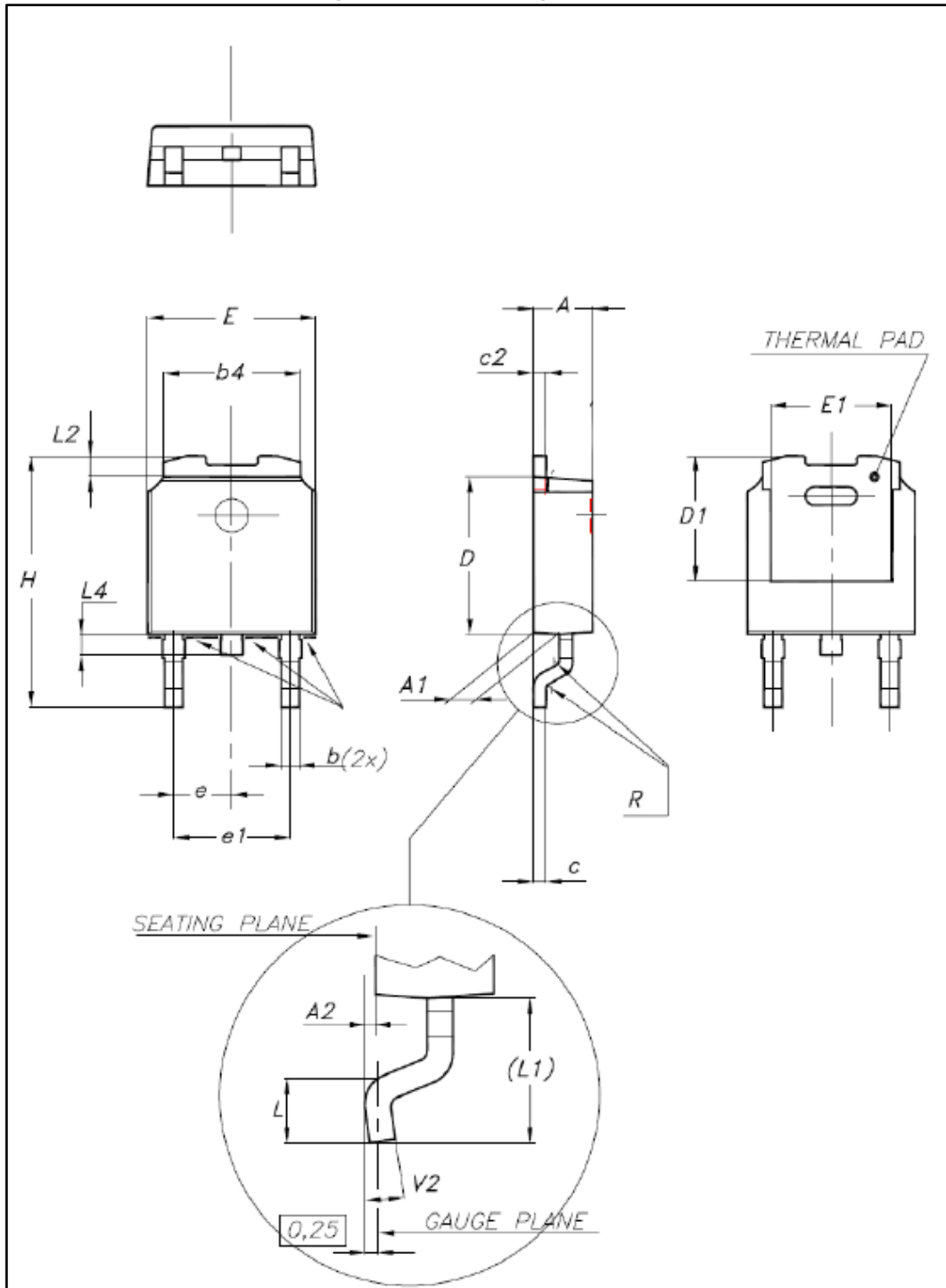
2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

- Cooling method: by conduction (C)
- Epoxy meets UL 94,V0

2.1 DPAK package information

Figure 9: DPAK package outline

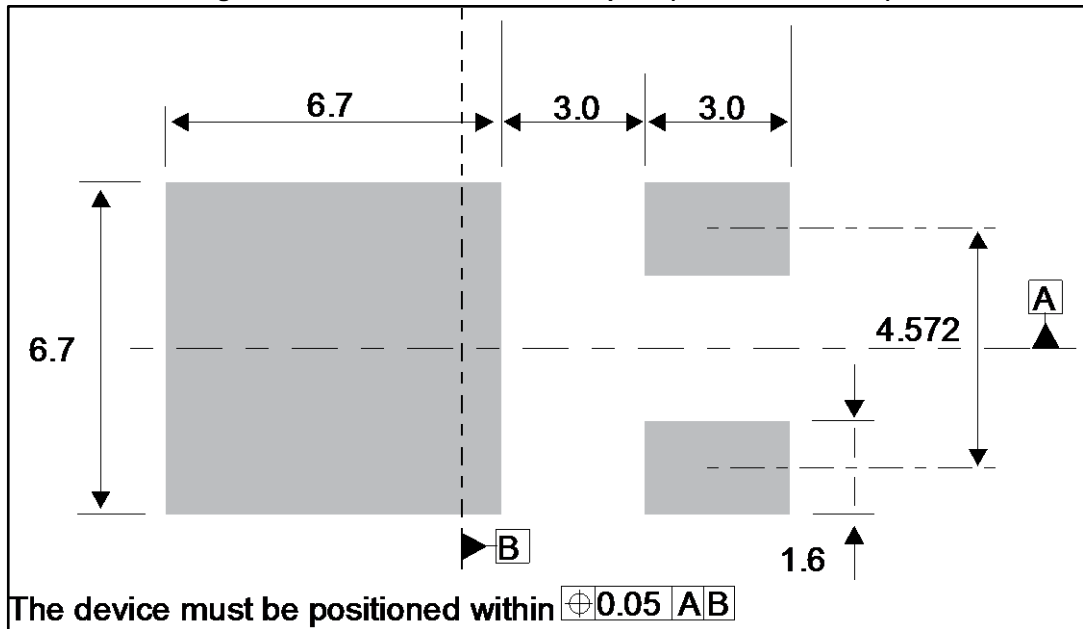


This package drawing may slightly differ from the physical package. However, all the specified dimensions are guaranteed.

Table 5: DPAK package mechanical data

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.18	2.40	0.085	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
b	0.64	0.90	0.025	0.035
b4	4.95	5.46	0.194	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.60	0.018	0.023
D	5.97	6.22	0.235	0.244
D1	4.95	5.60	0.194	0.220
E	6.35	6.73	0.250	0.265
E1	4.32	5.50	0.170	0.216
e	2.286 typ.		0.090 typ.	
e1	4.40	4.70	0.173	0.185
H	9.35	10.40	0.368	0.409
L	1.0	1.78	0.039	0.070
L2		1.27		0.050
L4	0.60	1.02	0.023	0.040
V2	-8°	+8°	-8°	+8°

Figure 10: DPAK recommended footprint (dimensions in mm)



3 Ordering information

Table 6: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS8L30B-TR	LS 30	DPAK	0.32 g	2500	Tape and reel

4 Revision history

Table 7: Document revision history

Date	Revision	Changes
Jul-2002	2A	First issue
16-Apr-2005	3	IPAK package Added.
01-Mar-2006	4	IPAK connector identifiers corrected on page 1. ECOPACK statement added. Document reformatted to current standard.
18-Oct-2016	5	Updated DPAK package information and reformatted to current standard. Removed IPAK package.

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