

1 Characteristics

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

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		100	V
I _{F(RMS)}	RMS forward voltage		10	A
I _{F(AV)}	Average forward current, $\delta = 0.5$, square wave	T _C = 165 °C	5	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	515	W
T _{stg}	Storage temperature range		-65 to +175	°C
T _j	Maximum operating junction temperature ⁽¹⁾		175	°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
I _R ⁽¹⁾	Reverse leakage current	T _j = 25 °C	V _R = V _{RRM}	-		3.5	μA
		T _j = 125 °C		-	1.3	4.5	mA
V _F ⁽²⁾	Forward voltage drop	T _j = 25 °C	I _F = 5 A	-		0.73	V
		T _j = 125 °C		-	0.57	0.61	
		T _j = 25 °C	I _F = 10 A	-		0.85	
		T _j = 125 °C		-	0.66	0.71	

Notes:

⁽¹⁾Pulse test: t_p = 5 ms, $\delta < 2\%$

⁽²⁾Pulse test: t_p = 380 μs, $\delta < 2\%$

To evaluate the conduction losses, use the following equation:

$$P = 0.51 \times I_{F(AV)} + 0.02 \times I_{F(RMS)}^2$$

1.1 Characteristics (curves)

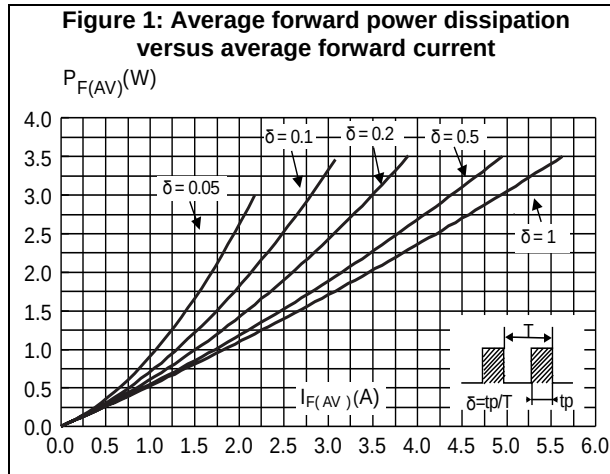


Figure 2: Average forward current versus ambient temperature ($\delta = 0.5$)

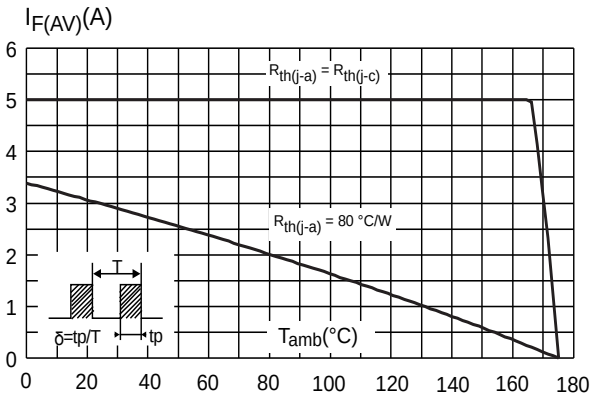


Figure 3: Normalized avalanche power derating versus pulse duration (at $T_j = 125\text{ }^{\circ}\text{C}$)

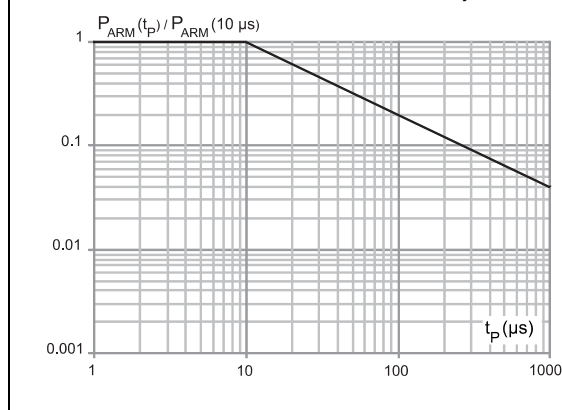


Figure 4: Relative variation of thermal impedance junction to case versus pulse duration

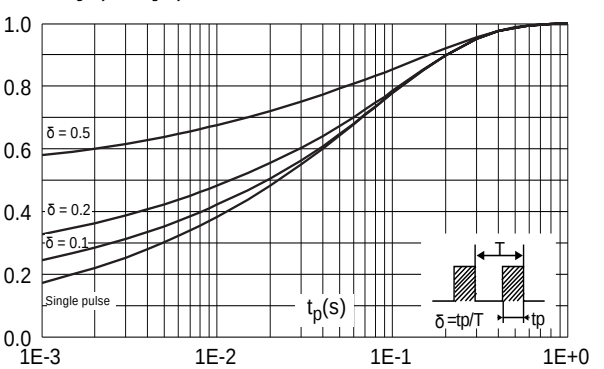


Figure 5: Reverse leakage current versus reverse voltage applied (typical values)

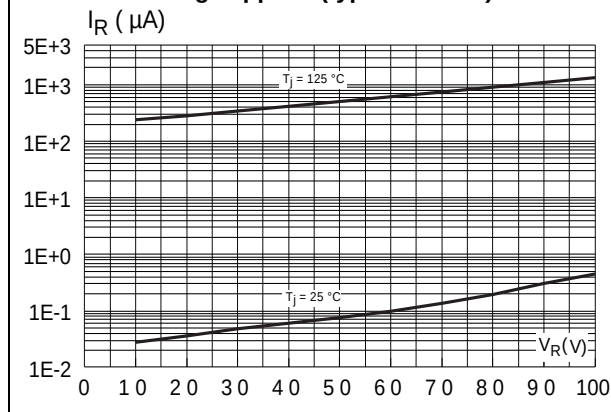


Figure 6: Junction capacitance versus reverse voltage applied (typical values)

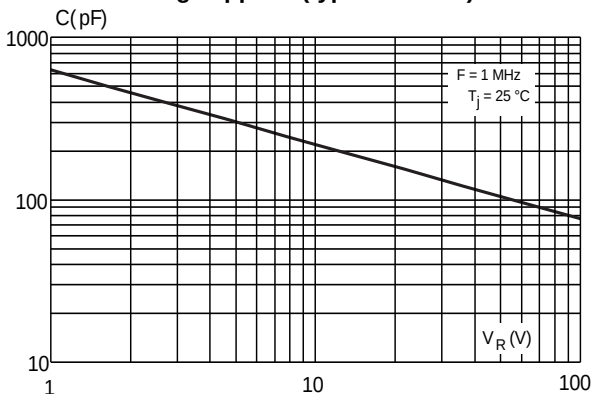
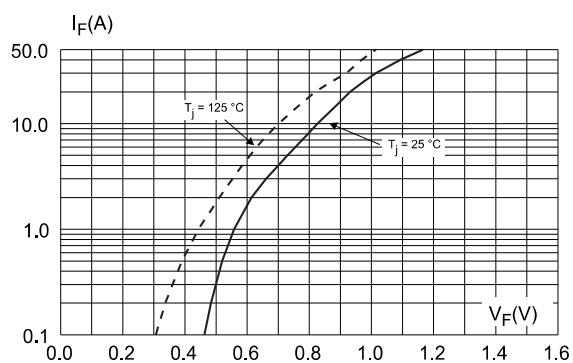
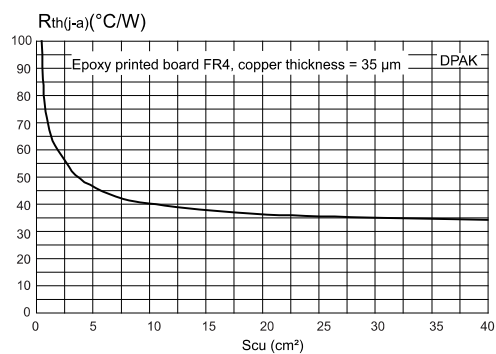


Figure 7: Forward voltage drop versus forward current (typical values)**Figure 8: Thermal resistance junction to ambient versus copper surface under tab**

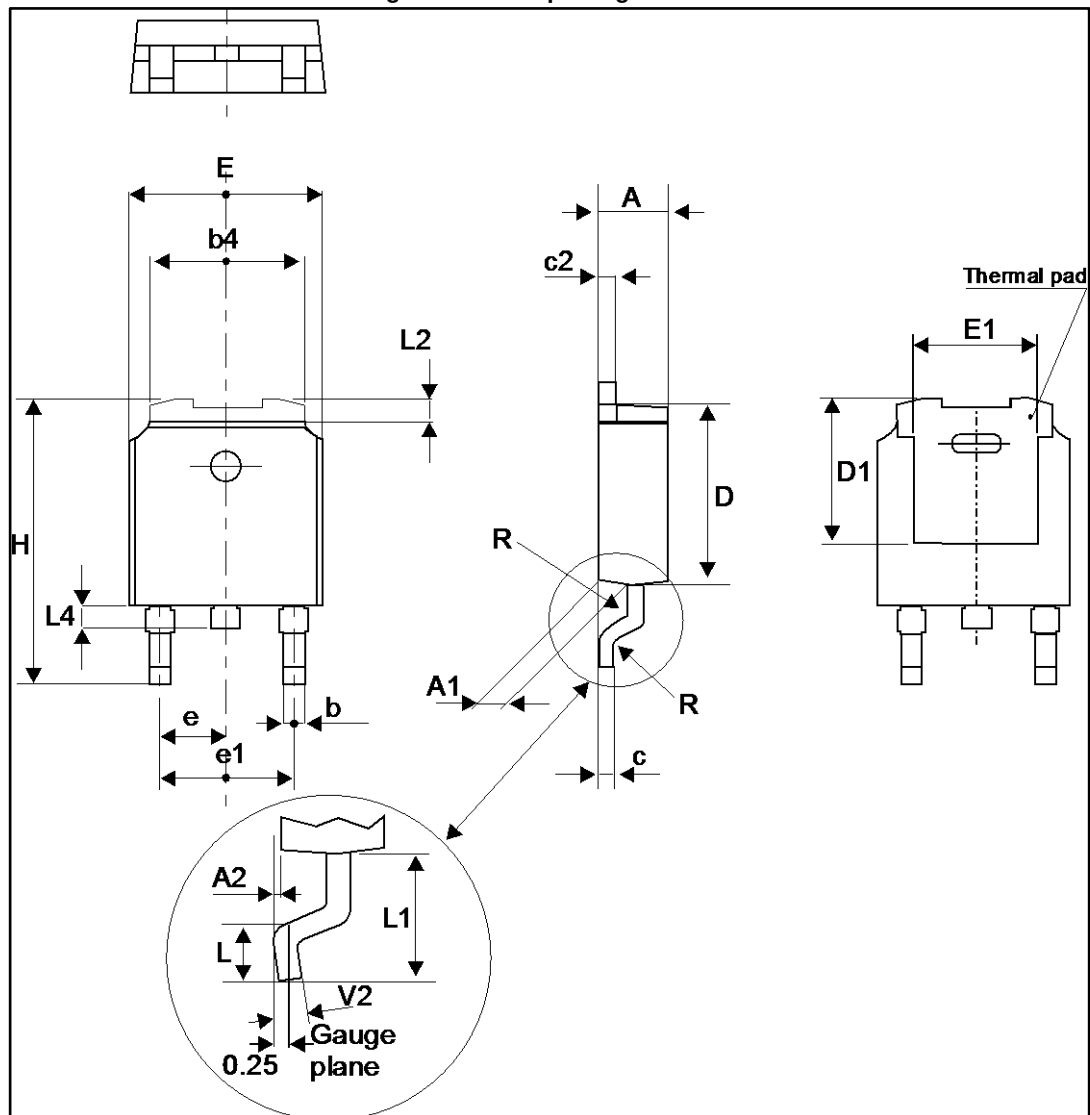
2 Package information

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.

- Epoxy meets UL94, V0
- Cooling method: by conduction (C)

2.1 DPAK package information

Figure 9: DPAK package outline

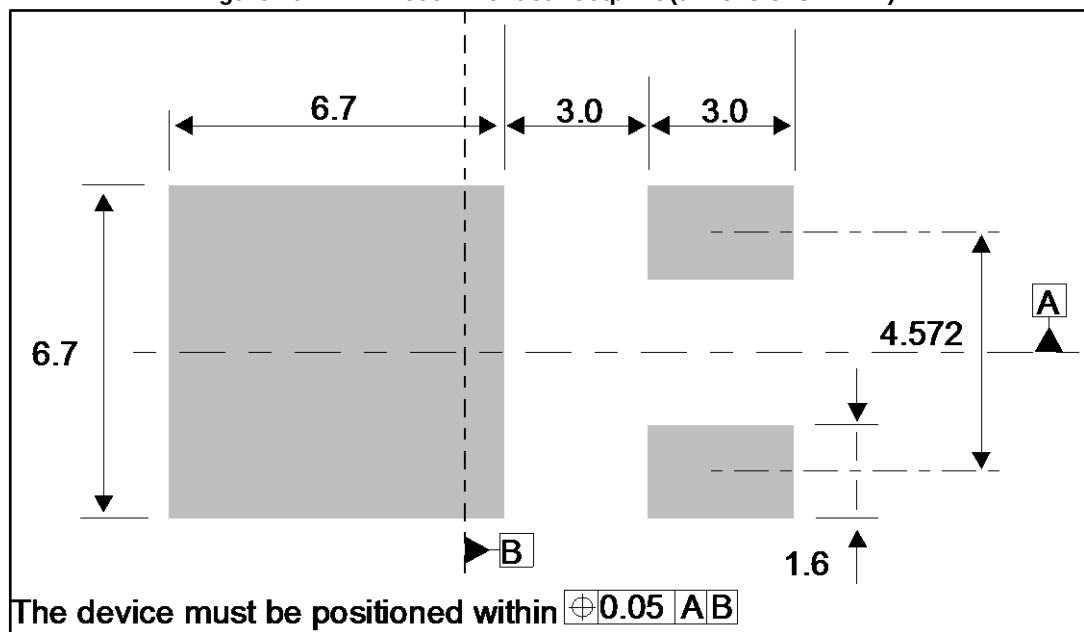


This package drawing may slightly differ from the physical package. However, all the specified dimensions are guaranteed.

Table 5: DPAK package mechanical data

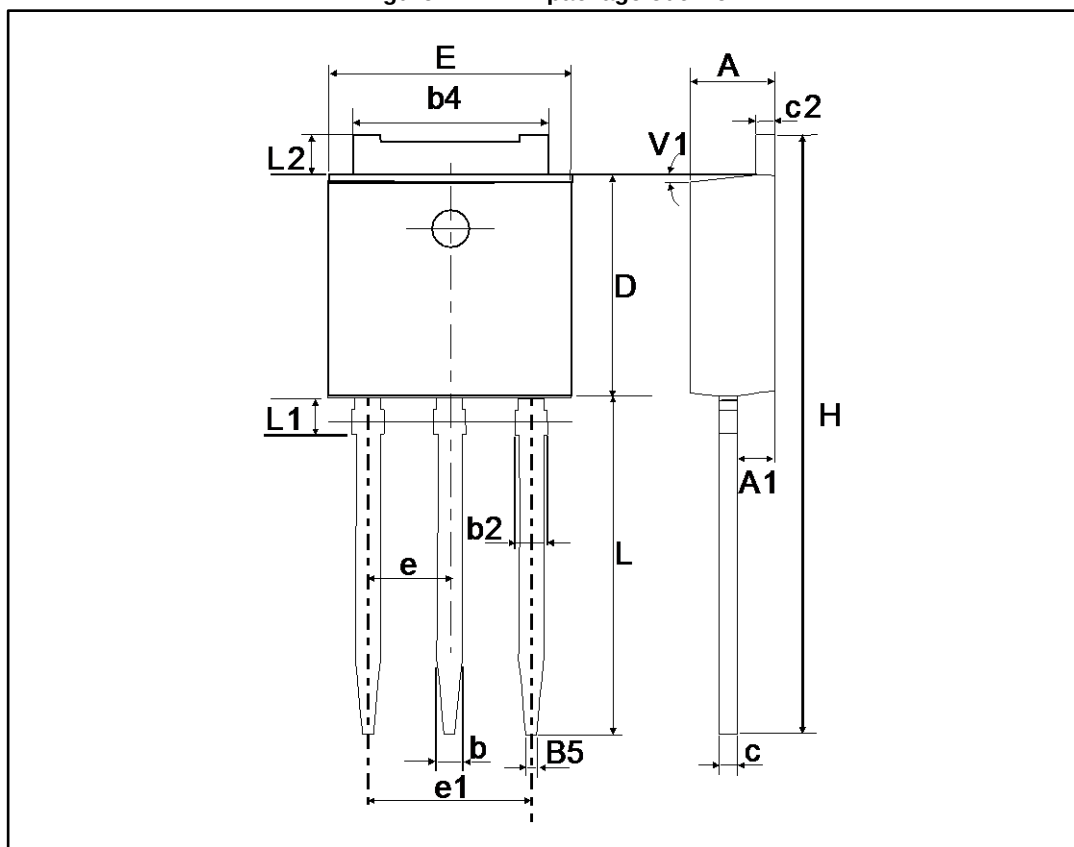
Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.18	2.40	0.085	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
b	0.64	0.90	0.025	0.035
b4	4.95	5.46	0.194	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.60	0.018	0.023
D	5.97	6.22	0.235	0.244
D1	4.95	5.60	0.194	0.220
E	6.35	6.73	0.250	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)



2.2 IPAK package information

Figure 11: IPAK package outline



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

Table 6: IPAK package mechanical data

Ref.	Dimensions					
	Millimeters			Inches ⁽¹⁾		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.094
A1	0.90		1.10	0.035		0.043
b	0.64		0.90	0.025		0.035
b2			0.95			0.037
b4	5.20		5.43	0.204		0.213
B5		0.30			0.012	
c	0.45		0.60	0.017		0.023
c2	0.46		0.60	0.018		0.023
D	6.00		6.20	0.236		0.244
E	6.40		6.65	0.252		0.261
e		2.28			0.089	
e1	4.40		4.60	0.173		0.181
H		16.10			0.633	
L	9.00		9.60	0.354		0.378
L1	0.80		1.20	0.031		0.047
L2		0.80	1.25		0.031	0.049
V1		10°			10°	

Notes:⁽¹⁾Inch dimensions are for reference only.

3 Ordering information

Table 7: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS5H100B	S5 H100	DPAK	320 mg	75	Tube
STPS5H100B-TR	S5 H100			2500	Tape and reel
STPS5H100H	S5 H100H	IPAK	310 mg	75	Tube

4 Revision history

Table 8: Document revision history

Date	Revision	Changes
Jul-2003	6B	Last issue.
03-Nov-2005	7	DPAK footprint dimensions updated.
15-Feb-2006	8	ECOPACK statement added.
05-Mar-2007	9	IPAK package added.
01-Aug-2014	10	Updated DPAK package information.
17-Sep-2014	11	Updated <i>Table 2</i> , <i>title Figure 3</i> and <i>Figure 11</i> .
14-Oct-2014	12	Updated DPAK package information.
12-May-2017	13	Updated DPAK package information and reformatted to current standard.

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