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
$I_{F(AV)}$	Average forward current	T_L = 115 °C, δ = 0.5, square pulse	5	A
I_{FSM}	Surge non repetitive forward current	t_p = 10 ms sinusoidal	125	A
		t_p = 8.3 ms sinusoidal	130	
P_{ARM}	Repetitive peak avalanche power	t_p = 10 µs, T_j = 125 °C	165	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
$R_{th(j-l)}$	Junction to lead	16	°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 = 100 V	-	0.7	3.5	µA
		T_j = 125 °C		-	1	4	mA
		T_j = 150 °C		-		16	
V_F(2)	Forward voltage drop	T_j = 25 °C	I_F = 2.5 A	-		0.67	V
		T_j = 125 °C		-	0.51	0.55	
		T_j = 25 °C	I_F = 5 A	-		0.76	
		T_j = 125 °C		-	0.57	0.61	

Notes:

(1)Pulse test: t_p = 5 ms, δ < 2%

(2)Pulse test: t_p = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation:

$P = 0.49 \times I_{F(AV)} + 0.024 \times I_{F^2(RMS)}$

For more information, please refer to the following application notes related to the power losses.

- AN604 (Calculation of conduction losses in a power rectifier)
- AN4021 (Calculation of reverse losses in a power diode)

1.1 Characteristics (curves)

Figure 1: Average forward power dissipation versus average forward current

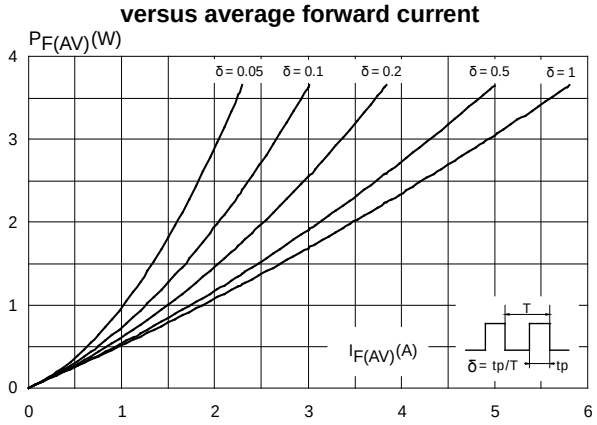


Figure 2: Average forward current versus ambient temperature (δ = 0.5)

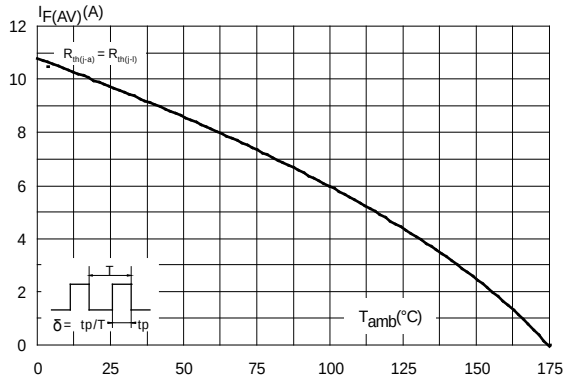


Figure 3: Normalized avalanche power derating versus pulse duration

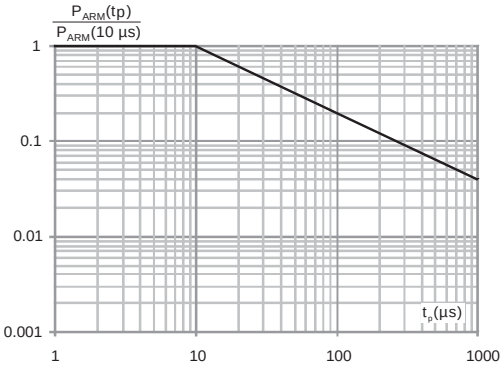


Figure 4: Relative variation of thermal impedance junction to lead versus pulse duration

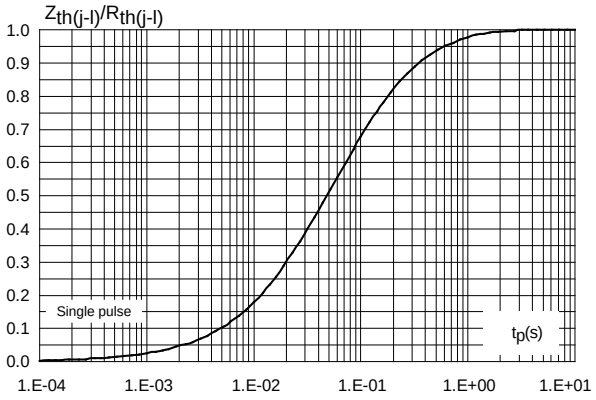


Figure 5: Reverse leakage current versus reverse voltage applied (typical values)

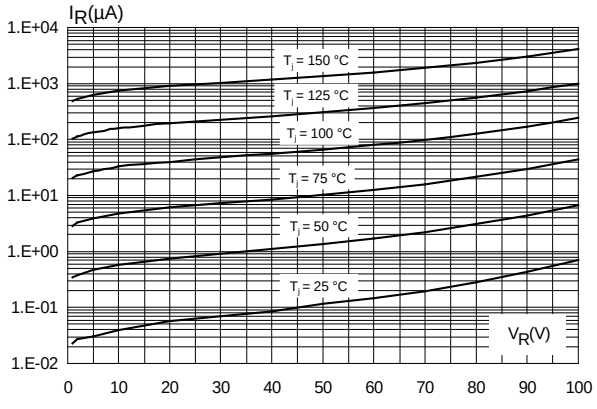


Figure 6: Junction capacitance versus reverse voltage applied (typical values)

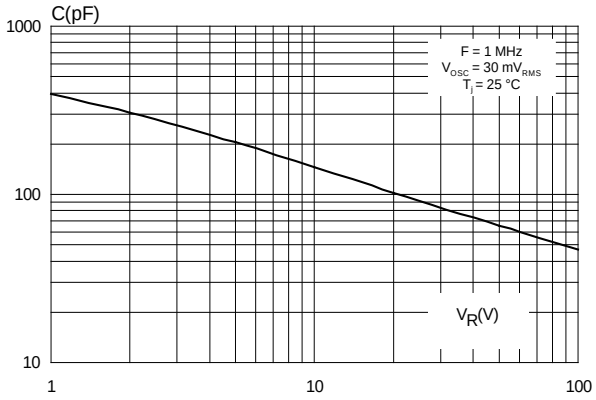


Figure 7: Forward voltage drop versus forward current (typical values)

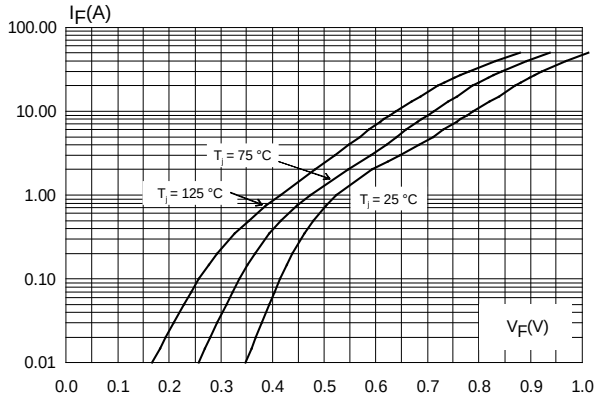
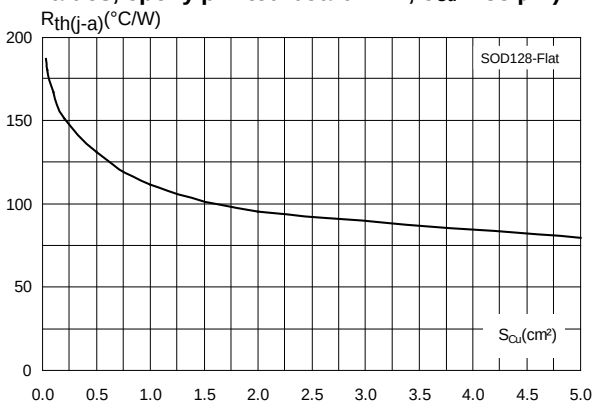


Figure 8: Thermal resistance junction to ambient versus copper surface under each lead (typical values, epoxy printed board FR4, e_{Cu} = 35 µm)



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
- Lead-free package

2.1 SOD128Flat package information

Figure 9: SOD128Flat package outline

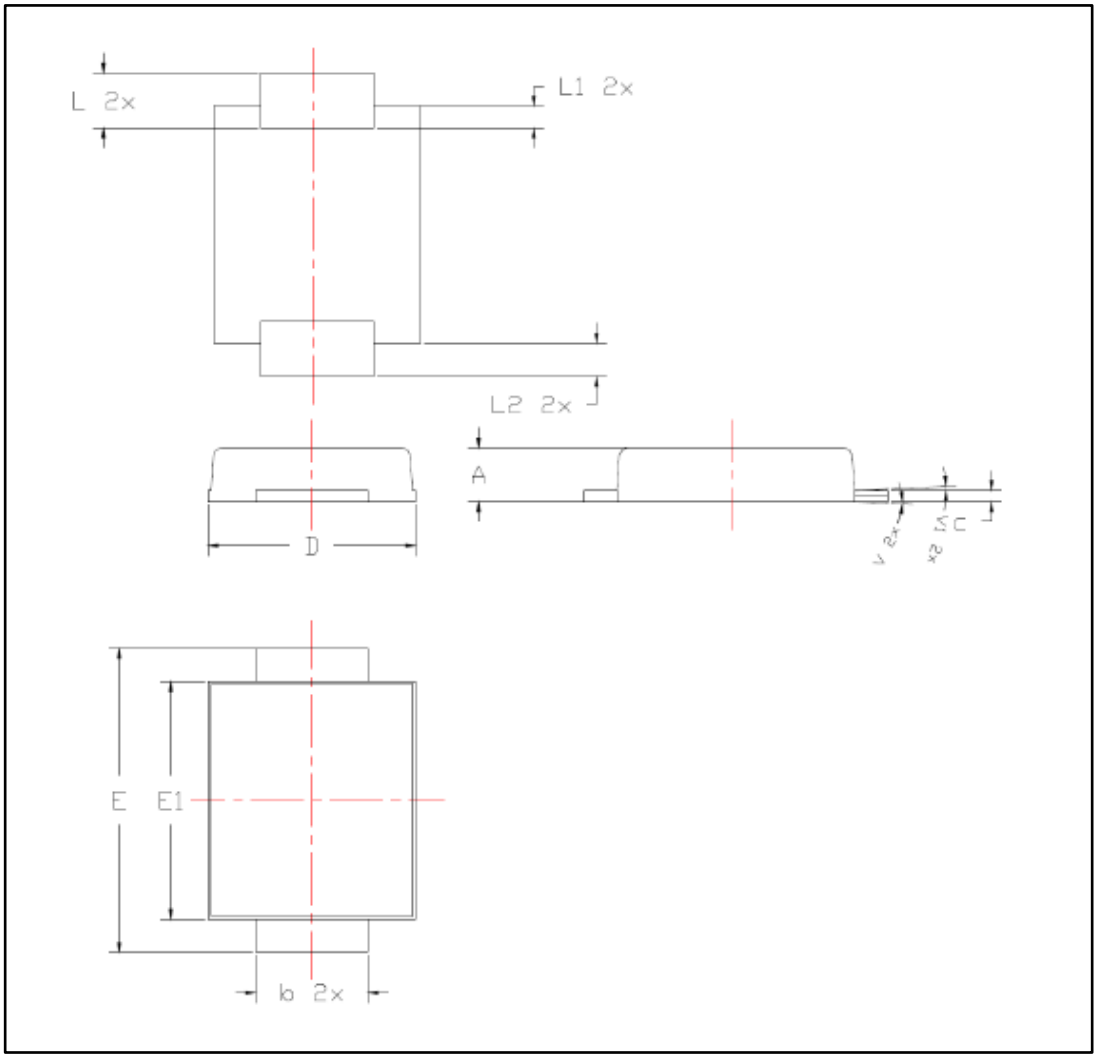
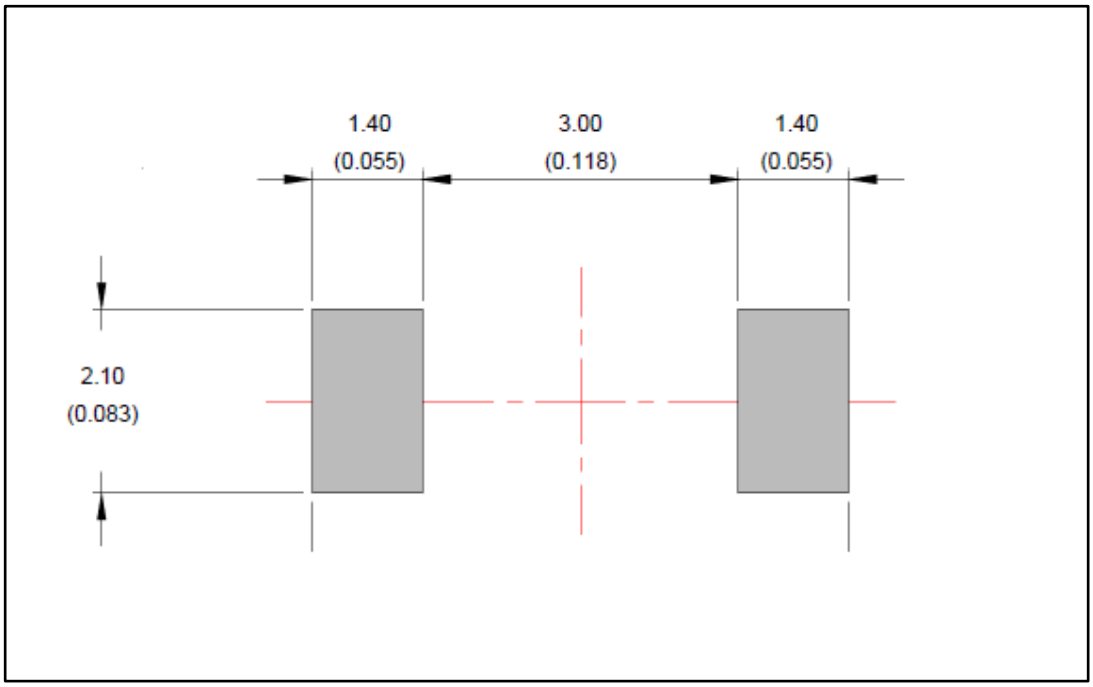


Table 5: SOD128Flat package mechanical data

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.93	1.03	0.037	0.041
b	1.69	1.81	0.067	0.071
c	0.10	0.22	0.004	0.009
D	2.30	2.50	0.091	0.098
E	4.60	4.80	0.181	0.189
E1	3.70	3.90	0.146	0.154
L	0.55	0.85	0.026	0.033
L1	0.30 typ.		0.012 typ.	
L2	0.45 typ.		0.018 typ.	

Figure 10: SOD128Flat footprint in mm (inches)



3 Ordering information

Table 6: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS5H100AF	5H100	SOD128Flat	26.4 mg	3000	Tape and reel

4 Revision history

Table 7: Document revision history

Date	Revision	Changes
09-Jan-2017	1	Initial release.

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