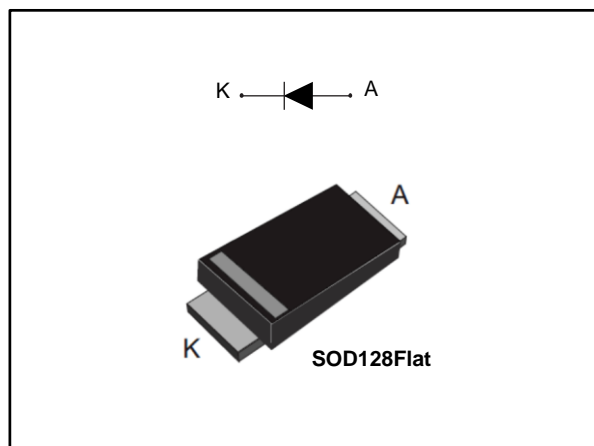


## High voltage power Schottky rectifier

Datasheet - production data



### Description

This high voltage Schottky barrier rectifier device is packaged in SOD128Flat and designed for high frequency miniature switched mode power supplies and for board DC to DC converters.

Table 1: Device summary

Symbol	Value
$I_{F(AV)}$	3 A
$V_{RRM}$	100 V
$T_j(\text{max.})$	175 °C
$V_F(\text{typ.})$	0.57 V

### Features

- Negligible switching losses
- High junction temperature capability
- Low leakage current
- Good trade-off between leakage current and forward voltage drop
- Avalanche specification
- ECOPACK® compliant component

# 1 Characteristics

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

Symbol	Parameter		Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		100	V
I <sub>F(AV)</sub>	Average forward current	T <sub>L</sub> = 140 °C, δ = 0.5, square pulse	3	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal	75	A
		t <sub>p</sub> = 8.3 ms sinusoidal	79	
P <sub>ARM</sub>	Repetitive peak avalanche power	t <sub>p</sub> = 10 μs, T <sub>j</sub> = 125 °C	172	W
T <sub>stg</sub>	Storage temperature range		-65 to +175	°C
T <sub>j</sub>	Operating junction temperature range <sup>(1)</sup>		-40 to +175	°C

**Notes:**

<sup>(1)</sup>(dP<sub>tot</sub>/dT<sub>j</sub>) < (1/R<sub>th(j-a)</sub>) condition to avoid thermal runaway for a diode on its own heatsink.

**Table 3: Thermal parameters**

Symbol	Parameter	Max. value	Unit
R <sub>th(j-l)</sub>	Junction to lead	16	°C/W

**Table 4: Static electrical characteristics**

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
		T <sub>j</sub>	I <sub>F</sub>				
I <sub>R</sub> <sup>(1)</sup>	Reverse leakage current	T <sub>j</sub> = 25 °C	V <sub>R</sub> = 100 V	-		1.5	μA
		T <sub>j</sub> = 125 °C		-	0.6	1.7	mA
V <sub>F</sub> <sup>(2)</sup>	Forward voltage drop	T <sub>j</sub> = 25 °C	I <sub>F</sub> = 3 A	-		0.76	V
		T <sub>j</sub> = 125 °C		-	0.57	0.61	
		T <sub>j</sub> = 25 °C	I <sub>F</sub> = 6 A	-		0.84	
		T <sub>j</sub> = 125 °C		-	0.64	0.68	

**Notes:**

<sup>(1)</sup>Pulse test: t<sub>p</sub> = 5 ms, δ < 2%

<sup>(2)</sup>Pulse test: t<sub>p</sub> = 380 μs, δ < 2%

To evaluate the conduction losses use the following equation:

$$P = 0.54 \times I_{F(AV)} + 0.023 \times I_{F(RMS)}^2$$

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)

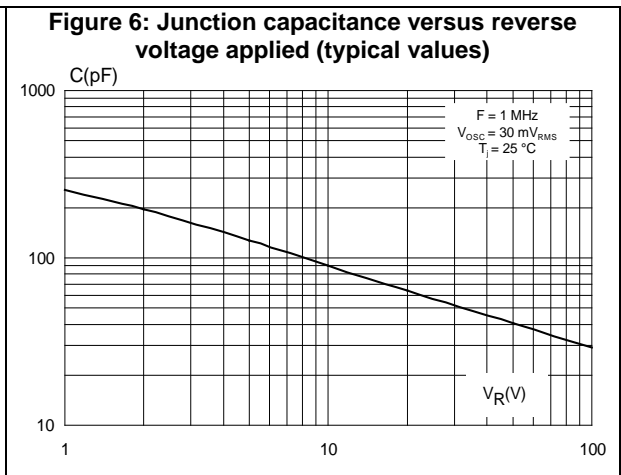
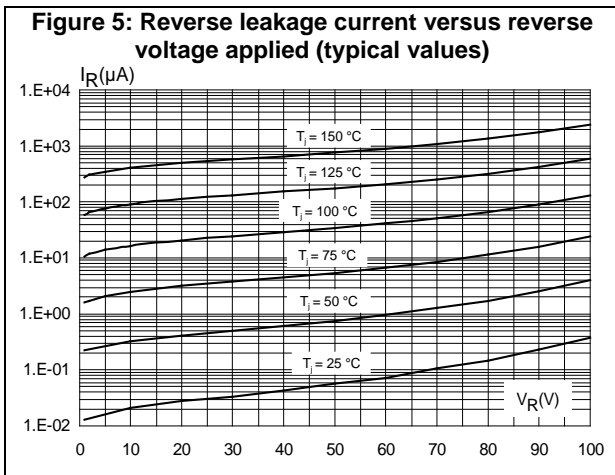
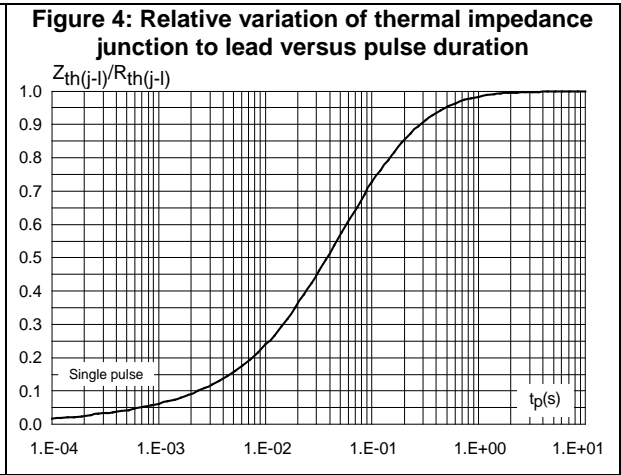
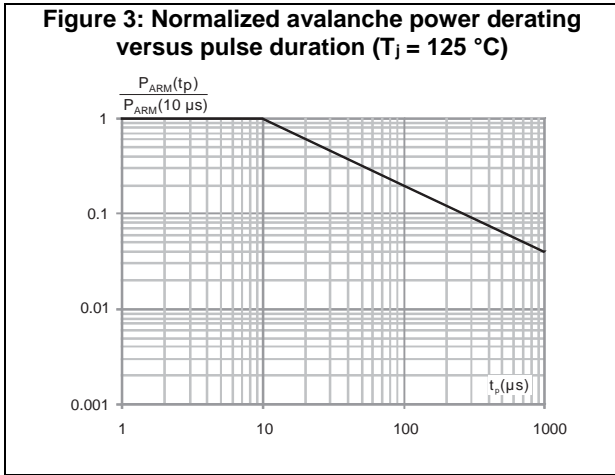
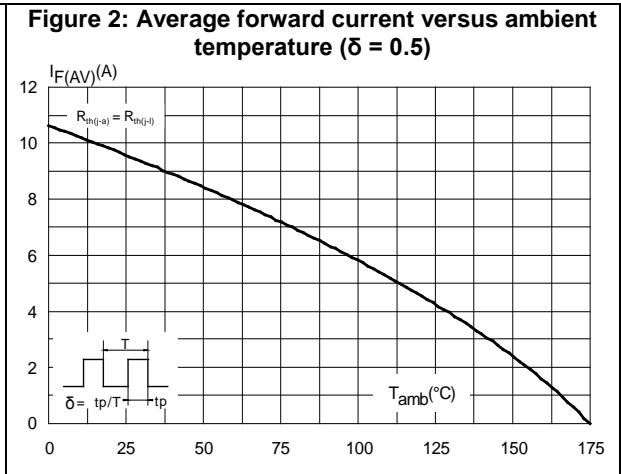
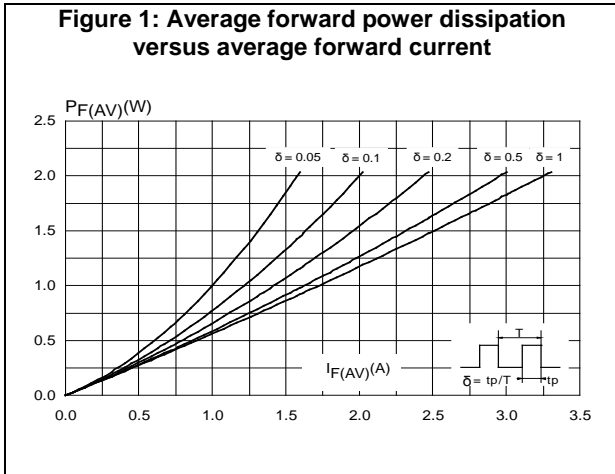


Figure 7: Forward voltage drop versus forward current (typical values)

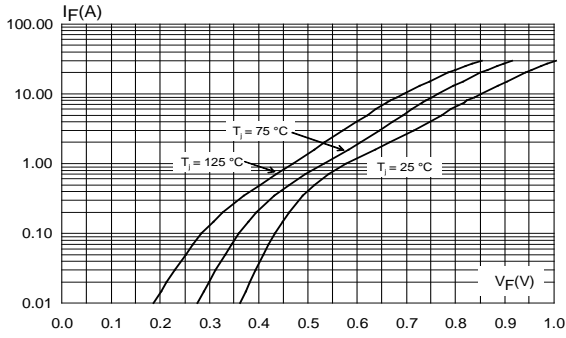
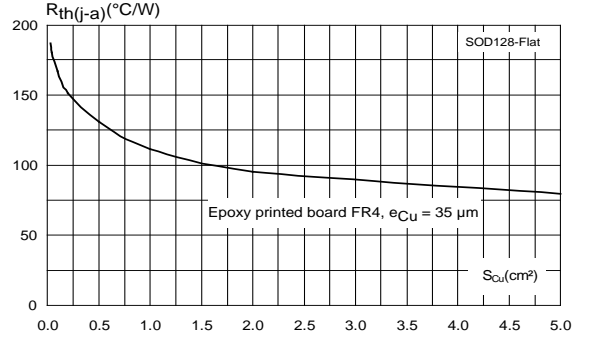


Figure 8: Thermal resistance junction to ambient versus copper surface under each lead (typical values)



## 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](http://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

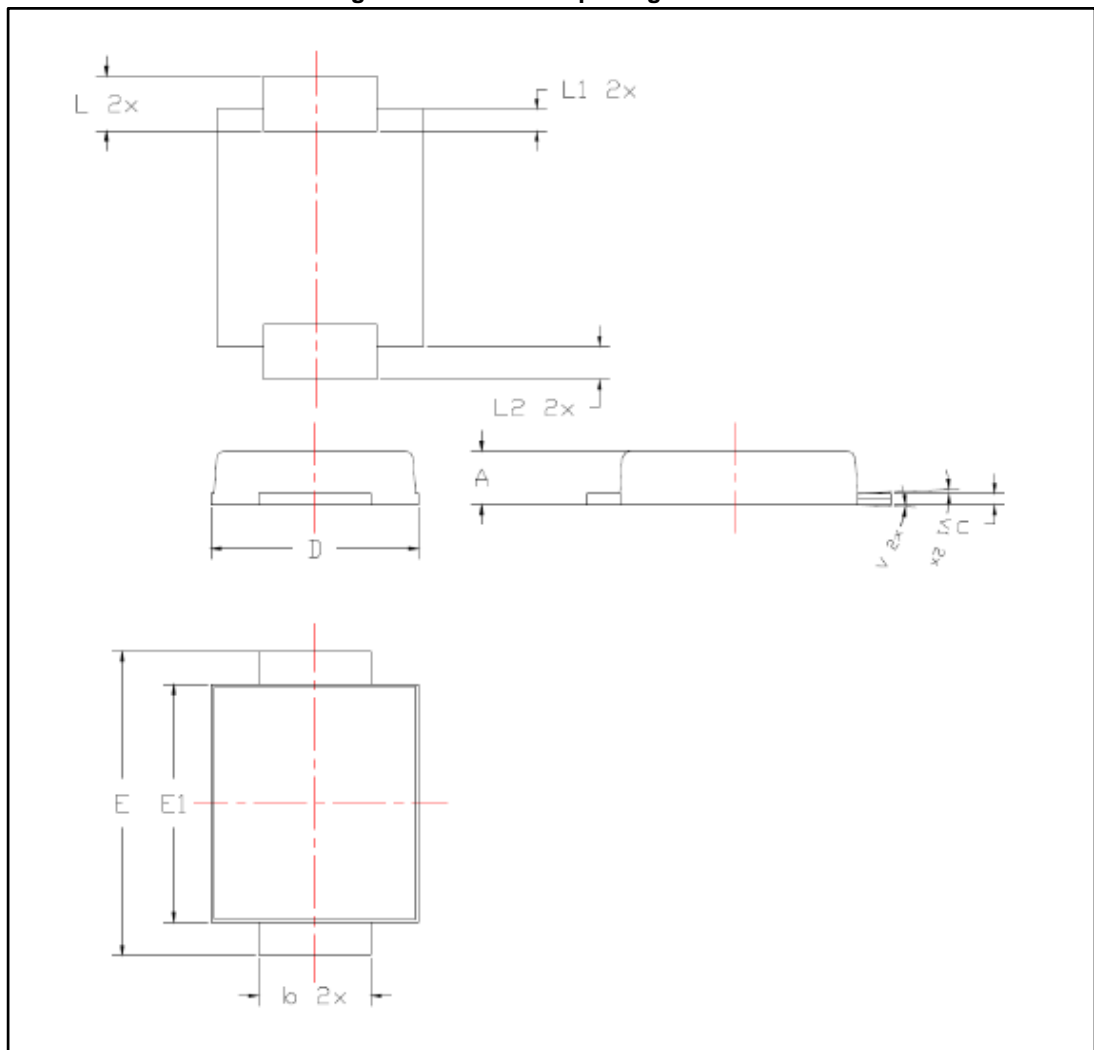
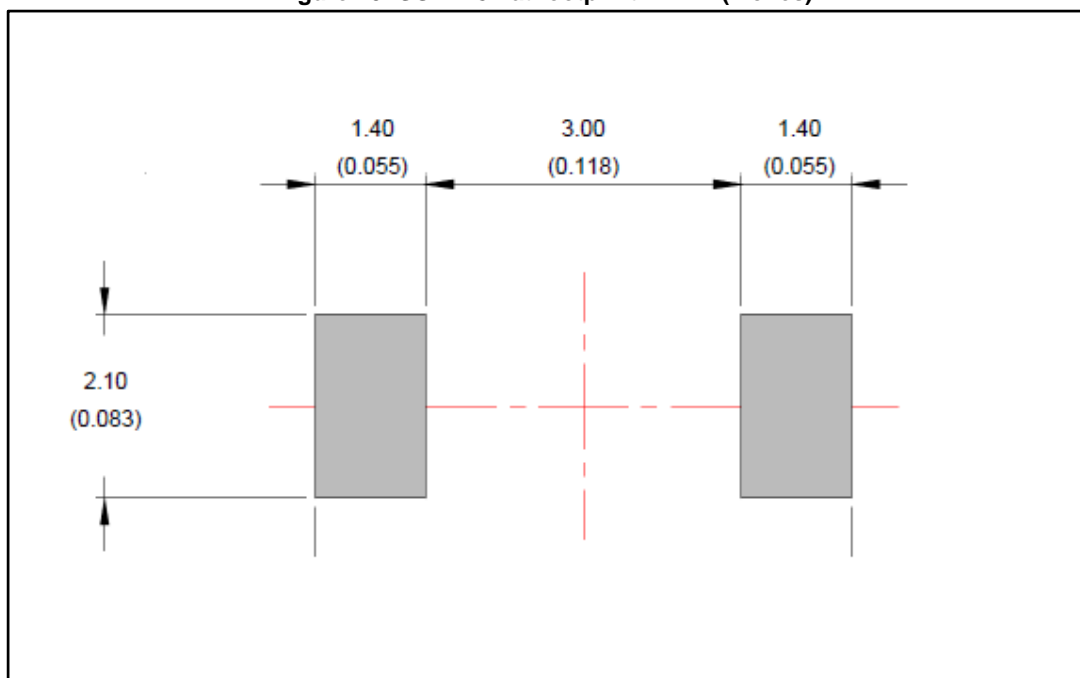


Table 5: SOD128Flat package mechanical data

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
STPS3H100AF	3H100	SOD128Flat	26.4 mg	3000	Tape and reel

### 4 Revision history

Table 7: Document revision history

Date	Revision	Changes
01-Jul-2016	1	Initial release.

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