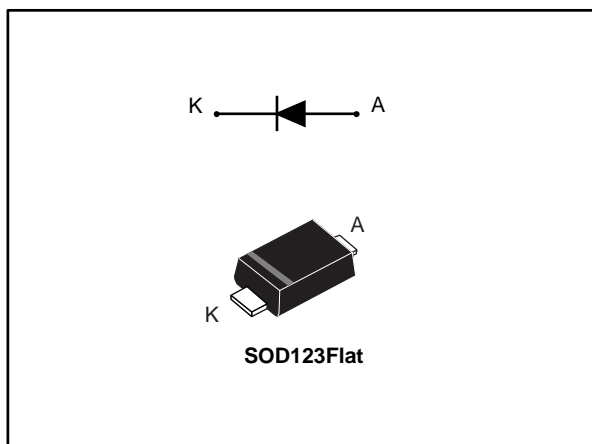


Power Schottky rectifier

Datasheet - production data



Description

Single chip Schottky rectifiers suited to surface mounting and especially intended for use in high frequency converters, free-wheeling and reverse polarity protection..

Table 1: Device summary

Symbol	Value
$I_{F(AV)}$	2 A
V_{RRM}	100 V
V_F (typ.)	0.60 V
T_j (max.)	175 °C

Features

- High junction temperature capability
- Low leakage current
- Negligible switching losses
- Avalanche capability specified
- ECOPACK[®]2 compliant component

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 = 140 °C/ δ = 0.5, square wave	2	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	50	A
P _{ARM}	Repetitive peak avalanche power	t _p = 10 μs, T _j = 125 °C	105	W
T _{stg}	Storage temperature range		-65 to +175	°C
T _j	Maximum operating junction temperature ⁽¹⁾		-40 to +175	

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	20	°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}	-		1	μA
		T _j = 125 °C		-	0.2	0.5	mA
V _F ⁽²⁾	Forward voltage drop	T _j = 25 °C	I _F = 2 A	-		0.86	V
		T _j = 125 °C		-	0.65	0.70	
		T _j = 25 °C	I _F = 4 A	-		0.96	
		T _j = 125 °C		-	0.75	0.83	

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:

$$P = 0.57 \times I_{F(AV)} + 0.065 \times I_{F(RMS)}^2$$

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)

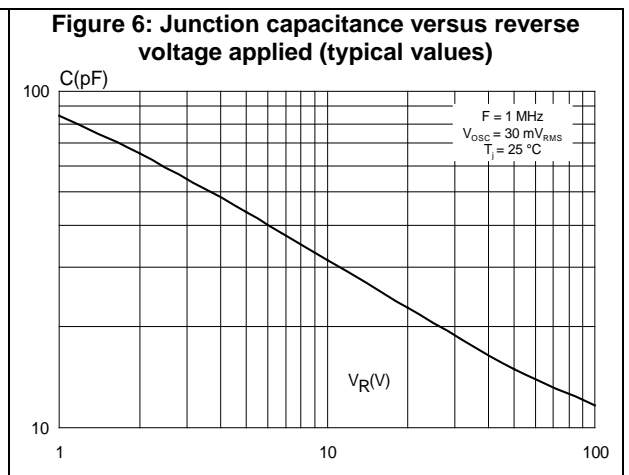
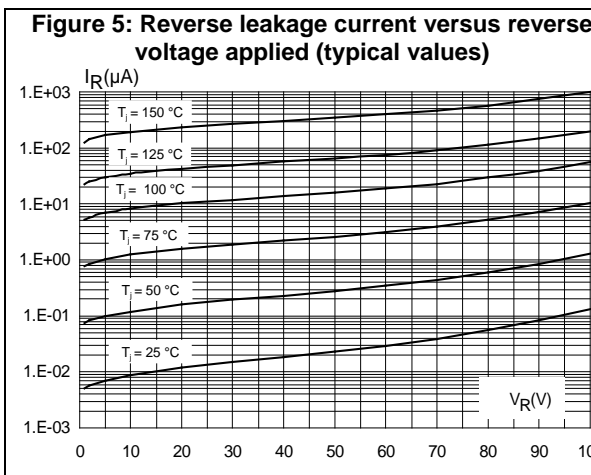
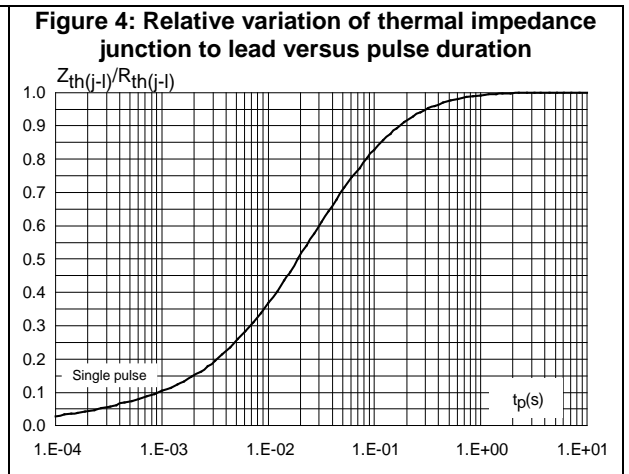
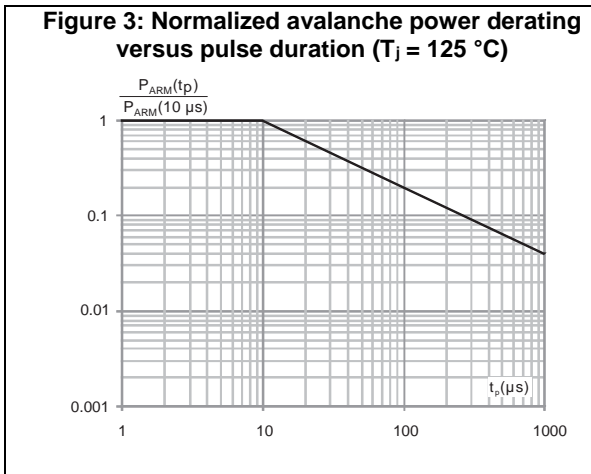
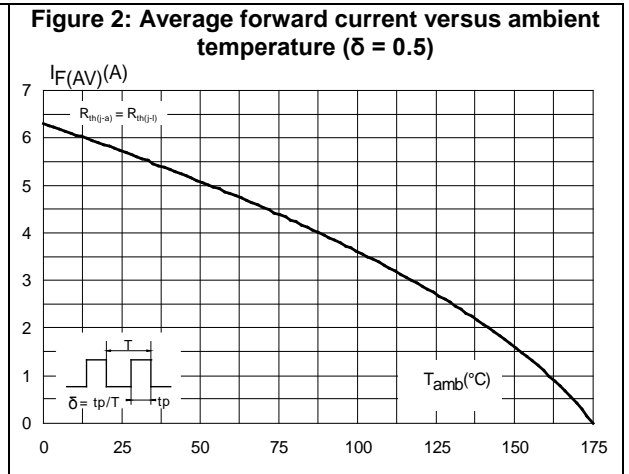
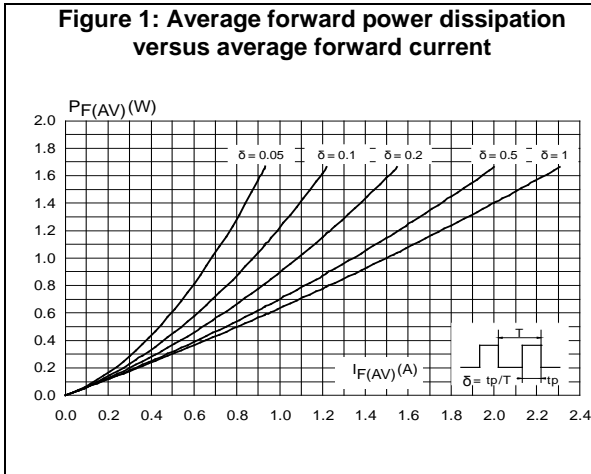


Figure 7: Forward voltage drop versus forward current (typical values)

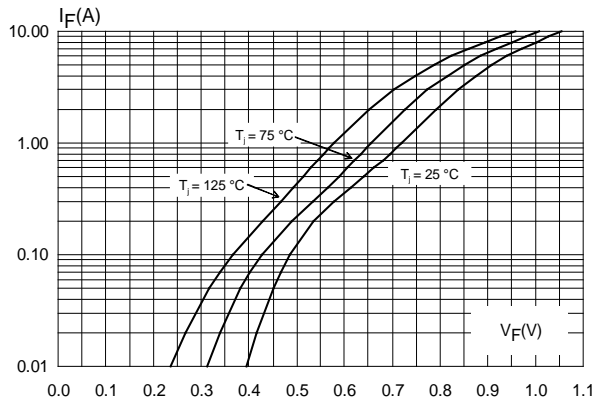
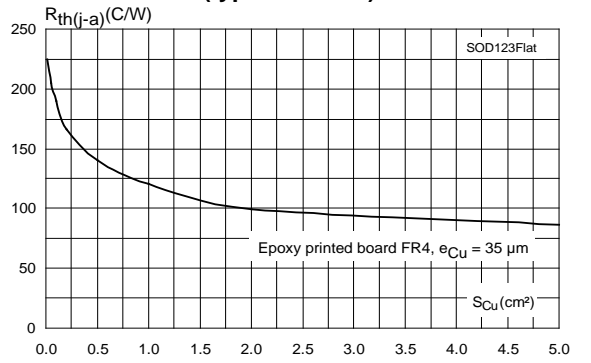


Figure 8: Thermal resistance junction to ambient versus copper surface under each lead (typical values)



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. ECOPACK® is an ST trademark.

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

2.1 SOD123Flat package information

Figure 9: SOD123Flat package outline

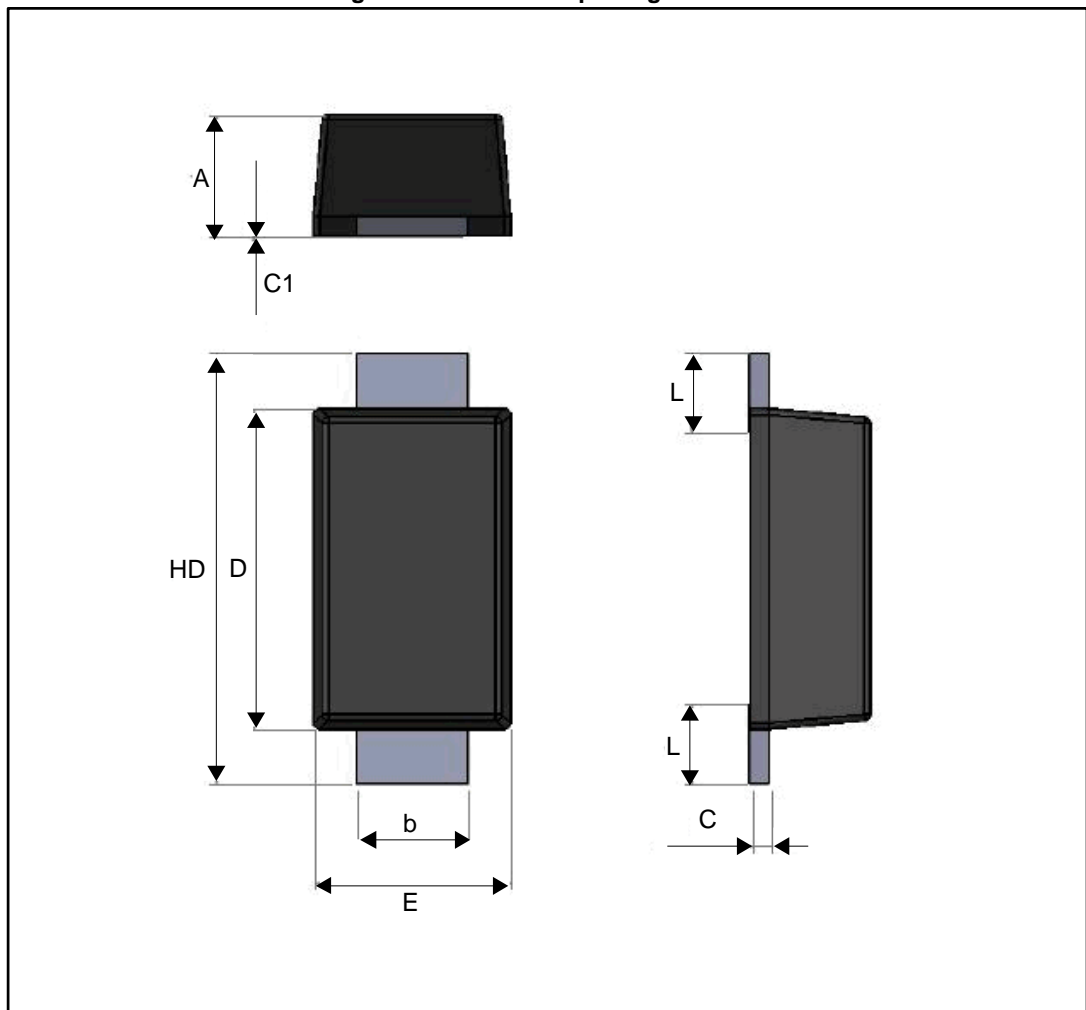
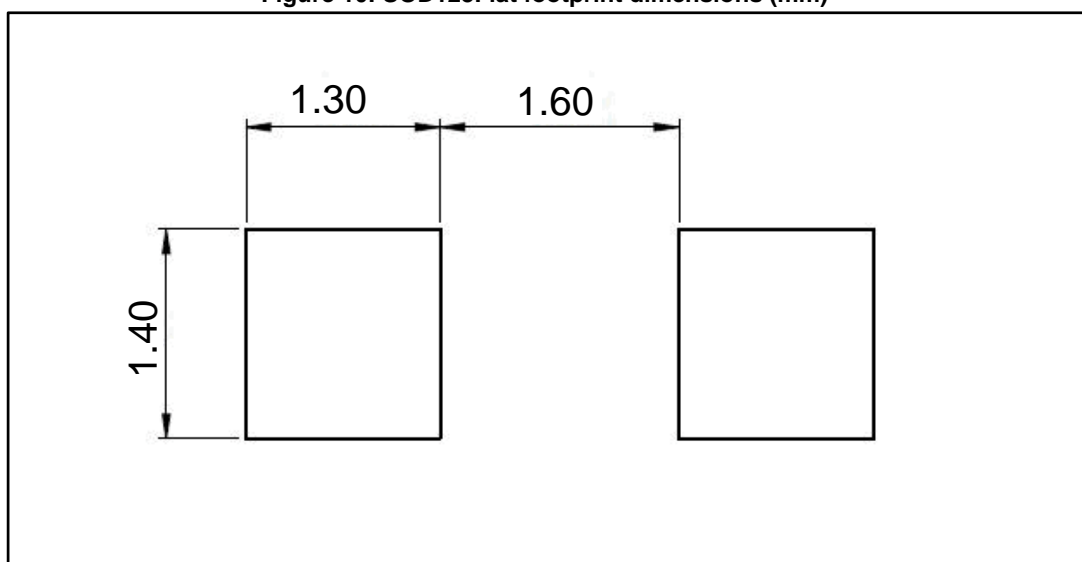


Table 5: SOD123Flat package mechanical data

Ref.	Dimensions		
	Millimeters		
	Min.	Typ.	Max.
A	0.86	0.98	1.10
b	0.80	0.90	1.00
c	0.08	0.15	0.25
c1	0.00		0.10
D	2.50	2.60	2.70
E	1.50	1.60	1.80
HD	3.30	3.50	3.70
L	0.45	0.65	0.85

Figure 10: SOD123Flat footprint dimensions (mm)



3 Ordering information

Table 6: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS2H100ZF	2H1	SOD123Flat	12.5 mg	3000	Tape and reel

4 Revision history

Table 7: Document revision history

Date	Revision	Changes
19-Aug-2016	1	Initial release.

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