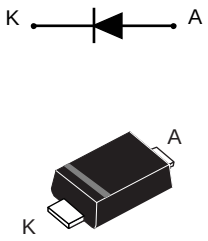
# STPS2H100ZF

## Power Schottky rectifier

Datasheet - production data




**SOD123Flat**

## 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:

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

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**

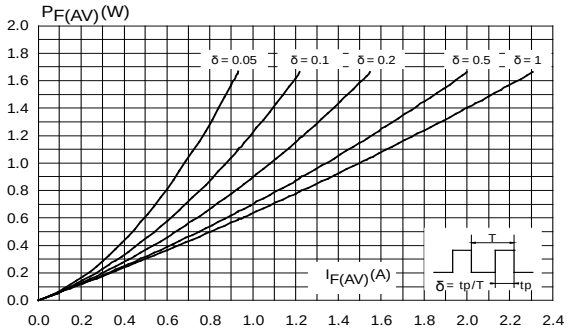



**Figure 2: Average forward current versus ambient temperature (δ = 0.5)**

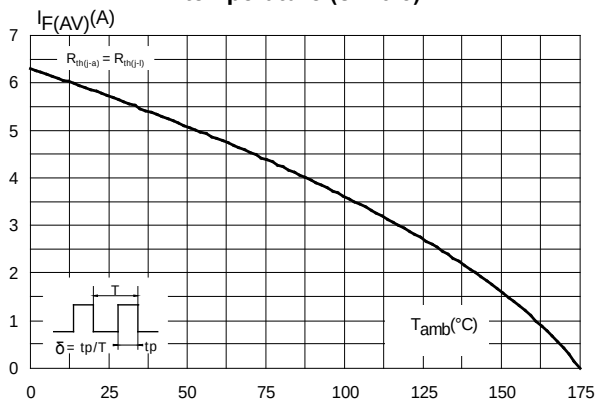



**Figure 3: Normalized avalanche power derating versus pulse duration ($T_j$ = 125 °C)**

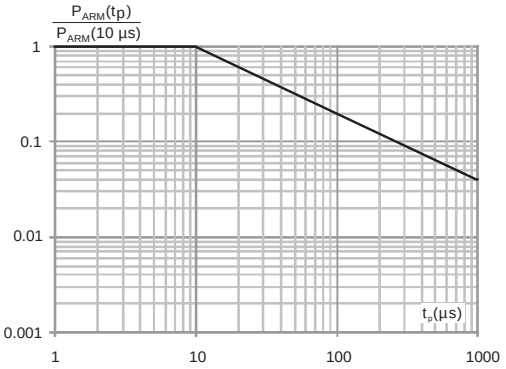



**Figure 4: Relative variation of thermal impedance junction to lead versus pulse duration**

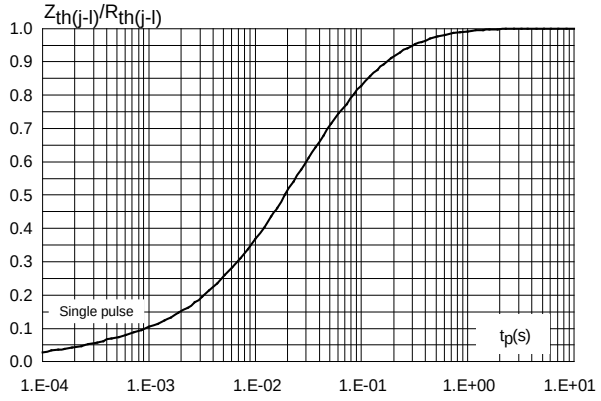



**Figure 5: Reverse leakage current versus reverse voltage applied (typical values)**

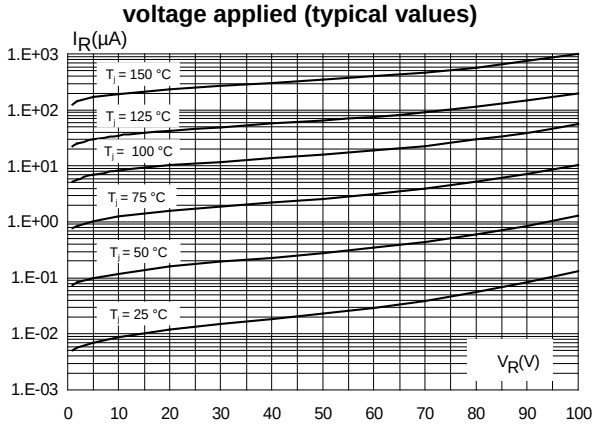



**Figure 6: Junction capacitance versus reverse voltage applied (typical values)**

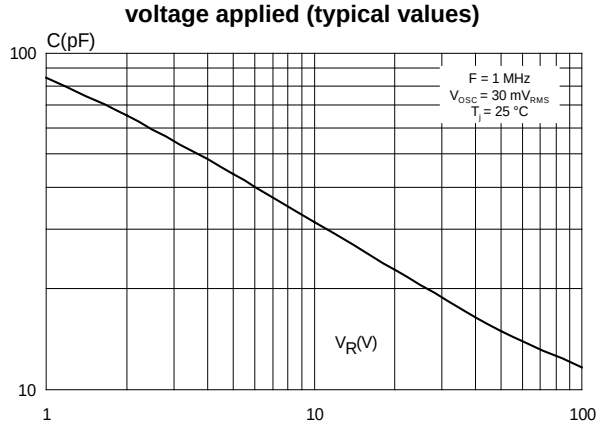


**Figure 7: Forward voltage drop versus forward current (typical values)**

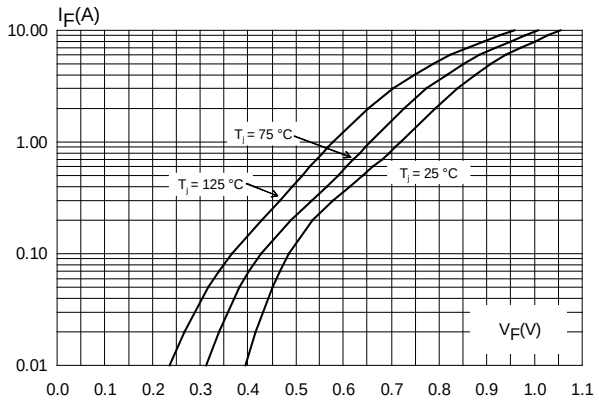
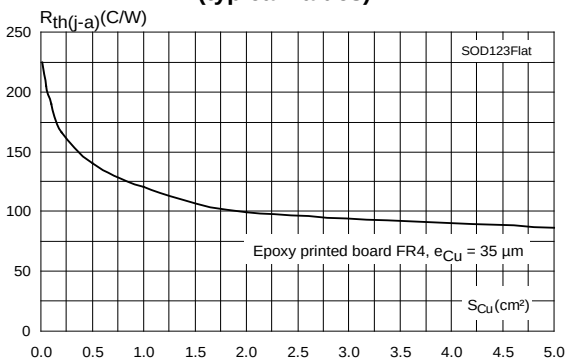



**Figure 8: Thermal resistance junction to ambient versus copper surface under each lead (typical values)**



# 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**

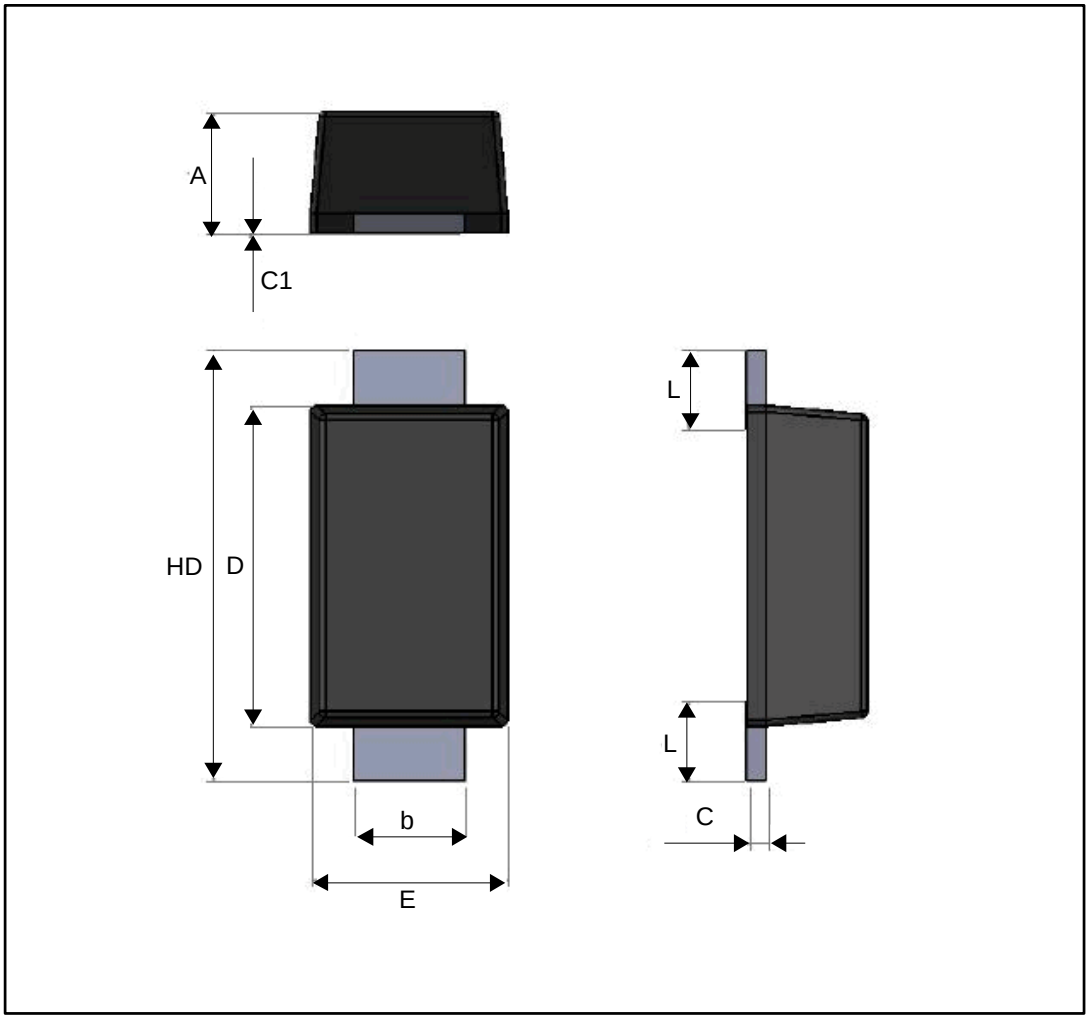
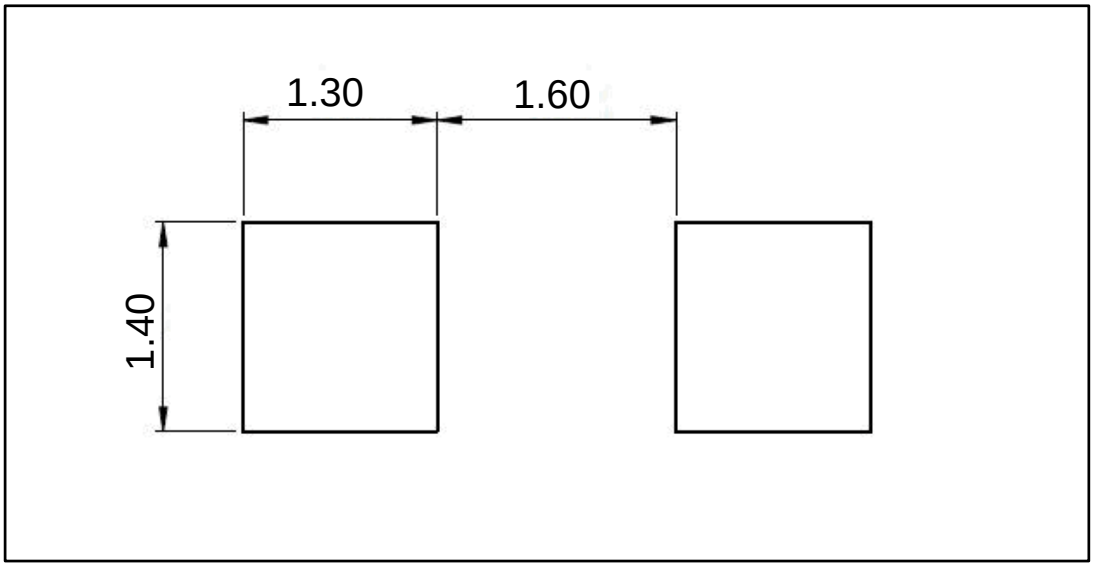


**Table 5: SOD123Flat package mechanical data**

| 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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