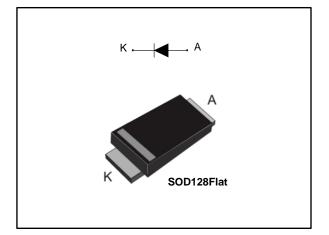


STPS360

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 on board DC to DC converters.

| Table 1 | : Device | summary |
|---------|----------|---------|
|---------|----------|---------|

| ······ | | | | |
|--------|--|--|--|--|
| Value | | | | |
| 3 A | | | | |
| 60 V | | | | |
| 175 °C | | | | |
| 0.49 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

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This is information on a product in full production.

1 Characteristics

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

| Symbol | Pa | Value | Unit | |
|------------------|---|---|-------------|----|
| Vrrm | Repetitive peak reverse voltag | Repetitive peak reverse voltage | | V |
| IF(AV) | Average forward current | Average forward current $T_{L} = 140 \text{ °C}, \delta = 0.5$, square pulse | | А |
| IFSM | Surge non repetitive forward current | t _p = 10 ms sinusoidal | 65 | А |
| Parm | Repetitive peak avalanche power $t_p = 10 \ \mu s, T_j = 125 \ ^\circ C$ | | 140 | W |
| T _{stg} | Storage temperature range | | -65 to +175 | °C |
| Tj | Operating junction temperature | e range ⁽¹⁾ | -40 to +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 |
|-------|----|----------|------------|
| Table | υ. | 1 normai | parameters |

| Symbol | Parameter | Max. value | Unit |
|----------|------------------|------------|------|
| Rth(j-l) | Junction to lead | 16 | °C/W |

| Symbol | Parameter | Test conditions | | Min. | Тур. | Max. | Unit |
|-------------------------------|--|-------------------------|-----------------------|------|------|------|------|
| I _R ⁽¹⁾ | Poveras laskage surrent | T _j = 25 °C | V _R = 60 V | - | | 150 | μA |
| IR | Reverse leakage current | T _j = 125 °C | $v_R = 00 v$ | - | 20 | 30 | mA |
| | V _F ⁽²⁾ Forward voltage drop | T _j = 25 °C | I _F = 3 A | - | | 0.61 | |
| N (2) | | T _j = 125 °C | | - | 0.49 | 0.58 | V |
| V F'-7 | | T _j = 25 °C | | - | | 0.80 | v |
| | | T _j = 125 °C | I _F = 6 A | - | 0.62 | 0.72 | |

Table 4: Static electrical characteristics

Notes:

 $^{(1)}$ Pulse test: tp = 5 ms, δ < 2% $^{(2)}$ Pulse test: tp = 380 μ s, δ < 2%

To evaluate the conduction losses use the following equation:

$P = 0.44 \text{ x } I_{F(AV)} + 0.047 \text{ x } I_{F^{2}(RMS)}$

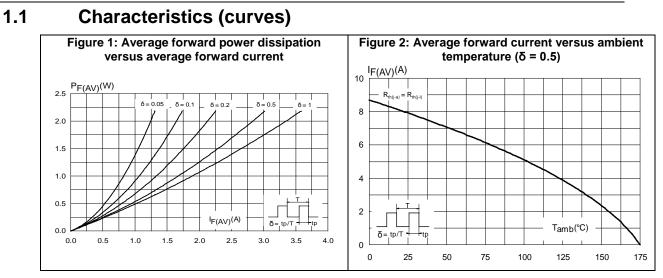
For more information, please refer to the following application notes related to the power losses.

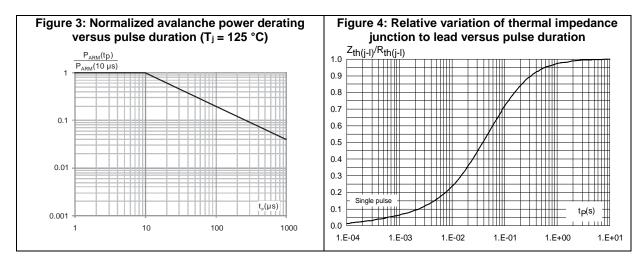
- AN604 (Calculation of conduction losses in a power rectifier)
- AN4021 (Calculation of reverse losses in a power diode)

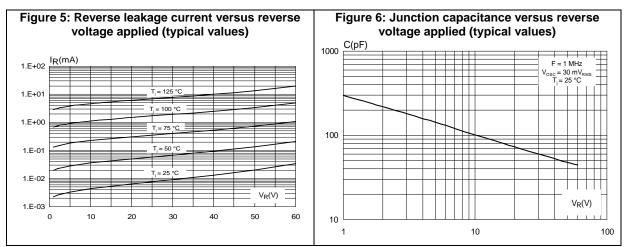


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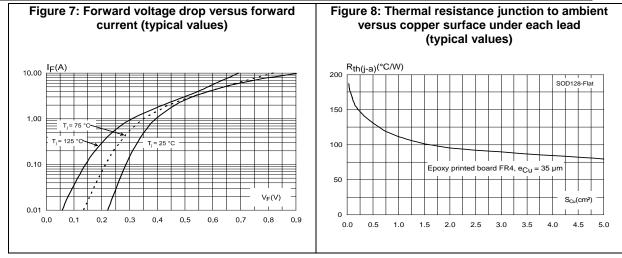


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Characteristics

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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

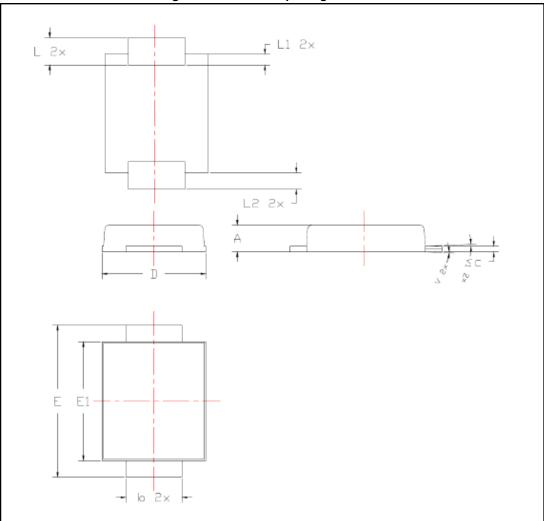


Figure 9: SOD128Flat package outline



Package information

STPS360

| | Table 5: SOD128Flat package mechanical data | | | | | |
|------|---|-------------|-------|--------|--|--|
| | | Dimensions | | | | |
| Ref. | Millir | Millimeters | | hes | | |
| | Min. | Max. | Min. | Max. | | |
| А | 0.93 | 1.03 | 0.037 | 0.041 | | |
| b | 1.69 | 1.81 | 0.067 | 0.071 | | |
| С | 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 | 0.30 typ. | | 2 typ. | | |
| L2 | 0.45 | ō typ. | 0.018 | З typ. | | |

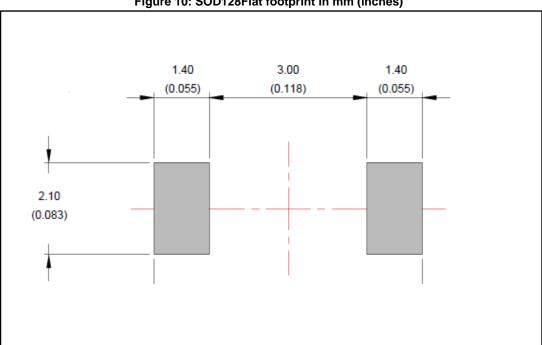


Figure 10: SOD128Flat footprint in mm (inches)



3 Ordering information

| Table 6: Ordering information | | | | | |
|-------------------------------|---|------------|---------|------|---------------|
| Order code | Order code Marking Package Weight Base qty. Delivery mode | | | | |
| STPS360AF | 360F | SOD128Flat | 26.4 mg | 3000 | Tape and reel |

4 Revision history

| Table | 7. | Document | revision | history |
|-------|----|----------|-----------|---------|
| Table | | Document | 164131011 | matory |

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



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