# 1 Characteristics

**Table 2: Absolute ratings (limiting values, anode terminals short circuited)**

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{RRM}$ | Repetitive peak reverse voltage | | 100 | V |
| $I_{F(RMS)}$ | Forward rms current | | 45 | A |
| $I_{F(AV)}$ | Average forward current<br>δ = 0.5, square wave | $T_C$ = 100 °C | 30 | A |
| $I_{FSM}$ | Surge non repetitive forward current | $t_p$ = 10 ms sinusoidal | 250 | A |
| $P_{ARM}$ | Repetitive peak avalanche power | $t_p$ = 10 µs, $T_j$ = 125 °C | 265 | W |
| $V_{ARM}$ | Maximum repetitive peak avalanche voltage | $t_p$ < 1 µs, $T_j$ < 150 °C, $I_{AR}$ < 9.3A | 120 | V |
| $T_{stg}$ | Storage temperature range | | -65 to +175 | °C |
| $T_j$ | Operating junction temperature range(1) | | 150 | |

**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 | Value | Unit |
|---|---|---|---|
| $R_{th(j-c)}$ | Junction to case | 2 | °C/W |

**Table 4: Static electrical characteristics (anode terminals short circuited)**

| Symbol | Parameter | Test conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_R$(1) | Reverse leakage current | $T_j$ = 25 °C | $V_R = V_{RRM}$ | - | | 6 | µA |
| | | $T_j$ = 125 °C | | - | 2.5 | 6.5 | mA |
| $V_F$(1) | Forward voltage drop | $T_j$ = 25 °C | $I_F$ = 15 A | - | | 0.76 | V |
| | | $T_j$ = 125 °C | | - | 0.56 | 0.62 | |
| | | $T_j$ = 25 °C | $I_F$ = 30 A | - | | 0.84 | |
| | | $T_j$ = 125 °C | | - | 0.63 | 0.71 | |

**Notes:**

(1)Pulse test: $t_p$ = 380 µs, δ < 2%

To evaluate the conduction losses, use the following equation:

$P = 0.60 \times I_{F(AV)} + 0.00367 \times I_{F^2(RMS)}$

## 1.1 Characteristics (curves)

**Figure 1: Average forward power dissipation versus average forward current**

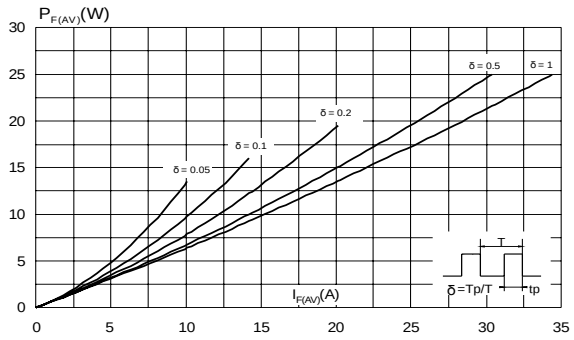



**Figure 2: Average forward current versus ambient temperature (δ = 0.5)**

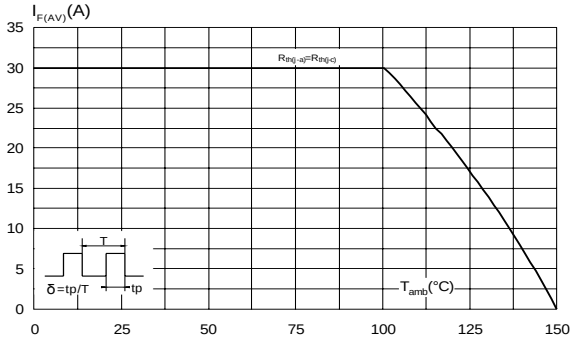



**Figure 3: Relative variation of thermal impedance junction to case versus pulse duration**

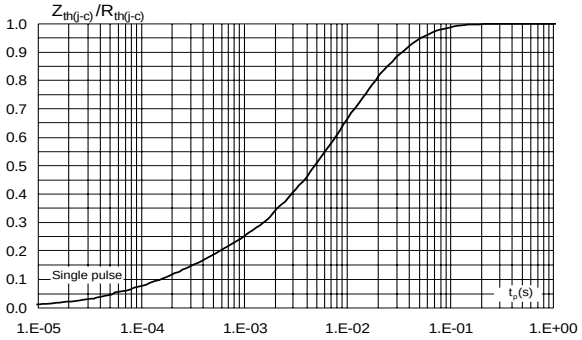



**Figure 4: Reverse leakage current versus reverse voltage applied (typical values)**

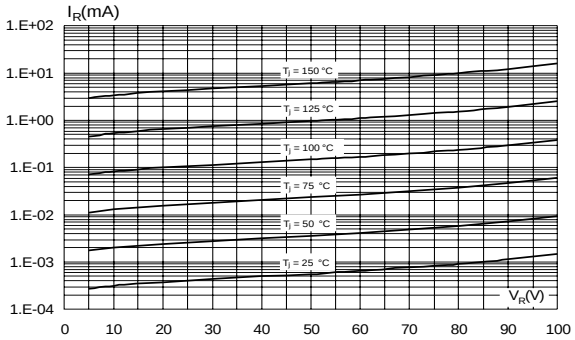



**Figure 5: Junction capacitance versus reverse voltage applied (typical values)**

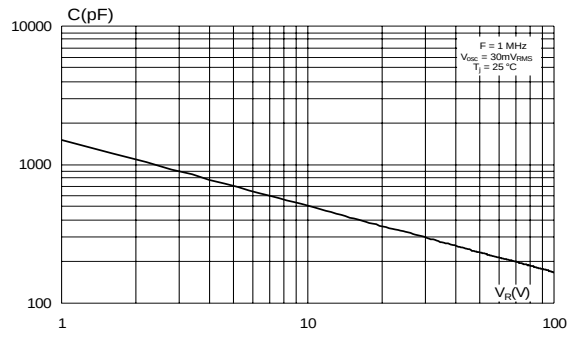



**Figure 6: Forward voltage drop versus forward current**

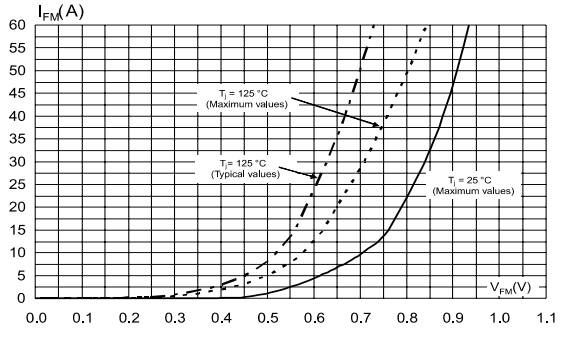
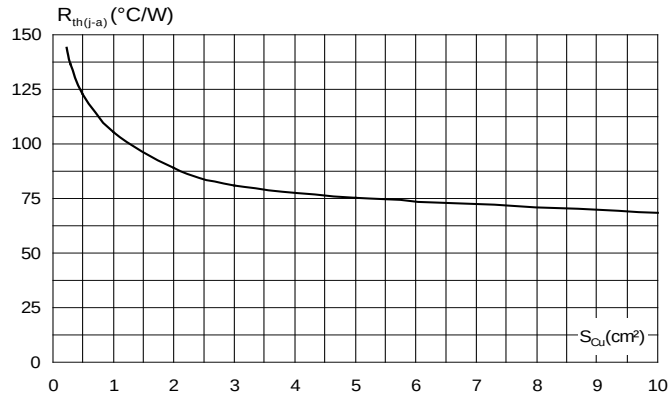


**Figure 7: Thermal resistance junction to ambient versus copper surface under tab (typical values, epoxy printed board FR4, $e_{Cu}$ = 35 µm)**



# 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 UL 94,V0
- Lead-free package

## 2.1 PowerFLAT™ 5x6 package information

**Figure 8: PowerFLAT™ 5x6 package outline**

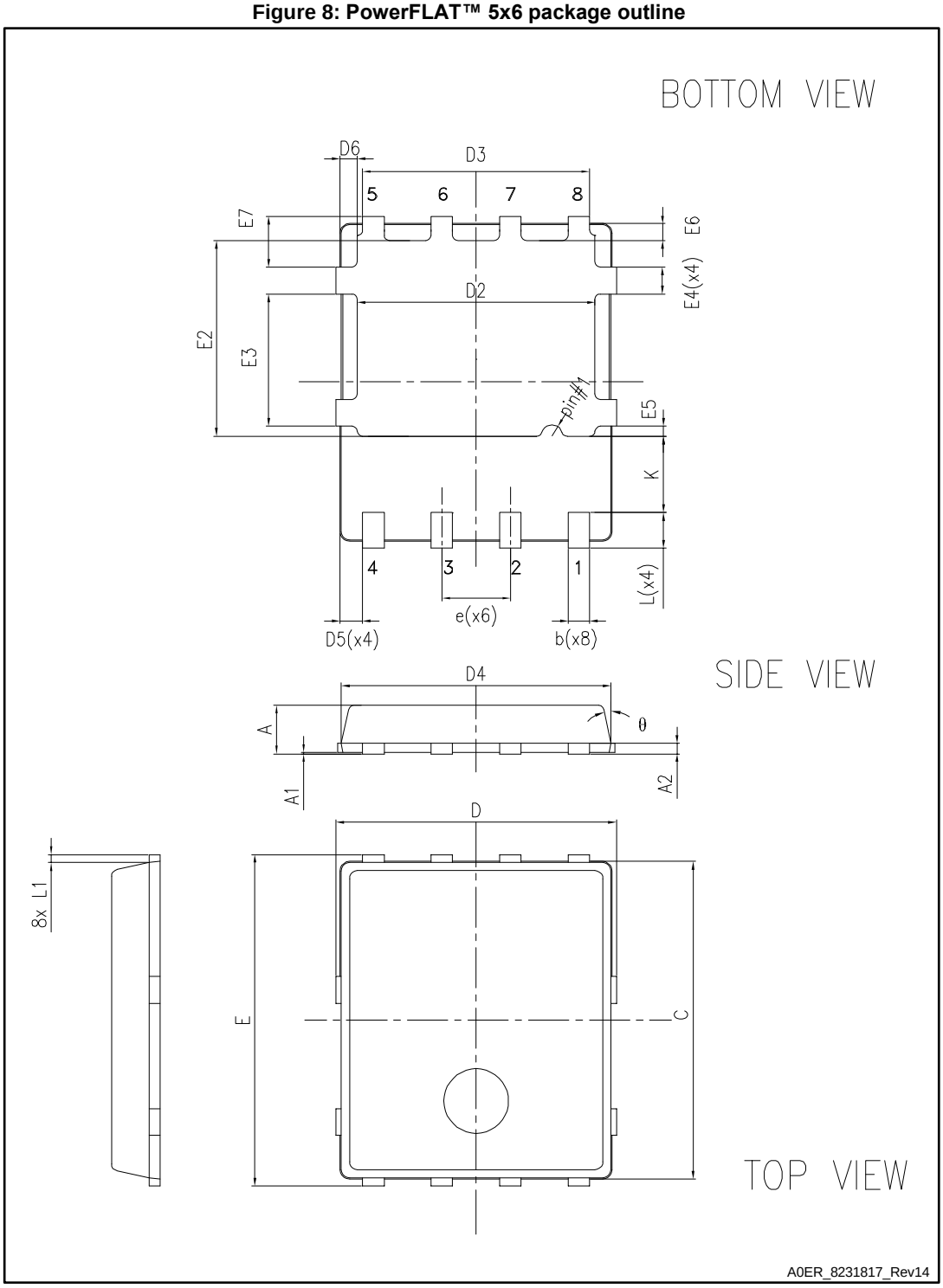


**Table 5: PowerFLAT™ 5x6 mechanical data**

| Dim. | mm | | |
|---|---|---|---|
| | Min. | Typ. | Max. |
| A | 0.80 | | 1.00 |
| A1 | 0.02 | | 0.05 |
| A2 | | 0.25 | |
| b | 0.30 | | 0.50 |
| C | 5.80 | 6.00 | 6.20 |
| D | 5.00 | 5.20 | 5.40 |
| D2 | 4.15 | | 4.45 |
| D3 | 4.05 | 4.20 | 4.35 |
| D4 | 4.80 | 5.00 | 5.20 |
| D5 | 0.25 | 0.40 | 0.55 |
| D6 | 0.15 | 0.30 | 0.45 |
| e | | 1.27 | |
| E | 5.95 | 6.15 | 6.35 |
| E2 | 3.50 | | 3.70 |
| E3 | 2.35 | | 2.55 |
| E4 | 0.40 | | 0.60 |
| E5 | 0.08 | | 0.28 |
| E6 | 0.20 | 0.325 | 0.45 |
| E7 | 0.75 | 0.90 | 1.05 |
| K | 1.275 | | 1.575 |
| L | 0.60 | | 0.80 |
| L1 | 0.05 | 0.15 | 0.25 |
| θ | 0° | | 12° |

**Figure 9: PowerFLAT™ 5x6 recommended footprint (dimensions are in mm)**

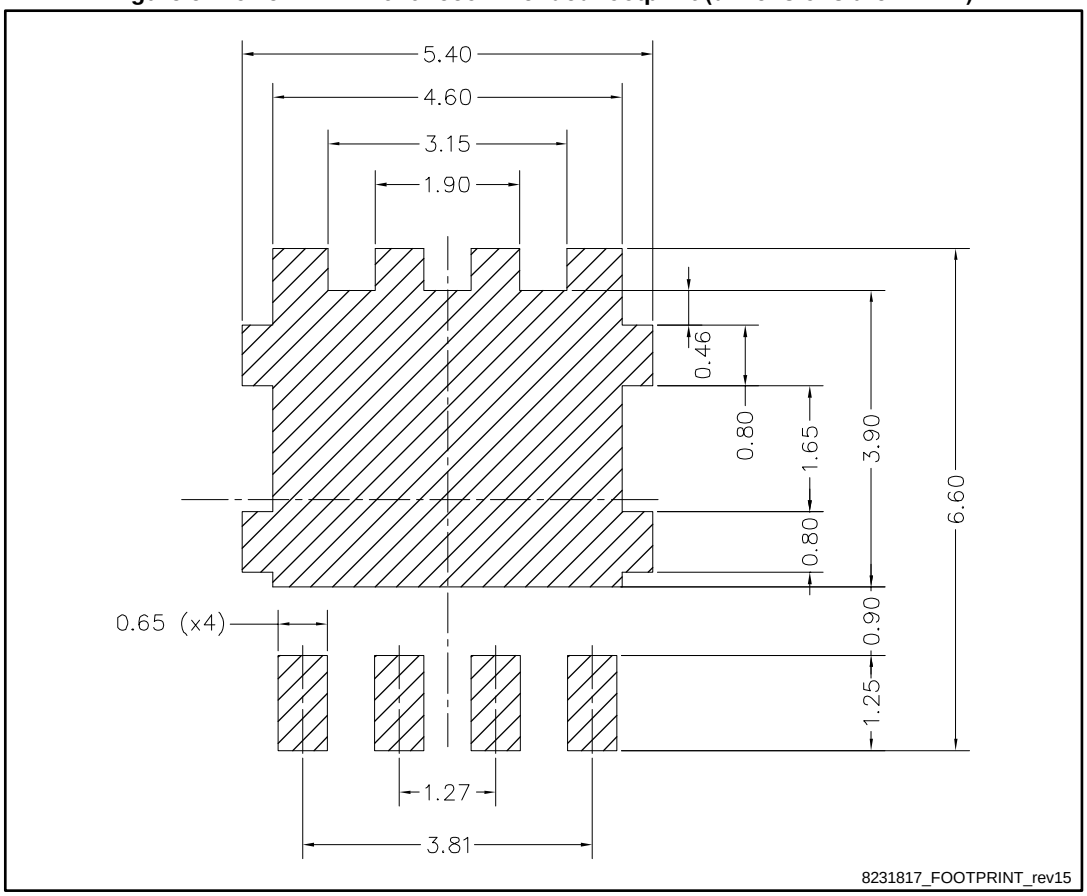
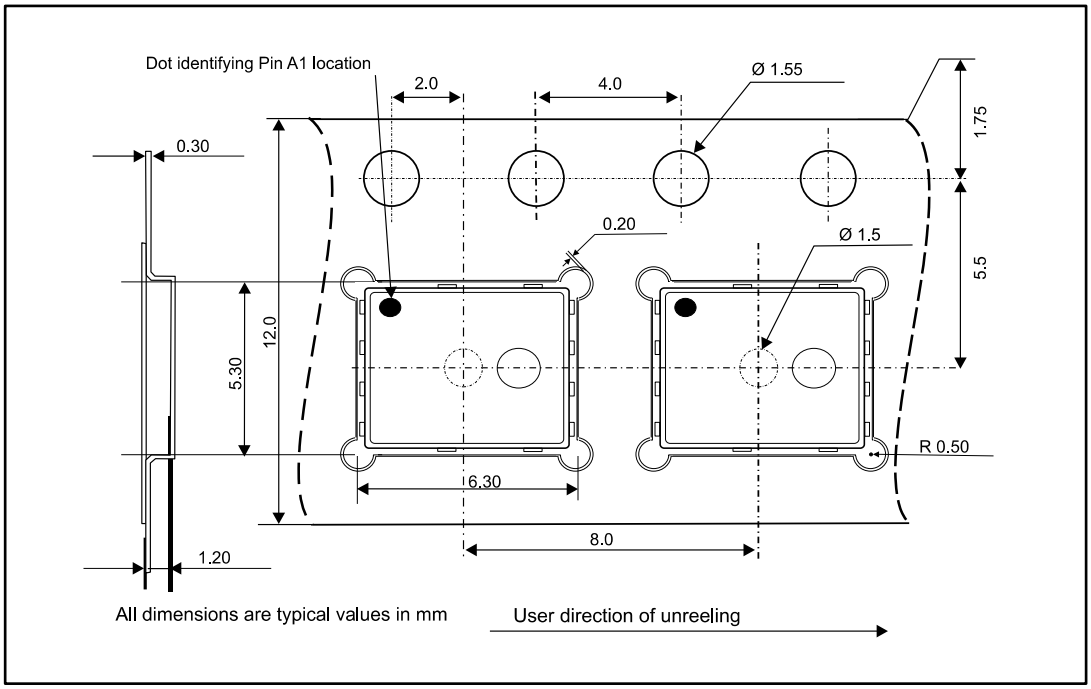



**Figure 10: Tape and reel specifications**



# 3 Ordering information

**Table 6: Ordering information**

| Order code | Marking | Package | Weight | Base qty. | Delivery mode |
|---|---|---|---|---|---|
| STPS30H100DJF-TR | PS30 H100 | PowerFLAT 5x6 | 95 g | 3000 | Tape and reel |

# 4 Revision history

**Table 7: Document revision history**

| Date | Revision | Changes |
|---|---|---|
| 29-Mar-2012 | 1 | Initial release. |
| 26-Jun-2017 | 2 | Updated cover image and *Section 2.1: "PowerFLAT™ 5x6 package information"*. |

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