

PBSS4260PANP

60 V, 2 A NPN/PNP low V_{CEsat} (BISS) transistor

12 December 2012

Product data sheet

1. General description

NPN/PNP low V_{CEsat} Breakthrough In Small Signal (BISS) transistor in a leadless medium power DFN2020-6 (SOT1118) Surface-Mounted Device (SMD) plastic package.

NPN/NPN complement: PBSS4260PAN. PNP/PNP complement: PBSS5260PAP.

2. Features and benefits

- Very low collector-emitter saturation voltage V_{CEsat}
- High collector current capability I_C and I_{CM}
- High collector current gain h_{FE} at high I_C
- Reduced Printed-Circuit Board (PCB) requirements
- High efficiency due to less heat generation
- AEC-Q101 qualified

3. Applications

- Load switch
- Battery-driven devices
- Power management
- Charging circuits
- Power switches (e.g. motors, fans)

4. Quick reference data

Table 1. Quick reference data

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--|---|---|-----|-----|-----|------|
| Per transistor; for the PNP transistor with negative polarity | | | | | | |
| V _{CEO} | collector-emitter voltage | open base | - | - | 60 | V |
| I _C | collector current | | - | - | 2 | A |
| I _{CM} | peak collector current | single pulse; t _p ≤ 1 ms | - | - | 3 | A |
| TR1 (NPN) | | | | | | |
| R _{CEsat} | collector-emitter saturation resistance | I _C = 1 A; I _B = 100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C | - | - | 165 | mΩ |



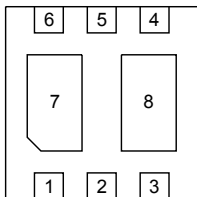
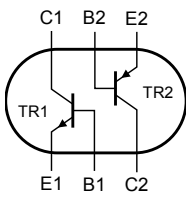
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| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--------------------|---|--|-----|-----|-----|------|
| TR2 (PNP) | | | | | | |
| R _{CEsat} | collector-emitter saturation resistance | I _C = -1 A; I _B = -100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02 ; T _{amb} = 25 °C | - | - | 250 | mΩ |

5. Pinning information

Table 2. Pinning information

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|-----|--------|---------------|--|--|
| 1 | E1 | emitter TR1 |  <p>Transparent top view DFN2020-6 (SOT1118)</p> |  <p><i>sym139</i></p> |
| 2 | B1 | base TR1 | | |
| 3 | C2 | collector TR2 | | |
| 4 | E2 | emitter TR2 | | |
| 5 | B2 | base TR2 | | |
| 6 | C1 | collector TR1 | | |
| 7 | C1 | collector TR1 | | |
| 8 | C2 | collector TR2 | | |

6. Ordering information

Table 3. Ordering information

| Type number | Package | | |
|--------------|-----------|--|---------|
| | Name | Description | Version |
| PBSS4260PANP | DFN2020-6 | plastic thermal enhanced ultra thin small outline package; no leads; 6 terminals; body 2 x 2 x 0.65 mm | SOT1118 |

7. Marking

Table 4. Marking codes

| Type number | Marking code |
|--------------|--------------|
| PBSS4260PANP | 2Q |

8. Limiting values

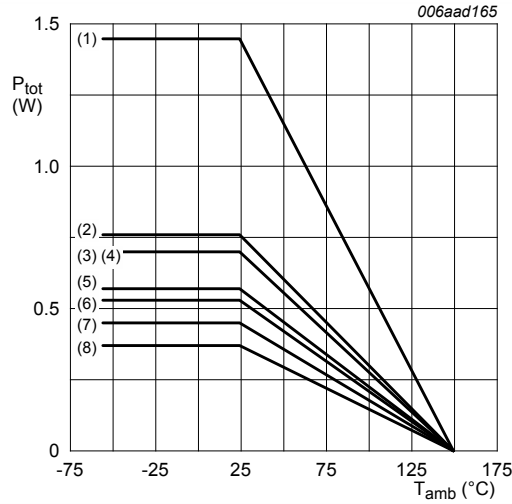
Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|--|---------------------------|--------------|-----|-----|------|
| Per transistor; for the PNP transistor with negative polarity | | | | | |
| V _{CBO} | collector-base voltage | open emitter | - | 60 | V |
| V _{CEO} | collector-emitter voltage | open base | - | 60 | V |

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|-------------------|-------------------------|-------------------------------------|-----|-----|------|------|
| V _{EBO} | emitter-base voltage | open collector | | - | 7 | V |
| I _C | collector current | | | - | 2 | A |
| I _{CM} | peak collector current | single pulse; t _p ≤ 1 ms | | - | 3 | A |
| I _B | base current | | | - | 0.3 | A |
| I _{BM} | peak base current | single pulse; t _p ≤ 1 ms | | - | 1 | A |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C | [1] | - | 370 | mW |
| | | | [2] | - | 570 | mW |
| | | | [3] | - | 530 | mW |
| | | | [4] | - | 700 | mW |
| | | | [5] | - | 450 | mW |
| | | | [6] | - | 760 | mW |
| | | | [7] | - | 700 | mW |
| | | | [8] | - | 1450 | mW |
| Per device | | | | | | |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C | [1] | - | 510 | mW |
| | | | [2] | - | 780 | mW |
| | | | [3] | - | 730 | mW |
| | | | [4] | - | 960 | mW |
| | | | [5] | - | 620 | mW |
| | | | [6] | - | 1040 | mW |
| | | | [7] | - | 960 | mW |
| | | | [8] | - | 2000 | mW |
| T _j | junction temperature | | | - | 150 | °C |
| T _{amb} | ambient temperature | | | -55 | 150 | °C |
| T _{stg} | storage temperature | | | -65 | 150 | °C |

- [1] Device mounted on an FR4 PCB, single-sided 35 µm copper strip line, tin-plated and standard footprint.
- [2] Device mounted on an FR4 PCB, single-sided 35 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [3] Device mounted on 4-layer PCB 35 µm copper strip line, tin-plated and standard footprint.
- [4] Device mounted on 4-layer PCB 35 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [5] Device mounted on an FR4 PCB, single-sided 70 µm copper strip line, tin-plated and standard footprint.
- [6] Device mounted on an FR4 PCB, single-sided 70 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [7] Device mounted on 4-layer PCB 70 µm copper strip line, tin-plated and standard footprint.
- [8] Device mounted on 4-layer PCB 70 µm copper strip line, tin-plated, mounting pad for collector 1 cm².



- (1) 4-layer PCB 70 μm, mounting pad for collector 1 cm²
- (2) FR4 PCB 70 μm, mounting pad for collector 1 cm²
- (3) 4-layer PCB 70 μm, standard footprint
- (4) 4-layer PCB 35 μm, mounting pad for collector 1 cm²
- (5) FR4 PCB 35 μm, mounting pad for collector 1 cm²
- (6) 4-layer PCB 35 μm, standard footprint
- (7) FR4 PCB 70 μm, standard footprint
- (8) FR4 PCB 35 μm, standard footprint

Fig. 1. Per transistor: power derating curves

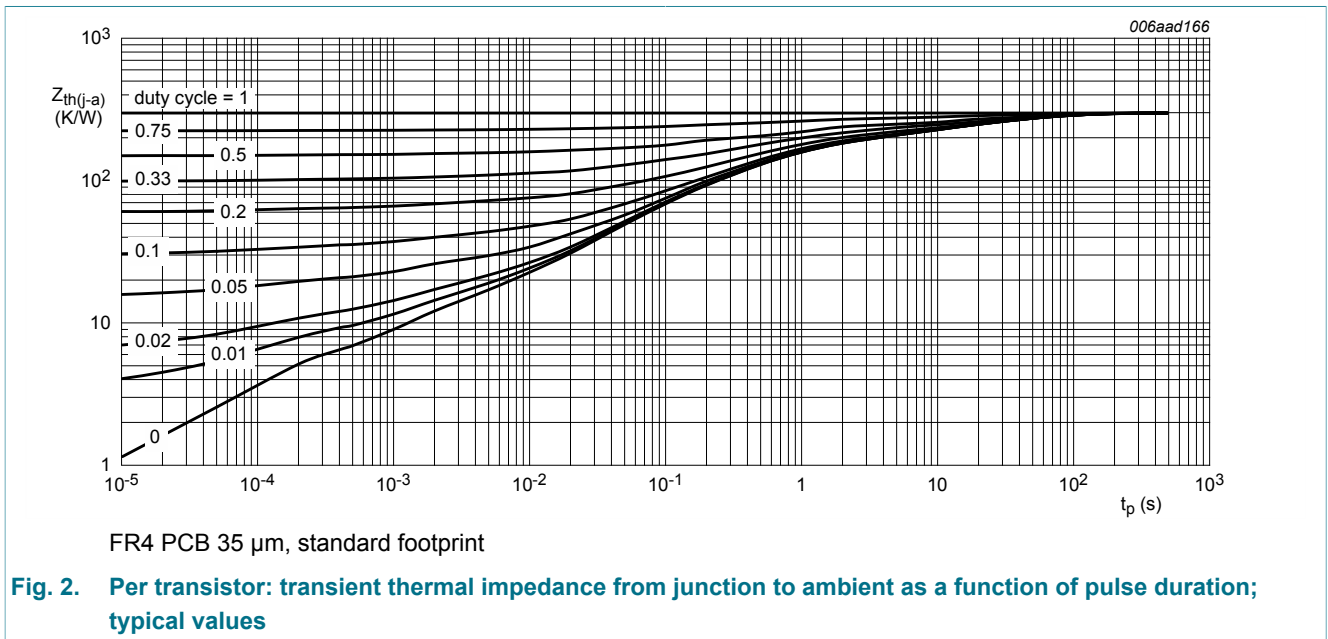
9. Thermal characteristics

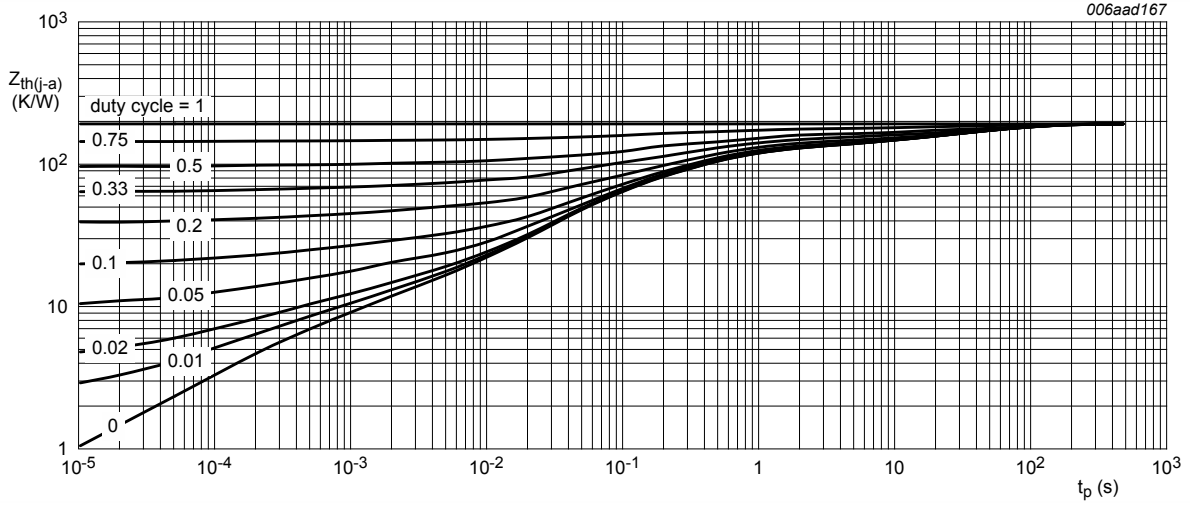
Table 6. Thermal characteristics

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|-----------------------|--|-------------|-----|-----|-----|-----|------|
| Per transistor | | | | | | | |
| R _{th(j-a)} | thermal resistance from junction to ambient | in free air | [1] | - | - | 338 | K/W |
| | | | [2] | - | - | 219 | K/W |
| | | | [3] | - | - | 236 | K/W |
| | | | [4] | - | - | 179 | K/W |
| | | | [5] | - | - | 278 | K/W |
| | | | [6] | - | - | 164 | K/W |
| | | | [7] | - | - | 179 | K/W |
| | | | [8] | - | - | 86 | K/W |
| R _{th(j-sp)} | thermal resistance from junction to solder point | | | - | - | 30 | K/W |

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|----------------------|---|-------------|-----|-----|-----|-----|------|
| Per device | | | | | | | |
| R _{th(j-a)} | thermal resistance from junction to ambient | in free air | [1] | - | - | 245 | K/W |
| | | | [2] | - | - | 160 | K/W |
| | | | [3] | - | - | 171 | K/W |
| | | | [4] | - | - | 130 | K/W |
| | | | [5] | - | - | 202 | K/W |
| | | | [6] | - | - | 120 | K/W |
| | | | [7] | - | - | 130 | K/W |
| | | | [8] | - | - | 63 | K/W |

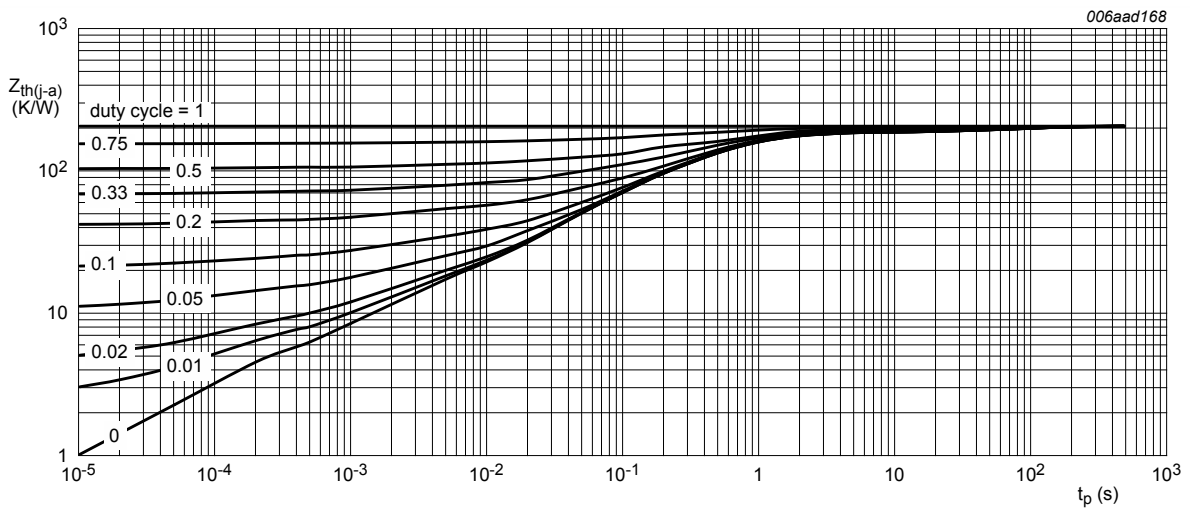
- [1] Device mounted on an FR4 PCB, single-sided 35 µm copper strip line, tin-plated and standard footprint.
- [2] Device mounted on an FR4 PCB, single-sided 35 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [3] Device mounted on 4-layer PCB 35 µm copper strip line, tin-plated and standard footprint.
- [4] Device mounted on 4-layer PCB 35 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [5] Device mounted on an FR4 PCB, single-sided 70 µm copper strip line, tin-plated and standard footprint.
- [6] Device mounted on an FR4 PCB, single-sided 70 µm copper strip line, tin-plated, mounting pad for collector 1 cm².
- [7] Device mounted on 4-layer PCB 70 µm copper strip line, tin-plated and standard footprint.
- [8] Device mounted on 4-layer PCB 70 µm copper strip line, tin-plated, mounting pad for collector 1 cm².





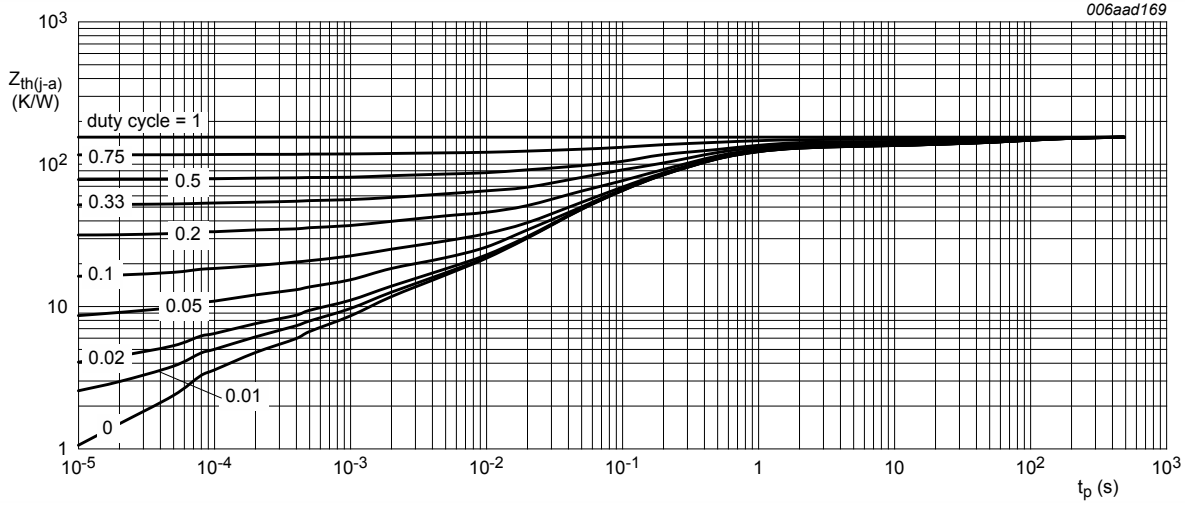
FR4 PCB 35 μm , mounting pad for collector 1 cm^2

Fig. 3. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values



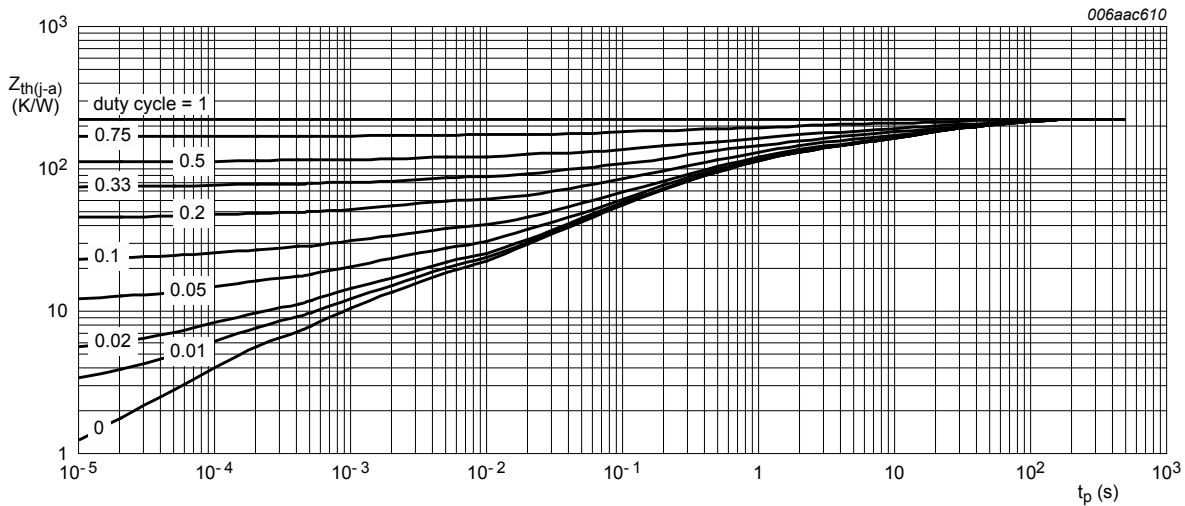
4-layer PCB 35 μm , standard footprint

Fig. 4. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values



4-layer PCB 35 μ m, mounting pad for collector 1 cm²

Fig. 5. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values



FR4 PCB 70 μ m, standard footprint

Fig. 6. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values

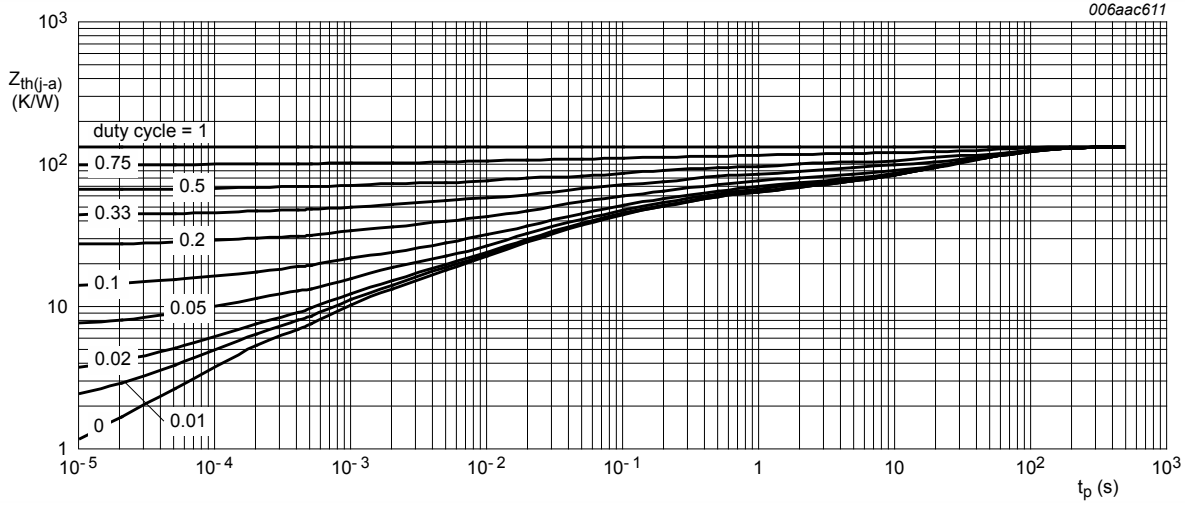


Fig. 7. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values

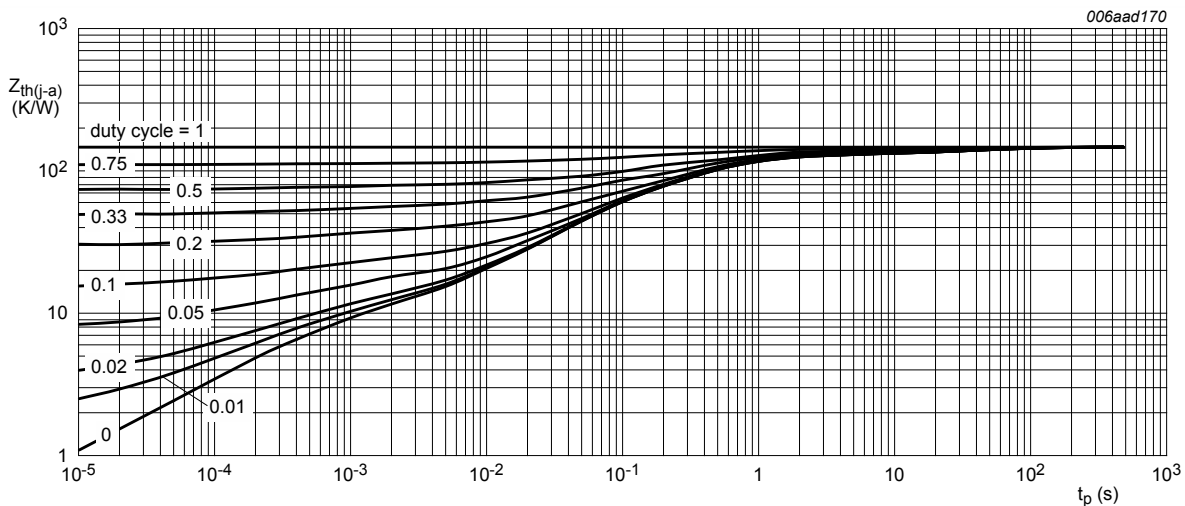
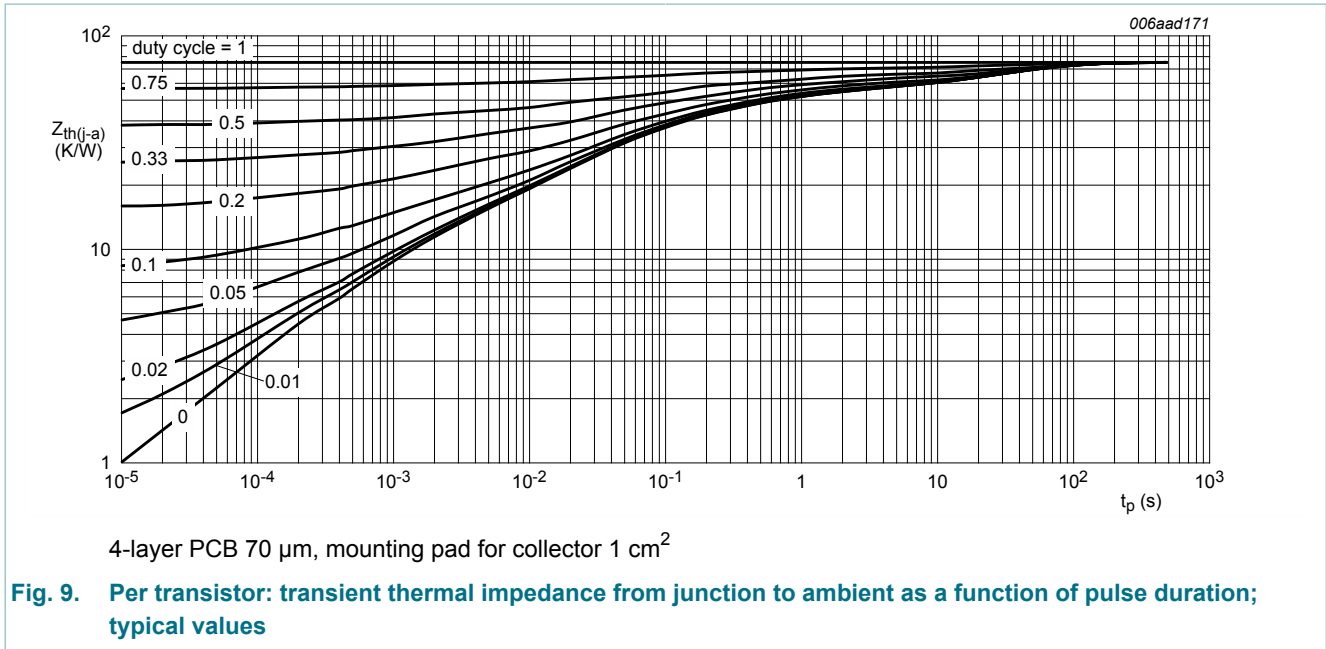


Fig. 8. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values



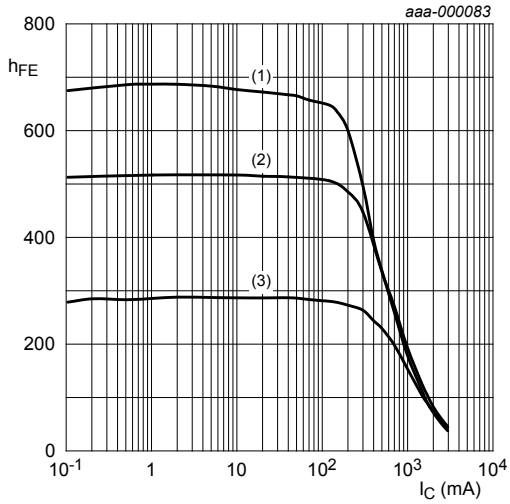
10. Characteristics

Table 7. Characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------|--------------------------------------|---|-----|-----|-----|---------------|
| TR1 (NPN) | | | | | | |
| I_{CBO} | collector-base cut-off current | $V_{CB} = 48 \text{ V}; I_E = 0 \text{ A}; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | - | 100 | nA |
| | | $V_{CB} = 48 \text{ V}; I_E = 0 \text{ A}; T_j = 150 \text{ }^\circ\text{C}$ | - | - | 50 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = 5 \text{ V}; I_C = 0 \text{ A}; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | - | 100 | nA |
| h_{FE} | DC current gain | $V_{CE} = 2 \text{ V}; I_C = 100 \text{ mA}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | 290 | 430 | - | |
| | | $V_{CE} = 2 \text{ V}; I_C = 500 \text{ mA}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | 210 | 310 | - | |
| | | $V_{CE} = 2 \text{ V}; I_C = 1 \text{ A}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | 120 | 185 | - | |
| | | $V_{CE} = 2 \text{ V}; I_C = 2 \text{ A}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | 50 | 85 | - | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 500 \text{ mA}; I_B = 50 \text{ mA}; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | 70 | 90 | mV |
| | | $I_C = 1 \text{ A}; I_B = 50 \text{ mA}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | 140 | 180 | mV |
| | | $I_C = 2 \text{ A}; I_B = 100 \text{ mA}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | 270 | 350 | mV |
| | | $I_C = 2 \text{ A}; I_B = 200 \text{ mA}; \text{pulsed}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02; T_{amb} = 25 \text{ }^\circ\text{C}$ | - | 255 | 330 | mV |

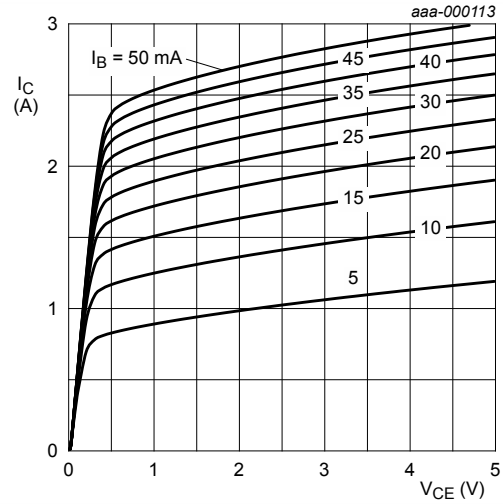
| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------|---|--|---|------|------|---------------|
| R_{CEsat} | collector-emitter saturation resistance | $I_C = 1\text{ A}; I_B = 100\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 165 | m Ω |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 500\text{ mA}; I_B = 50\text{ mA}; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 1 | V |
| | | $I_C = 1\text{ A}; I_B = 50\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 1 | V |
| | | $I_C = 2\text{ A}; I_B = 100\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 1.1 | V |
| | | $I_C = 2\text{ A}; I_B = 200\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 1.2 | V |
| V_{BEon} | base-emitter turn-on voltage | $V_{CE} = 2\text{ V}; I_C = 0.5\text{ A};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | 0.9 | V |
| t_d | delay time | $V_{CC} = 12.5\text{ V}; I_C = 1\text{ A}; I_{Bon} = 50\text{ mA};$ $I_{Boff} = -50\text{ mA}; T_{amb} = 25\text{ }^\circ\text{C}$ | - | 10 | - | ns |
| t_r | rise time | | - | 140 | - | ns |
| t_{on} | turn-on time | | - | 150 | - | ns |
| t_s | storage time | | - | 445 | - | ns |
| t_f | fall time | | - | 180 | - | ns |
| t_{off} | turn-off time | | - | 625 | - | ns |
| f_T | transition frequency | | $V_{CE} = 10\text{ V}; I_C = 50\text{ mA}; f = 100\text{ MHz};$ $T_{amb} = 25\text{ }^\circ\text{C}$ | 70 | 140 | - |
| C_c | collector capacitance | $V_{CB} = 10\text{ V}; I_E = 0\text{ A}; i_e = 0\text{ A};$ $f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$ | - | 6.5 | 9 | pF |
| TR2 (PNP) | | | | | | |
| I_{CBO} | collector-base cut-off current | $V_{CB} = -48\text{ V}; I_E = 0\text{ A}; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | -100 | nA |
| | | $V_{CB} = -48\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^\circ\text{C}$ | - | - | -50 | μA |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -5\text{ V}; I_C = 0\text{ A}; T_{amb} = 25\text{ }^\circ\text{C}$ | - | - | -100 | nA |
| h_{FE} | DC current gain | $V_{CE} = -2\text{ V}; I_C = -100\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | 170 | 250 | - | |
| | | $V_{CE} = -2\text{ V}; I_C = -500\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | 140 | 200 | - | |
| | | $V_{CE} = -2\text{ V}; I_C = -1\text{ A};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | 110 | 155 | - | |
| | | $V_{CE} = -2\text{ V}; I_C = -2\text{ A};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | 50 | 75 | - | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -500\text{ mA}; I_B = -50\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | -100 | -140 | mV |
| | | $I_C = -1\text{ A}; I_B = -50\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{amb} = 25\text{ }^\circ\text{C}$ | - | -220 | -310 | mV |

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|--------------------|---|---|---|------|------|------------|
| | | $I_C = -2\text{ A}; I_B = -200\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | -365 | -500 | mV |
| R_{CEsat} | collector-emitter saturation resistance | $I_C = -1\text{ A}; I_B = -100\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | - | 250 | m Ω |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -500\text{ mA}; I_B = -50\text{ mA};$ $T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | - | -1 | V |
| | | $I_C = -1\text{ A}; I_B = -50\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | - | -1 | V |
| | | $I_C = -2\text{ A}; I_B = -200\text{ mA};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | - | -1.2 | V |
| V_{BEon} | base-emitter turn-on voltage | $V_{\text{CE}} = -2\text{ V}; I_C = -0.5\text{ A};$ pulsed; $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | - | -0.9 | V |
| t_d | delay time | $V_{\text{CC}} = -12.5\text{ V}; I_C = -1\text{ A}; I_{\text{Bon}} = -50\text{ mA};$ $I_{\text{Boff}} = 50\text{ mA}; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | 10 | - | ns |
| t_r | rise time | | - | 80 | - | ns |
| t_{on} | turn-on time | | - | 90 | - | ns |
| t_s | storage time | | - | 195 | - | ns |
| t_f | fall time | | - | 75 | - | ns |
| t_{off} | turn-off time | | - | 270 | - | ns |
| f_T | transition frequency | | $V_{\text{CE}} = -10\text{ V}; I_C = -50\text{ mA}; f = 100\text{ MHz};$ $T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | 50 | 100 | - |
| C_c | collector capacitance | $V_{\text{CB}} = -10\text{ V}; I_E = 0\text{ A}; i_e = 0\text{ A};$ $f = 1\text{ MHz}; T_{\text{amb}} = 25\text{ }^\circ\text{C}$ | - | 16 | 21 | pF |



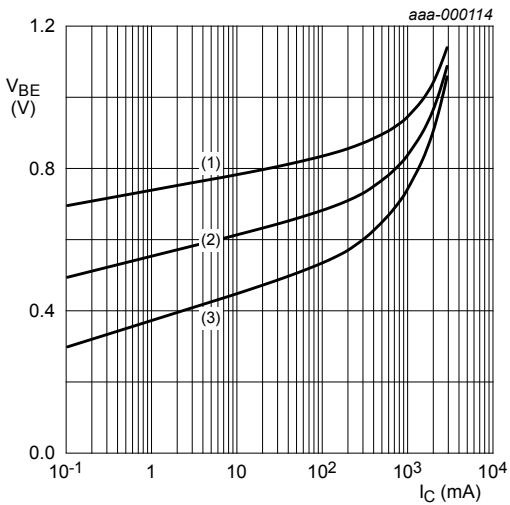
$V_{CE} = 2\text{ V}$
 (1) $T_{amb} = 100\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = -55\text{ }^{\circ}\text{C}$

Fig. 10. TR1 (NPN): DC current gain as a function of collector current; typical values



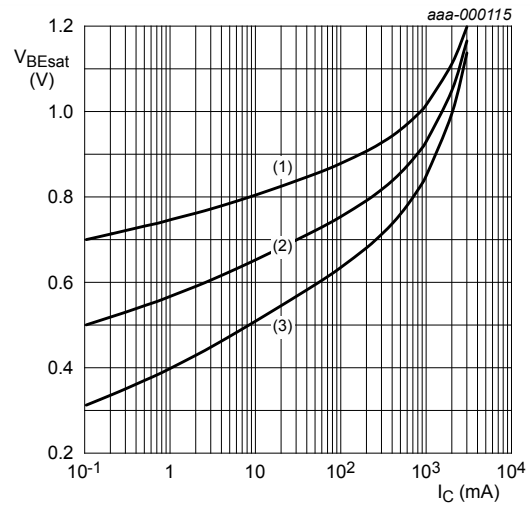
$T_{amb} = 25\text{ }^{\circ}\text{C}$

Fig. 11. TR1 (NPN): Collector current as a function of collector-emitter voltage; typical values



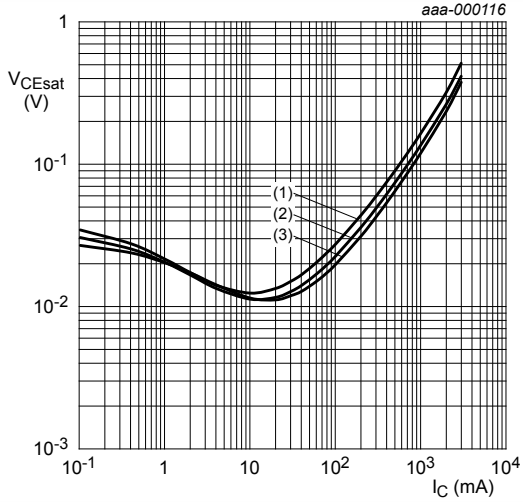
$V_{CE} = 2\text{ V}$
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$

Fig. 12. TR1 (NPN): Base-emitter voltage as a function of collector current; typical values



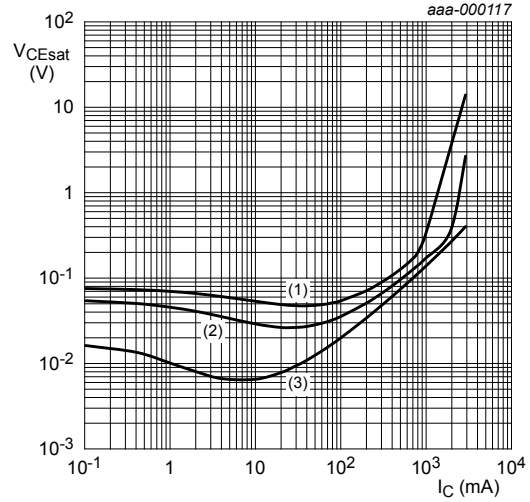
$I_C/I_B = 20$
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$

Fig. 13. TR1 (NPN): Base-emitter saturation voltage as a function of collector current; typical values



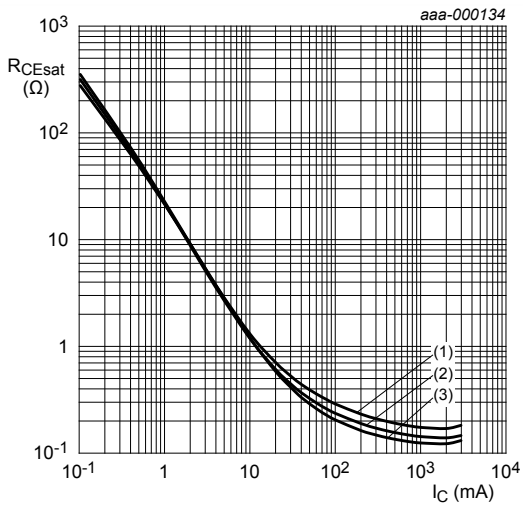
$I_C/I_B = 20$
 (1) $T_{amb} = 100\text{ }^\circ\text{C}$
 (2) $T_{amb} = 25\text{ }^\circ\text{C}$
 (3) $T_{amb} = -55\text{ }^\circ\text{C}$

Fig. 14. TR1 (NPN): Collector-emitter saturation voltage as a function of collector current; typical values



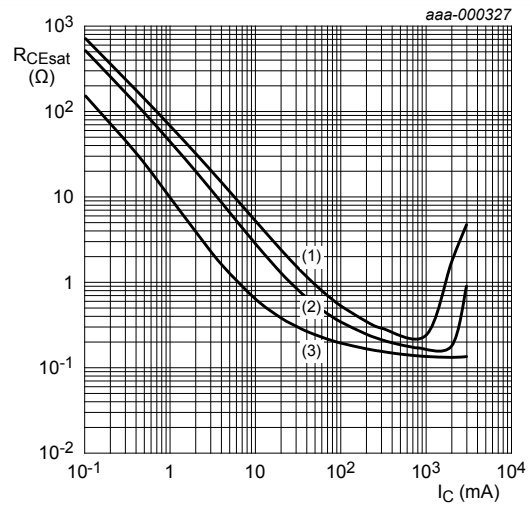
$T_{amb} = 25\text{ }^\circ\text{C}$
 (1) $I_C/I_B = 100$
 (2) $I_C/I_B = 50$
 (3) $I_C/I_B = 10$

Fig. 15. TR1 (NPN): Collector-emitter saturation voltage as a function of collector current; typical values



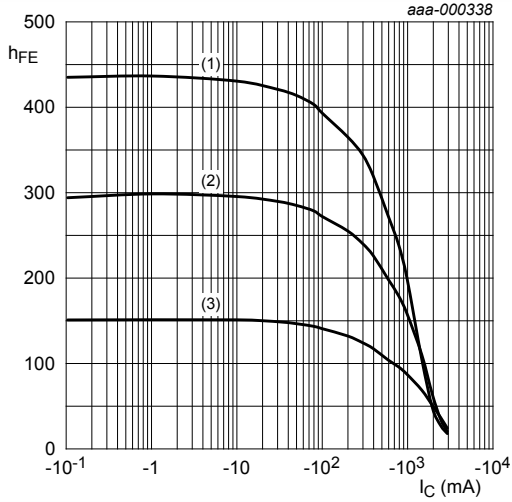
$I_C/I_B = 20$
 (1) $T_{amb} = 100\text{ }^\circ\text{C}$
 (2) $T_{amb} = 25\text{ }^\circ\text{C}$
 (3) $T_{amb} = -55\text{ }^\circ\text{C}$

Fig. 16. TR1 (NPN): Collector-emitter saturation resistance as a function of collector current; typical values



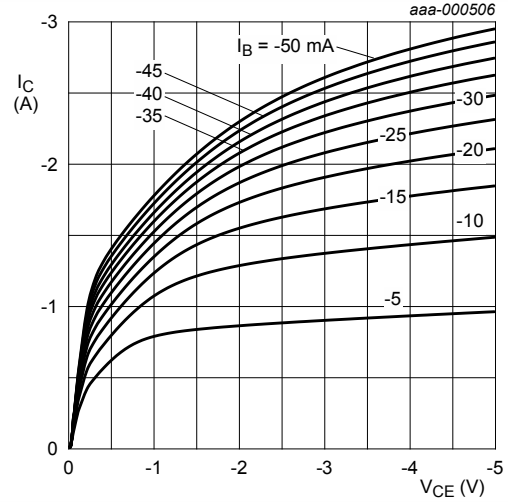
$T_{amb} = 25\text{ }^\circ\text{C}$
 (1) $I_C/I_B = 100$
 (2) $I_C/I_B = 50$
 (3) $I_C/I_B = 10$

Fig. 17. TR1 (NPN): Collector-emitter saturation resistance as a function of collector current; typical values



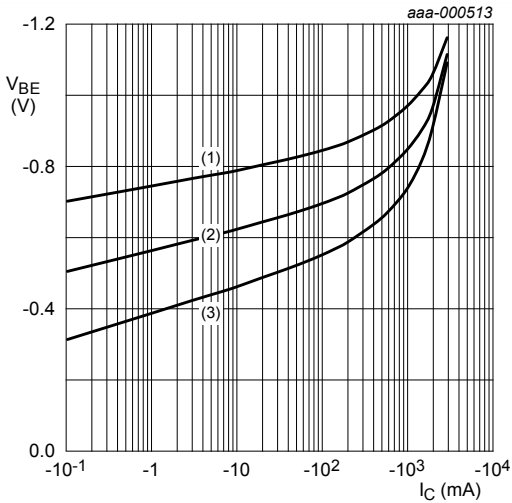
$V_{CE} = -2\text{ V}$
 (1) $T_{amb} = 100\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = -55\text{ }^{\circ}\text{C}$

Fig. 18. TR2 (PNP): DC current gain as a function of collector current; typical values



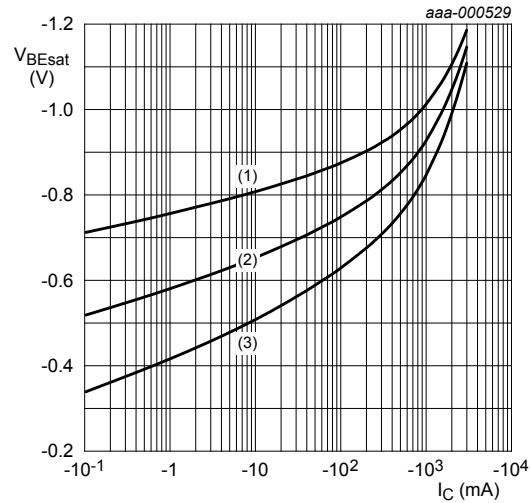
$T_{amb} = 25\text{ }^{\circ}\text{C}$

Fig. 19. TR2 (PNP): Collector current as a function of collector-emitter voltage; typical values



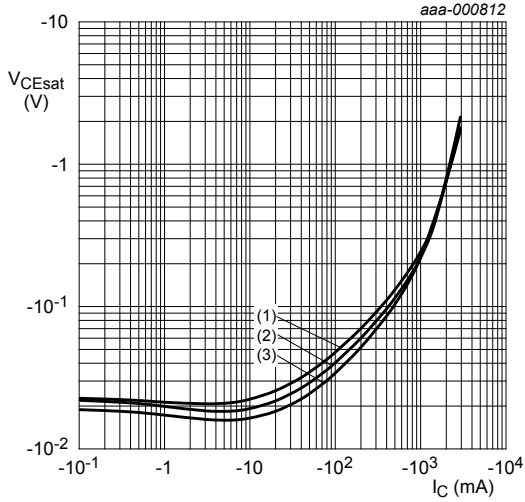
$V_{CE} = -2\text{ V}$
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$

Fig. 20. TR2 (PNP): Base-emitter voltage as a function of collector current; typical values



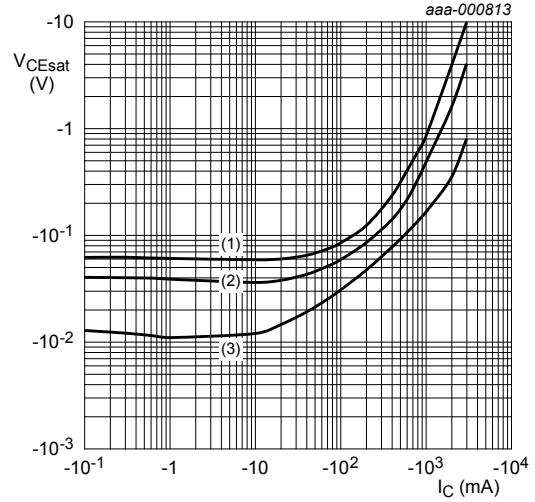
$I_C/I_B = 20$
 (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$
 (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$
 (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$

Fig. 21. TR2 (PNP): Base-emitter saturation voltage as a function of collector current; typical values



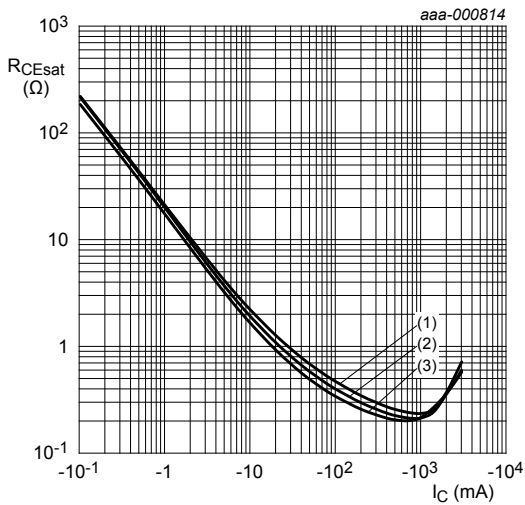
$I_C/I_B = 20$
 (1) $T_{amb} = 100\text{ °C}$
 (2) $T_{amb} = 25\text{ °C}$
 (3) $T_{amb} = -55\text{ °C}$

Fig. 22. TR2 (PNP): Collector-emitter saturation voltage as a function of collector current; typical values



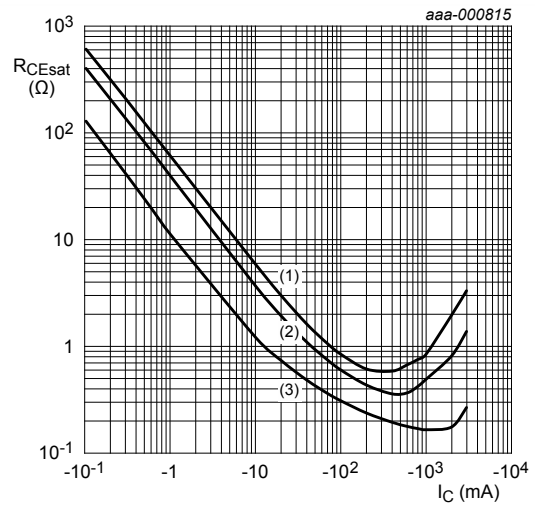
$T_{amb} = 25\text{ °C}$
 (1) $I_C/I_B = 100$
 (2) $I_C/I_B = 50$
 (3) $I_C/I_B = 10$

Fig. 23. TR2 (PNP): Collector-emitter saturation voltage as a function of collector current; typical values



$I_C/I_B = 20$
 (1) $T_{amb} = 100\text{ °C}$
 (2) $T_{amb} = 25\text{ °C}$
 (3) $T_{amb} = -55\text{ °C}$

Fig. 24. TR2 (PNP): Collector-emitter saturation resistance as a function of collector current; typical values



$T_{amb} = 25\text{ °C}$
 (1) $I_C/I_B = 100$
 (2) $I_C/I_B = 50$
 (3) $I_C/I_B = 10$

Fig. 25. TR2 (PNP): Collector-emitter saturation resistance as a function of collector current; typical values

11. Test information

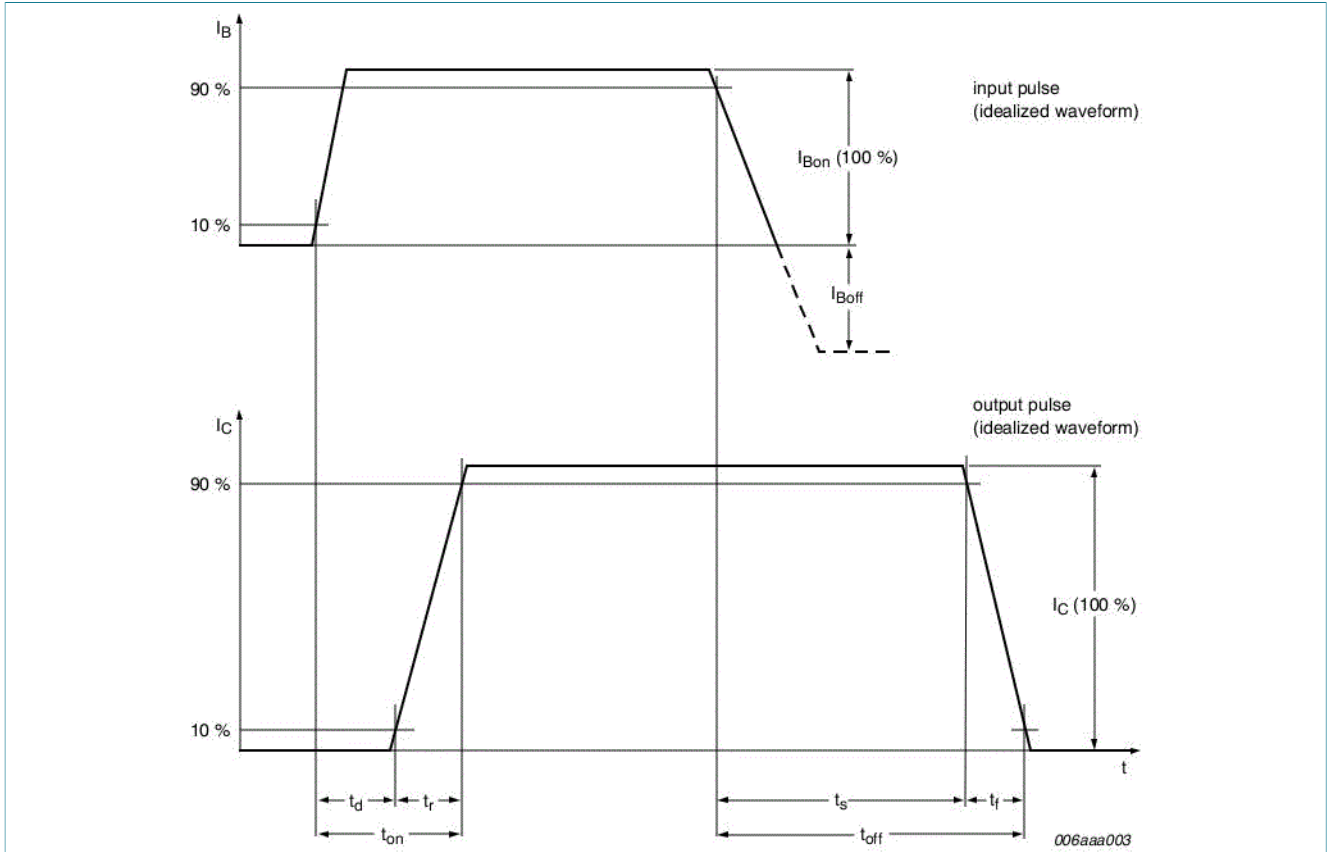


Fig. 26. TR1 (NPN): BISS transistor switching time definition

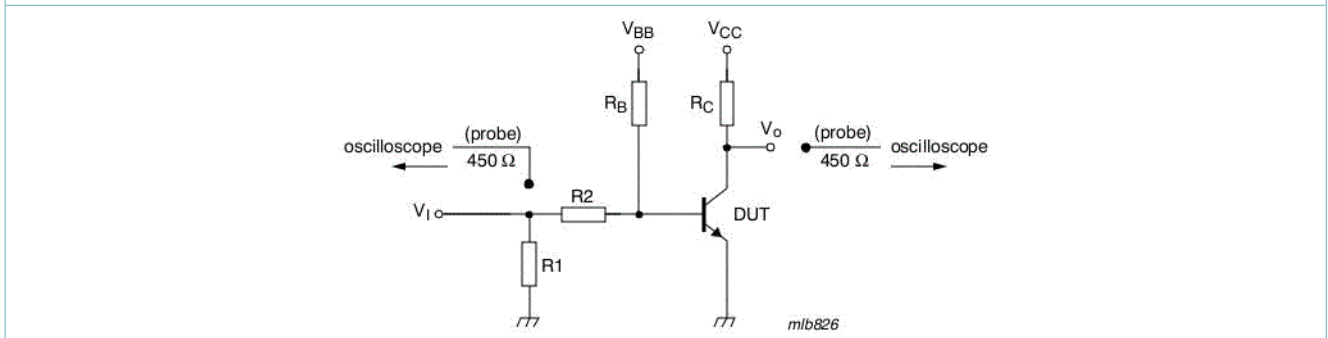


Fig. 27. TR1 (NPN): Test circuit for switching times

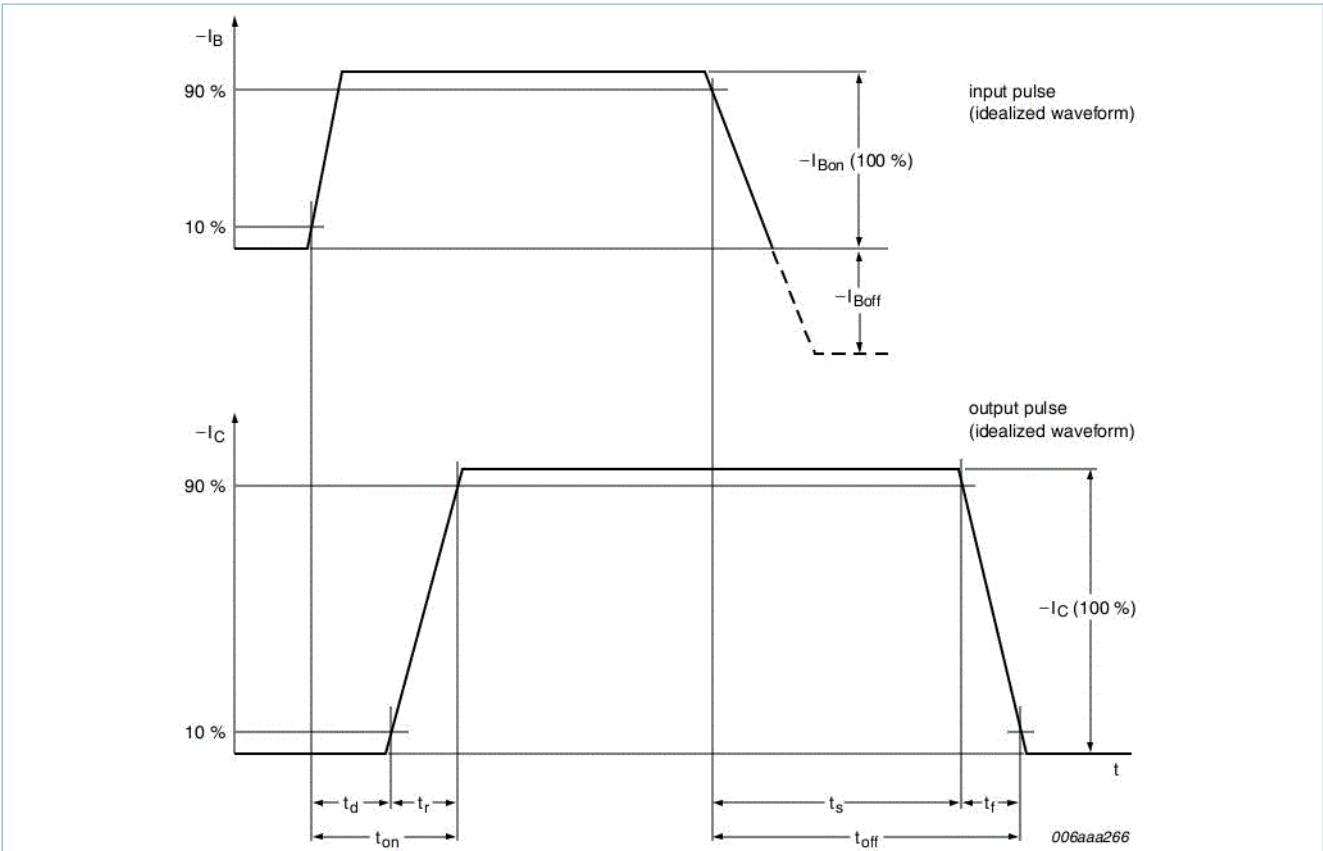


Fig. 28. TR2 (PNP): BISS transistor switching time definition

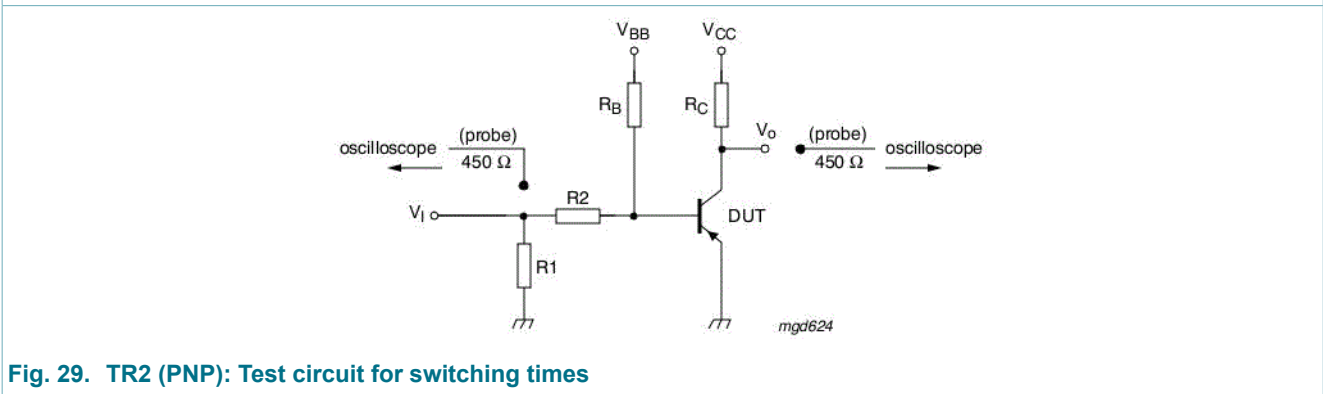


Fig. 29. TR2 (PNP): Test circuit for switching times

11.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

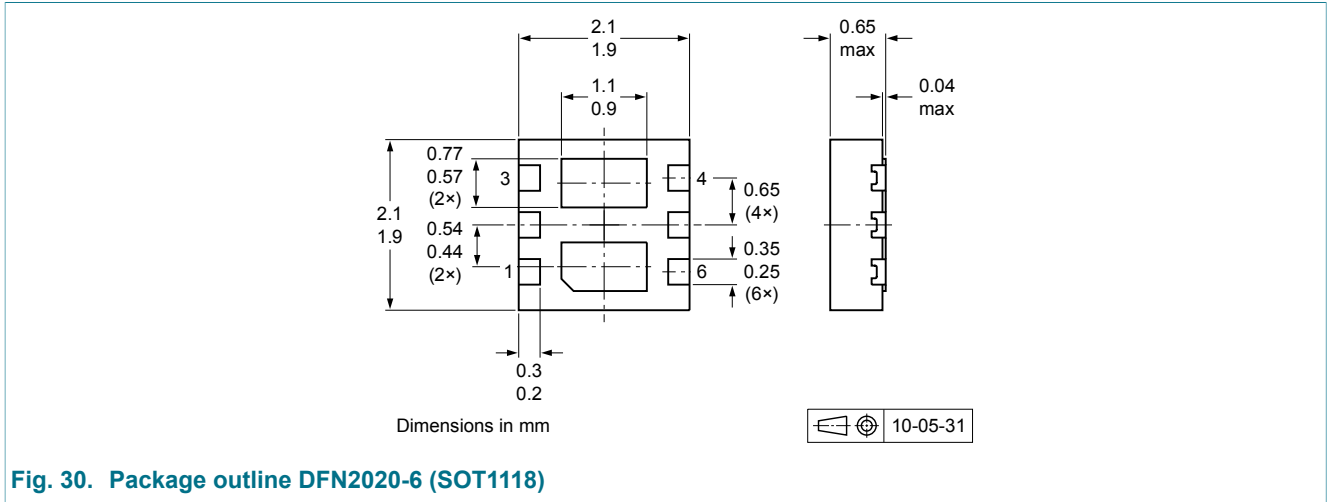


Fig. 30. Package outline DFN2020-6 (SOT1118)

13. Soldering

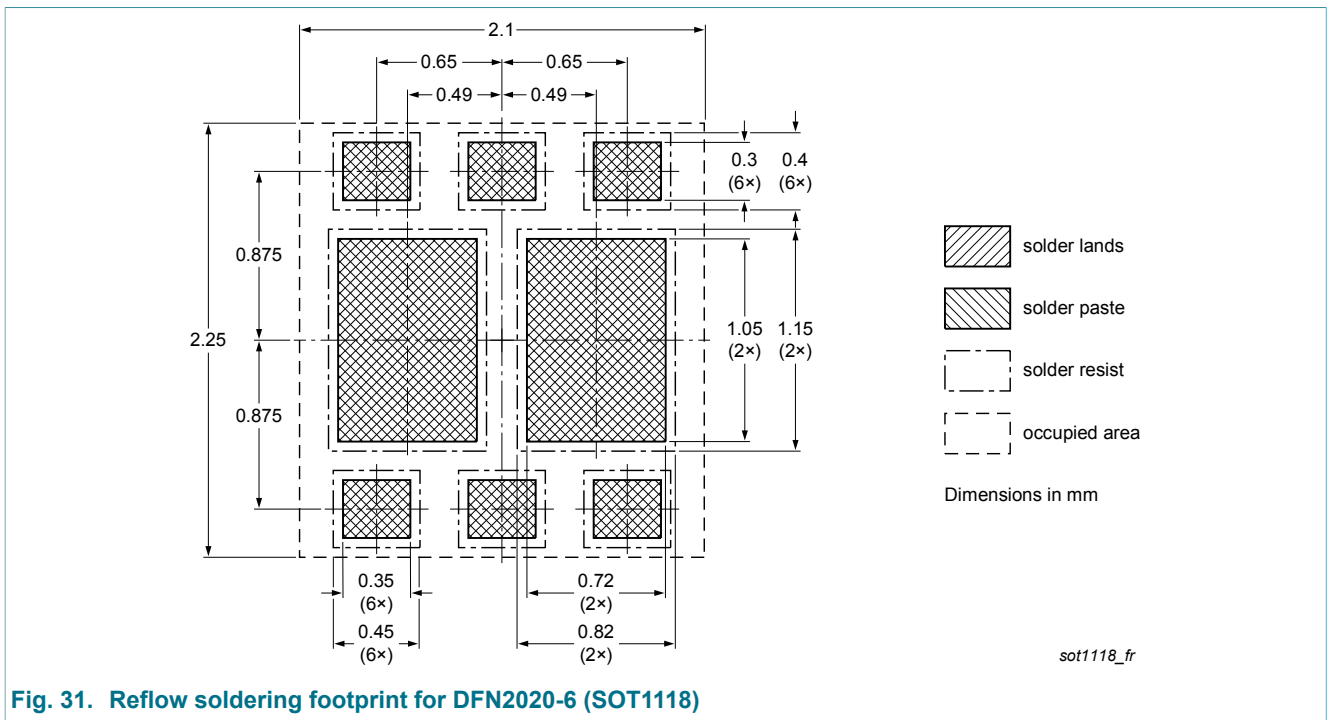


Fig. 31. Reflow soldering footprint for DFN2020-6 (SOT1118)

14. Revision history

Table 8. Revision history

| Data sheet ID | Release date | Data sheet status | Change notice | Supersedes |
|------------------|--------------|--------------------|---------------|------------|
| PBSS4260PANP v.1 | 20121212 | Product data sheet | - | - |

15. Legal information

15.1 Data sheet status

| Document status [1][2] | Product status [3] | Definition |
|--------------------------------|--------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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