


# PBSS4260PANP

## 60 V, 2 A NPN/PNP low VCEsat (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; $t_p \leq 1$ ms | | - | - | 3 | A |
| **TR1 (NPN)** | | | | | | | |
| $R_{CEsat}$ | collector-emitter saturation resistance | $I_C = 1$ A; $I_B = 100$ mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb} = 25$ °C | | - | - | 165 | mΩ |

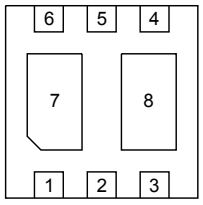
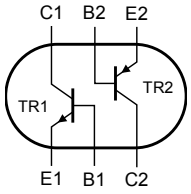
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| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **TR2 (PNP)** | | | | | | | |
| $R_{CEsat}$ | collector-emitter saturation resistance | $I_C$ = -1 A; $I_B$ = -100 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | - | 250 | mΩ |

## 5. Pinning information

**Table 2. Pinning information**

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|---|---|---|---|---|
| 1 | E1 | emitter TR1 |  Transparent top view **DFN2020-6 (SOT1118)** |  *sym139* |
| 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 |


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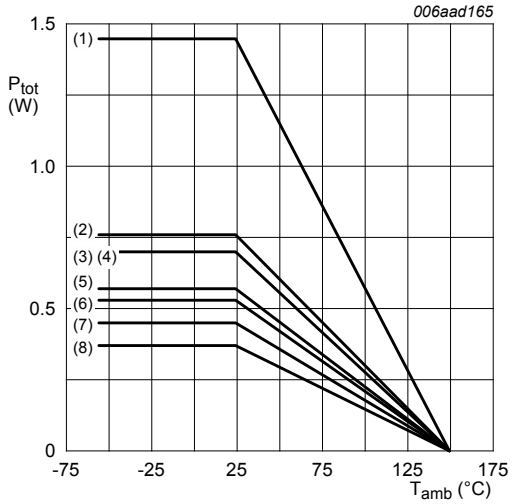
| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{EBO}$ | emitter-base voltage | open collector | | - | 7 | V |
| $I_C$ | collector current | | | - | 2 | A |
| $I_{CM}$ | peak collector current | single pulse; $t_p \leq 1$ ms | | - | 3 | A |
| $I_B$ | base current | | | - | 0.3 | A |
| $I_{BM}$ | peak base current | single pulse; $t_p \leq 1$ ms | | - | 1 | A |
| $P_{tot}$ | total power dissipation | $T_{amb} \leq 25$ °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 | $T_{amb} \leq 25$ °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 $cm^2$.
[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 $cm^2$.
[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 $cm^2$.
[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 $cm^2$.


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(1) 4-layer PCB 70 µm, mounting pad for collector 1 $cm^2$

(2) FR4 PCB 70 µm, mounting pad for collector 1 $cm^2$

(3) 4-layer PCB 70 µm, standard footprint

(4) 4-layer PCB 35 µm, mounting pad for collector 1 $cm^2$

(5) FR4 PCB 35 µm, mounting pad for collector 1 $cm^2$

(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 |

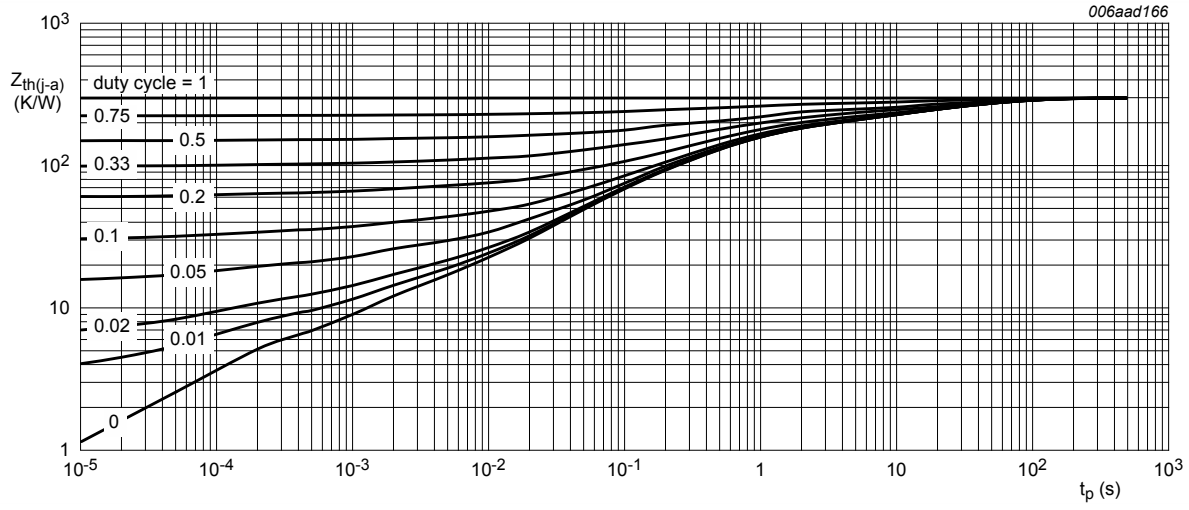

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| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Per device** | | | | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | - | 245 | K/W |
| | | | [2] | - | - | 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 $cm^2$.
[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 $cm^2$.
[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 $cm^2$.
[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 $cm^2$.



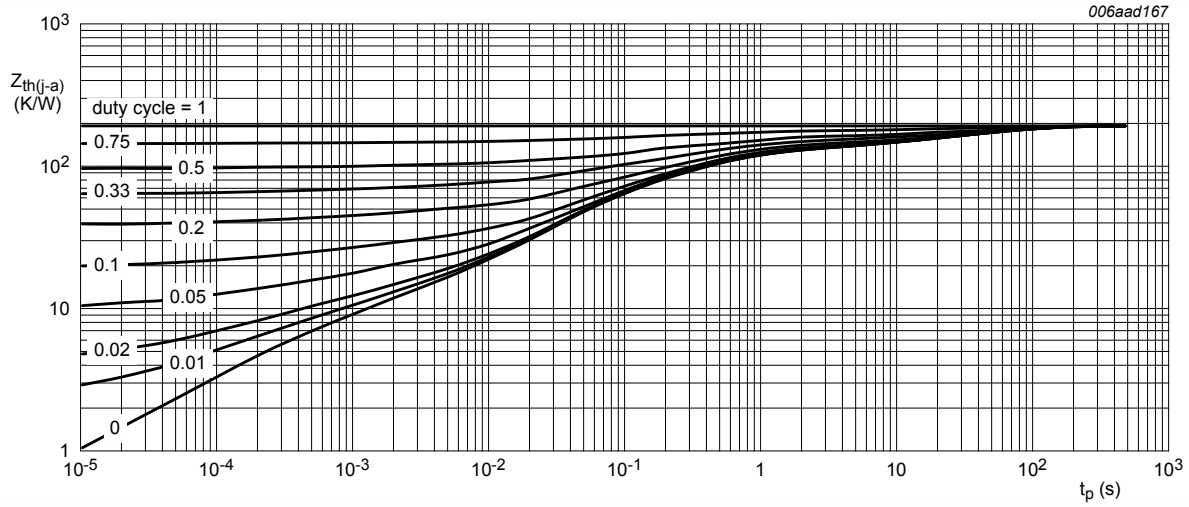

FR4 PCB 35 µm, standard footprint

**Fig. 2. Per transistor: transient thermal impedance from junction to ambient as a function of pulse duration; typical values**


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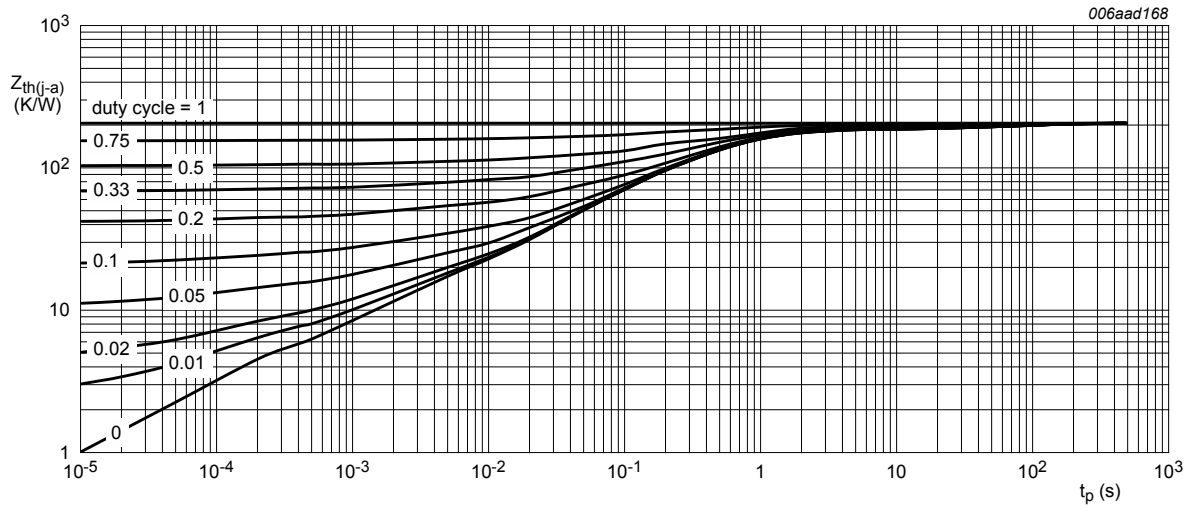
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FR4 PCB 35 µm, mounting pad for collector 1 $cm^2$

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



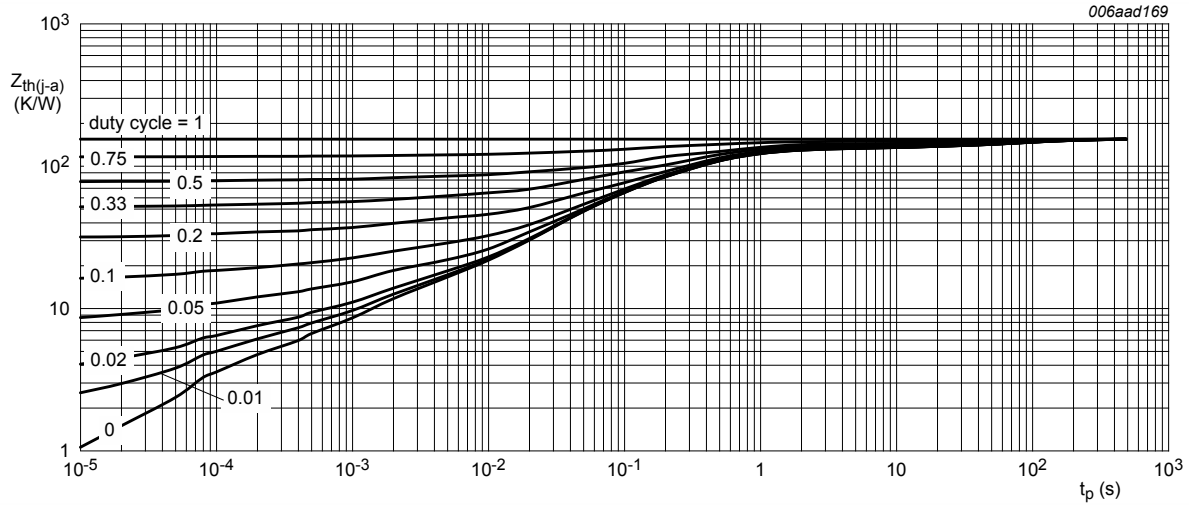

4-layer PCB 35 µm, standard footprint

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


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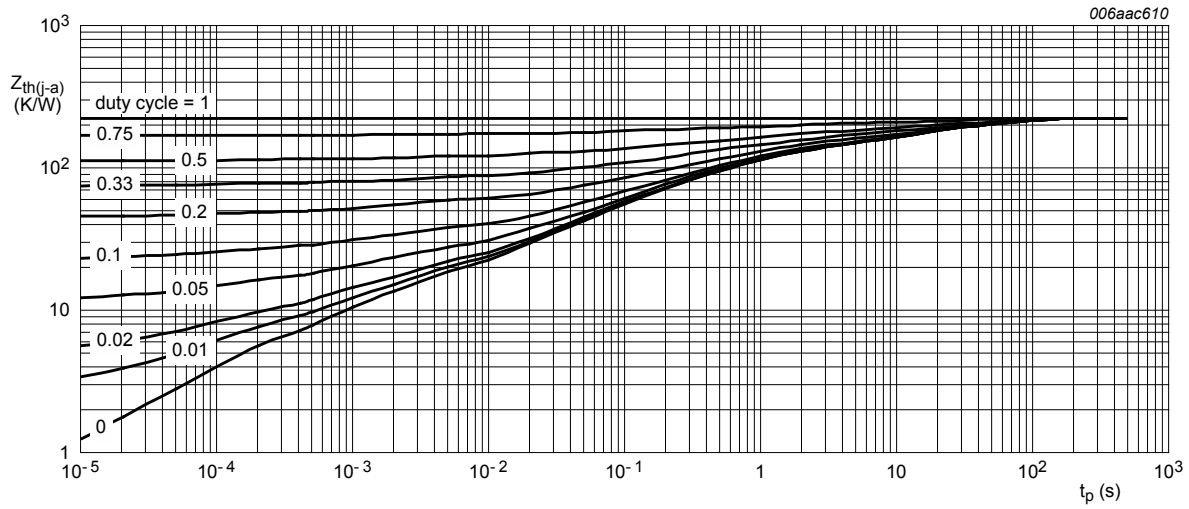
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4-layer PCB 35 µm, mounting pad for collector 1 $cm^2$

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



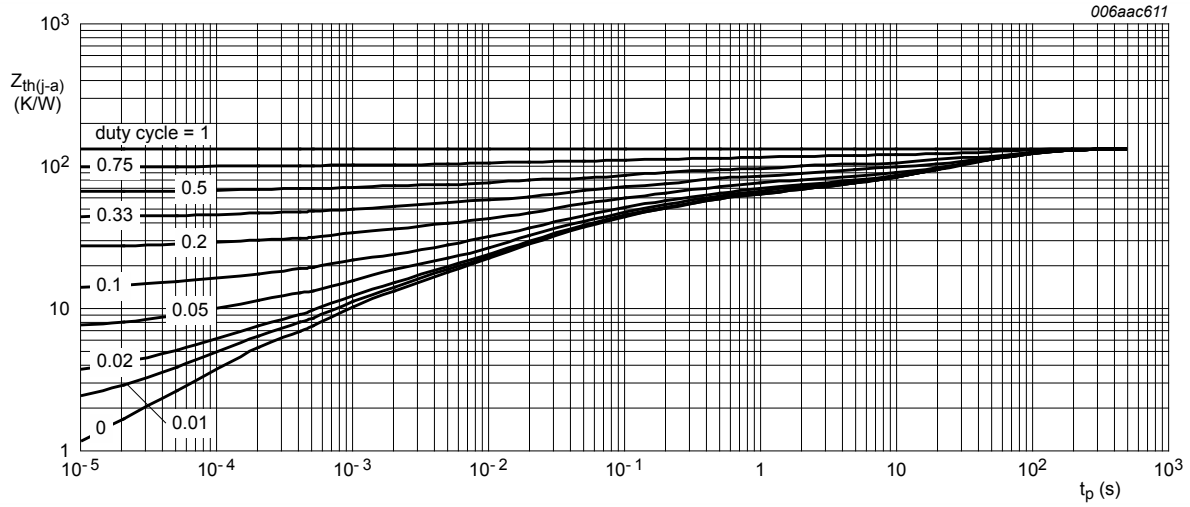

FR4 PCB 70 µm, standard footprint

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


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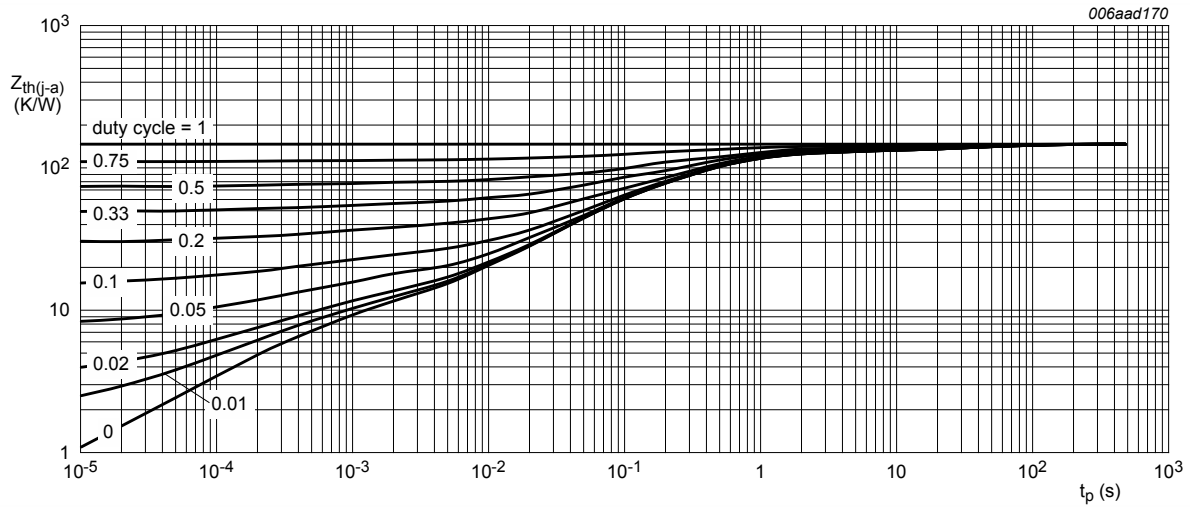
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FR4 PCB 70 µm, mounting pad for collector 1 $cm^2$

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



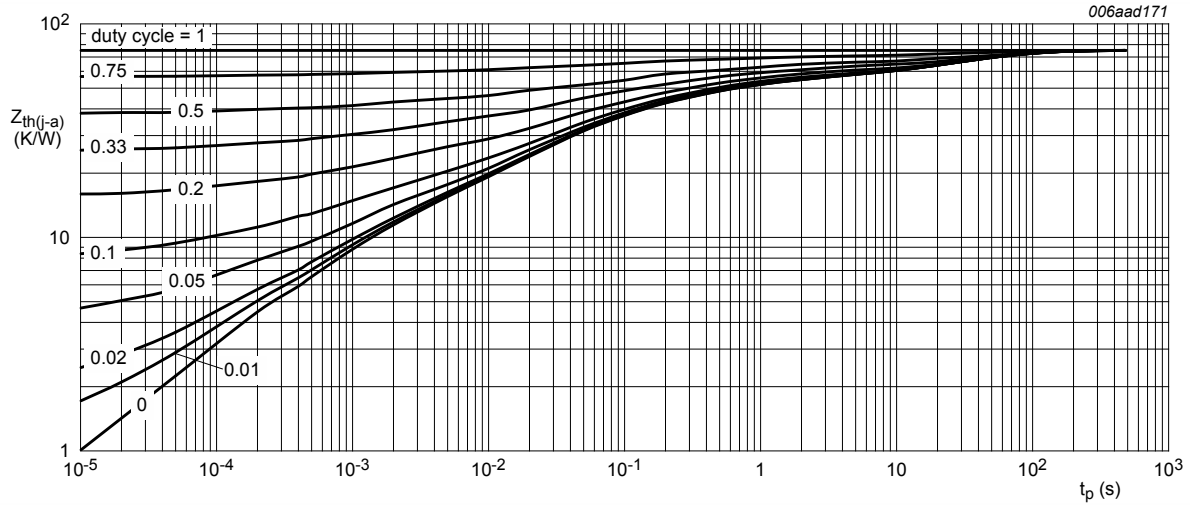

4-layer PCB 70 µm, standard footprint

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


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4-layer PCB 70 µm, mounting pad for collector 1 $cm^2$

**Fig. 9. 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 V; $I_E$ = 0 A; $T_{amb}$ = 25 °C | | - | - | 100 | nA |
| | | $V_{CB}$ = 48 V; $I_E$ = 0 A; $T_j$ = 150 °C | | - | - | 50 | µA |
| $I_{EBO}$ | emitter-base cut-off current | $V_{EB}$ = 5 V; $I_C$ = 0 A; $T_{amb}$ = 25 °C | | - | - | 100 | nA |
| $h_{FE}$ | DC current gain | $V_{CE}$ = 2 V; $I_C$ = 100 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | 290 | 430 | - | |
| | | $V_{CE}$ = 2 V; $I_C$ = 500 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | 210 | 310 | - | |
| | | $V_{CE}$ = 2 V; $I_C$ = 1 A; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | 120 | 185 | - | |
| | | $V_{CE}$ = 2 V; $I_C$ = 2 A; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | 50 | 85 | - | |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C$ = 500 mA; $I_B$ = 50 mA; $T_{amb}$ = 25 °C | | - | 70 | 90 | mV |
| | | $I_C$ = 1 A; $I_B$ = 50 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | 140 | 180 | mV |
| | | $I_C$ = 2 A; $I_B$ = 100 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | 270 | 350 | mV |
| | | $I_C$ = 2 A; $I_B$ = 200 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | 255 | 330 | mV |


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| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $R_{CEsat}$ | collector-emitter saturation resistance | $I_C$ = 1 A; $I_B$ = 100 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | - | 165 | mΩ |
| $V_{BEsat}$ | base-emitter saturation voltage | $I_C$ = 500 mA; $I_B$ = 50 mA; $T_{amb}$ = 25 °C | | - | - | 1 | V |
| | | $I_C$ = 1 A; $I_B$ = 50 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | - | 1 | V |
| | | $I_C$ = 2 A; $I_B$ = 100 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | - | 1.1 | V |
| | | $I_C$ = 2 A; $I_B$ = 200 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | - | 1.2 | V |
| $V_{BEon}$ | base-emitter turn-on voltage | $V_{CE}$ = 2 V; $I_C$ = 0.5 A; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | - | 0.9 | V |
| $t_d$ | delay time | $V_{CC}$ = 12.5 V; $I_C$ = 1 A; $I_{Bon}$ = 50 mA; $I_{Boff}$ = -50 mA; $T_{amb}$ = 25 °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 V; $I_C$ = 50 mA; f = 100 MHz; $T_{amb}$ = 25 °C | | 70 | 140 | - | MHz |
| $C_c$ | collector capacitance | $V_{CB}$ = 10 V; $I_E$ = 0 A; $i_e$ = 0 A; f = 1 MHz; $T_{amb}$ = 25 °C | | - | 6.5 | 9 | pF |
| **TR2 (PNP)** | | | | | | | |
| $I_{CBO}$ | collector-base cut-off current | $V_{CB}$ = -48 V; $I_E$ = 0 A; $T_{amb}$ = 25 °C | | - | - | -100 | nA |
| | | $V_{CB}$ = -48 V; $I_E$ = 0 A; $T_j$ = 150 °C | | - | - | -50 | µA |
| $I_{EBO}$ | emitter-base cut-off current | $V_{EB}$ = -5 V; $I_C$ = 0 A; $T_{amb}$ = 25 °C | | - | - | -100 | nA |
| $h_{FE}$ | DC current gain | $V_{CE}$ = -2 V; $I_C$ = -100 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | 170 | 250 | - | |
| | | $V_{CE}$ = -2 V; $I_C$ = -500 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | 140 | 200 | - | |
| | | $V_{CE}$ = -2 V; $I_C$ = -1 A; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | 110 | 155 | - | |
| | | $V_{CE}$ = -2 V; $I_C$ = -2 A; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | 50 | 75 | - | |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C$ = -500 mA; $I_B$ = -50 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | -100 | -140 | mV |
| | | $I_C$ = -1 A; $I_B$ = -50 mA; pulsed; $t_p \leq 300$ µs; δ ≤ 0.02 ; $T_{amb}$ = 25 °C | | - | -220 | -310 | mV |


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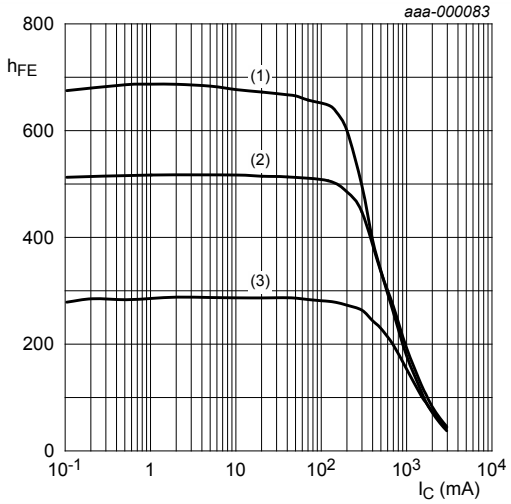

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| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| | | $I_C$ = -2 A; $I_B$ = -200 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | -365 | -500 | mV |
| $R_{CEsat}$ | collector-emitter saturation resistance | $I_C$ = -1 A; $I_B$ = -100 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | - | 250 | mΩ |
| $V_{BEsat}$ | base-emitter saturation voltage | $I_C$ = -500 mA; $I_B$ = -50 mA; $T_{amb}$ = 25 °C | | - | - | -1 | V |
| | | $I_C$ = -1 A; $I_B$ = -50 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | - | -1 | V |
| | | $I_C$ = -2 A; $I_B$ = -200 mA; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | - | -1.2 | V |
| $V_{BEon}$ | base-emitter turn-on voltage | $V_{CE}$ = -2 V; $I_C$ = -0.5 A; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$ ; $T_{amb}$ = 25 °C | | - | - | -0.9 | V |
| $t_d$ | delay time | $V_{CC}$ = -12.5 V; $I_C$ = -1 A; $I_{Bon}$ = -50 mA; $I_{Boff}$ = 50 mA; $T_{amb}$ = 25 °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 | $V_{CE}$ = -10 V; $I_C$ = -50 mA; f = 100 MHz; $T_{amb}$ = 25 °C | | 50 | 100 | - | MHz |
| $C_c$ | collector capacitance | $V_{CB}$ = -10 V; $I_E$ = 0 A; $i_e$ = 0 A; f = 1 MHz; $T_{amb}$ = 25 °C | | - | 16 | 21 | pF |


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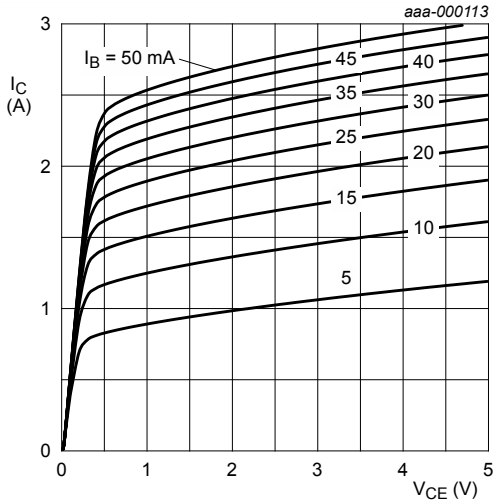
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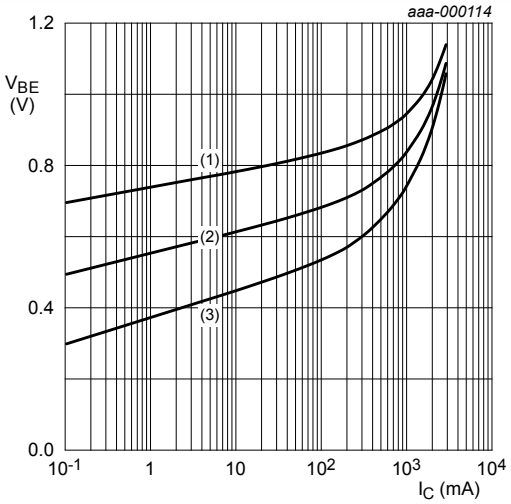

$V_{CE}$ = 2 V
(1) $T_{amb}$ = 100 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = −55 °C

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



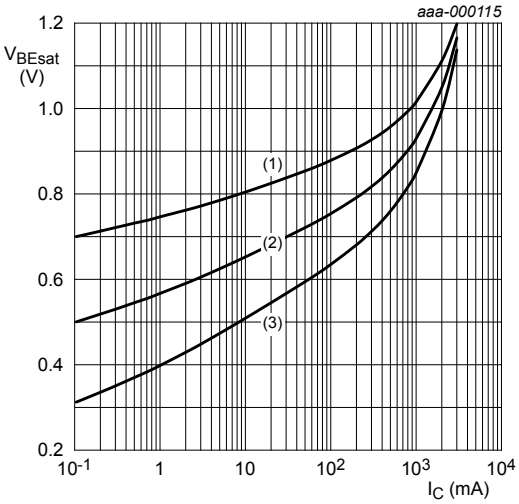

$T_{amb}$ = 25 °C

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




$V_{CE}$ = 2 V
(1) $T_{amb}$ = −55 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = 100 °C

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



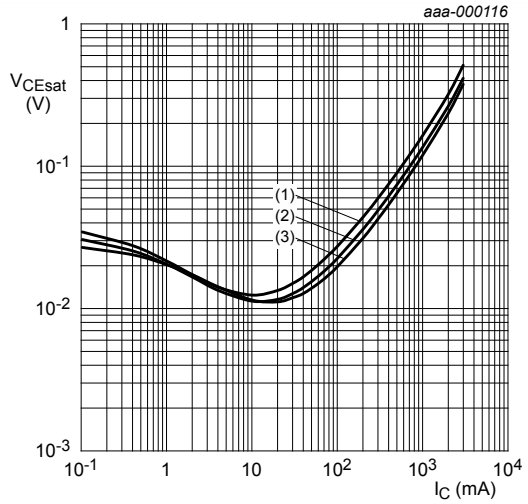

$I_C/I_B$ = 20
(1) $T_{amb}$ = −55 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$= 100 °C

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


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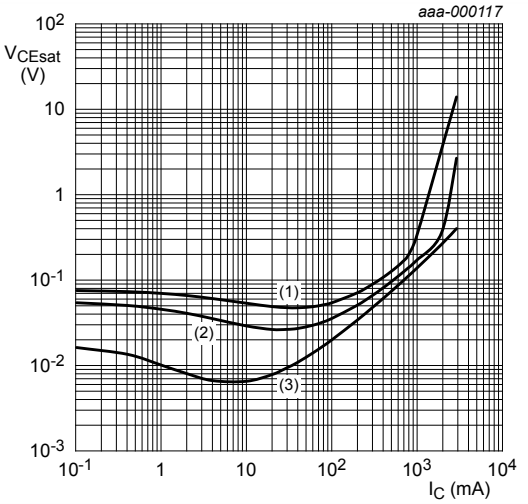
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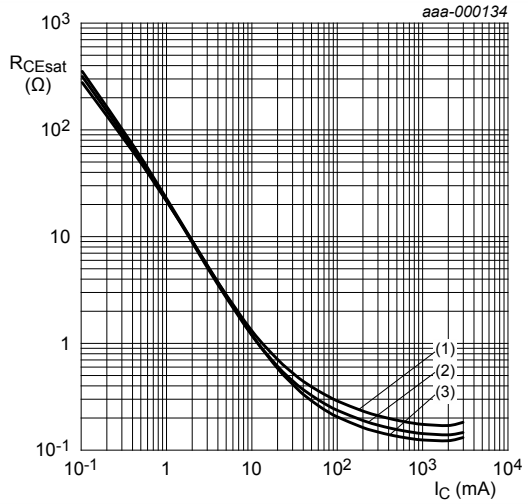

$I_C/I_B$ = 20
(1) $T_{amb}$ = 100 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = −55 °C

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



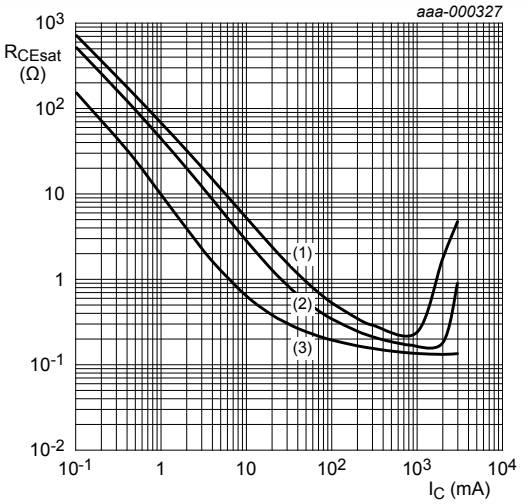

$T_{amb}$ = 25 °C
(1) $I_C/I_B$ = 100
(2) $I_C/I_B$ = 50
(3) $I_C/I_B$ = 10

**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 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = −55 °C

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



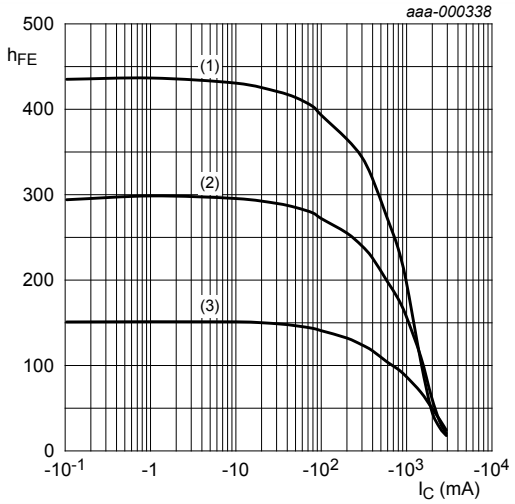

$T_{amb}$ = 25 °C
(1) $I_C/I_B$ = 100
(2) $I_C/I_B$ = 50
(3) $I_C/I_B$ = 10

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


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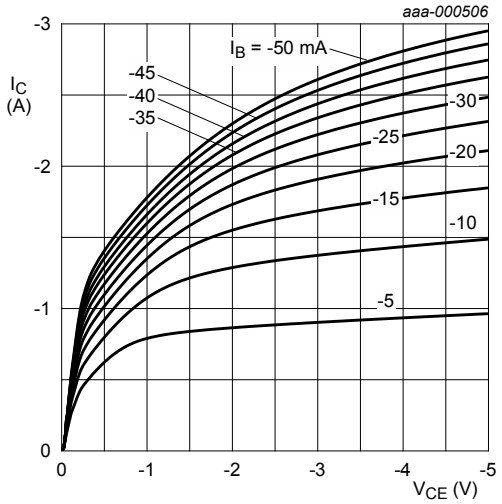

$V_{CE}$ = −2 V

(1) $T_{amb}$ = 100 °C

(2) $T_{amb}$ = 25 °C

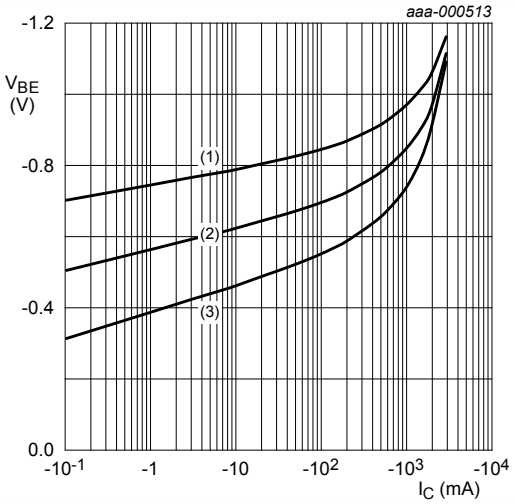
(3) $T_{amb}$ = −55 °C

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




$T_{amb}$ = 25 °C

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



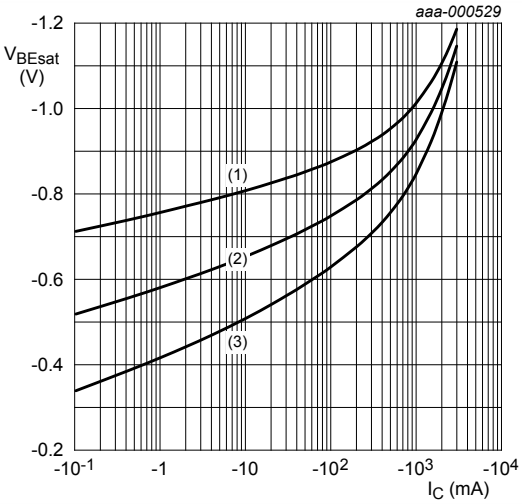

$V_{CE}$ = −2 V

(1) $T_{amb}$ = −55 °C

(2) $T_{amb}$ = 25 °C

(3) $T_{amb}$ = 100 °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 °C

(2) $T_{amb}$ = 25 °C

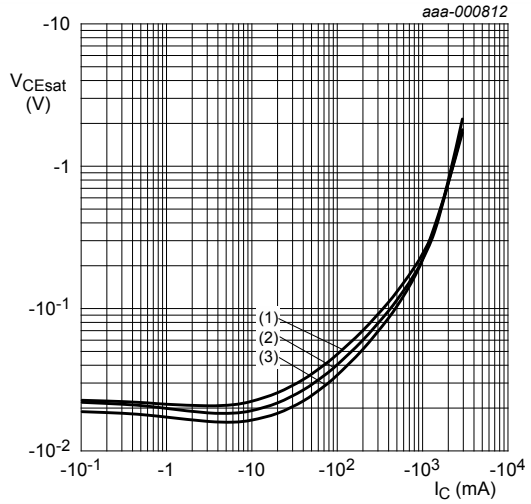
(3) $T_{amb}$ = 100 °C

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


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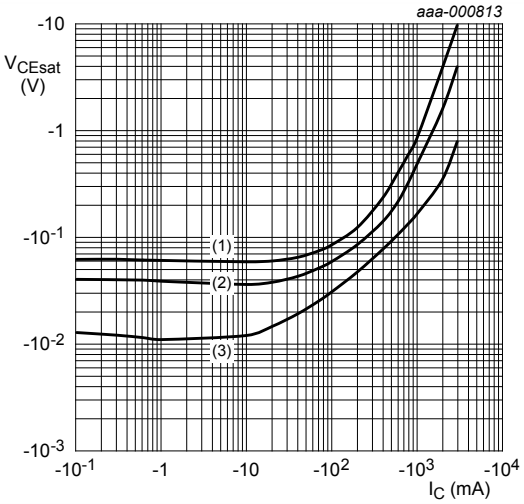
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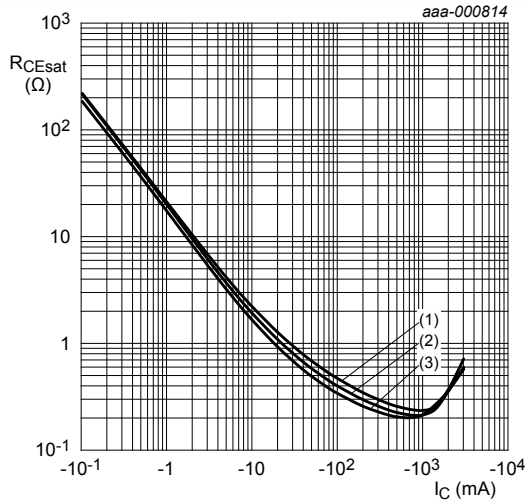

$I_C/I_B$ = 20
(1) $T_{amb}$ = 100 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = −55 °C

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



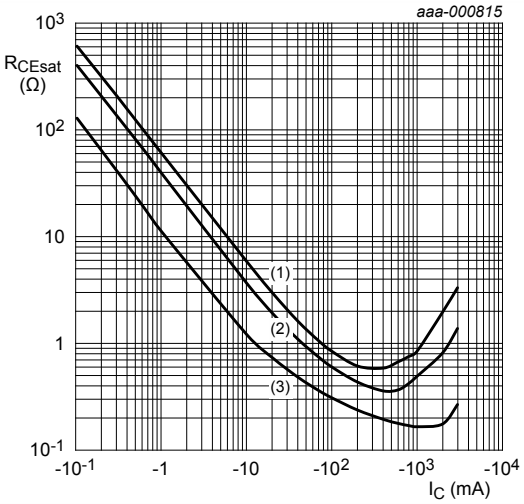

$T_{amb}$ = 25 °C
(1) $I_C/I_B$ = 100
(2) $I_C/I_B$ = 50
(3) $I_C/I_B$ = 10

**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 °C
(2) $T_{amb}$ = 25 °C
(3) $T_{amb}$ = −55 °C

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




$T_{amb}$ = 25 °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**


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## 11. Test information

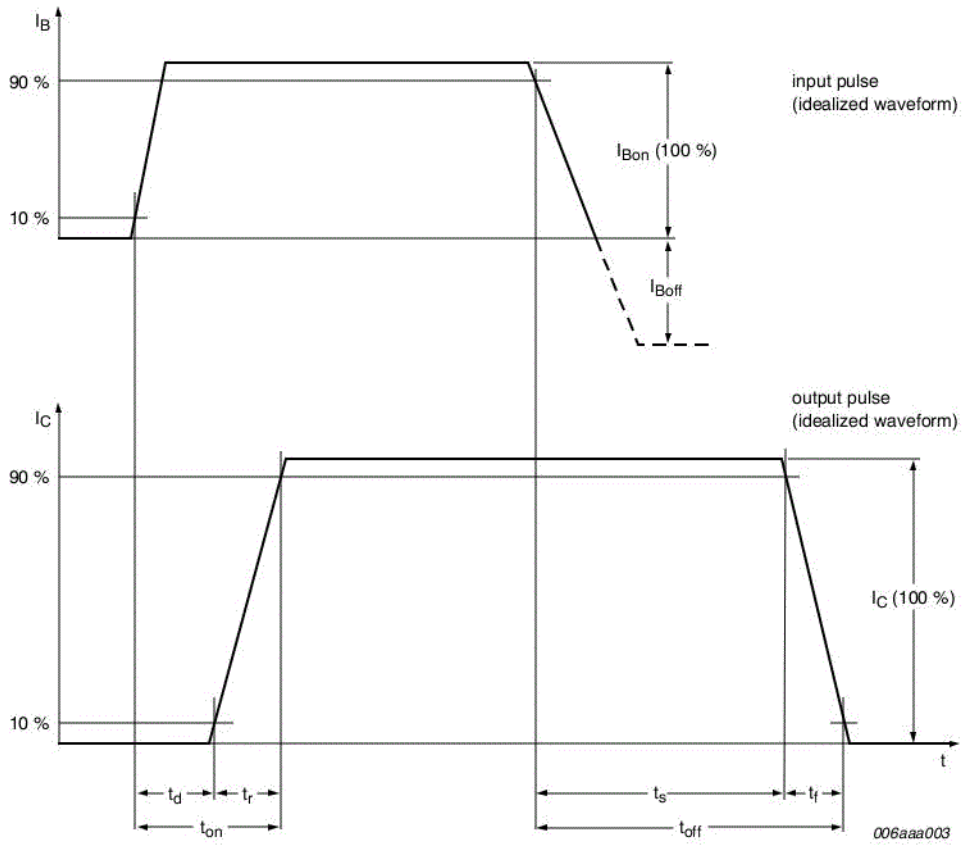



**Fig. 26. TR1 (NPN): BISS transistor switching time definition**

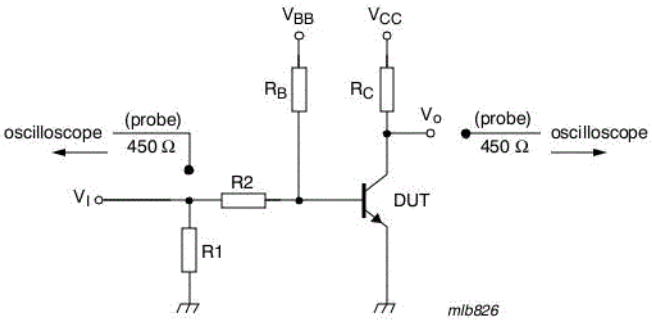



**Fig. 27. TR1 (NPN): Test circuit for switching times**


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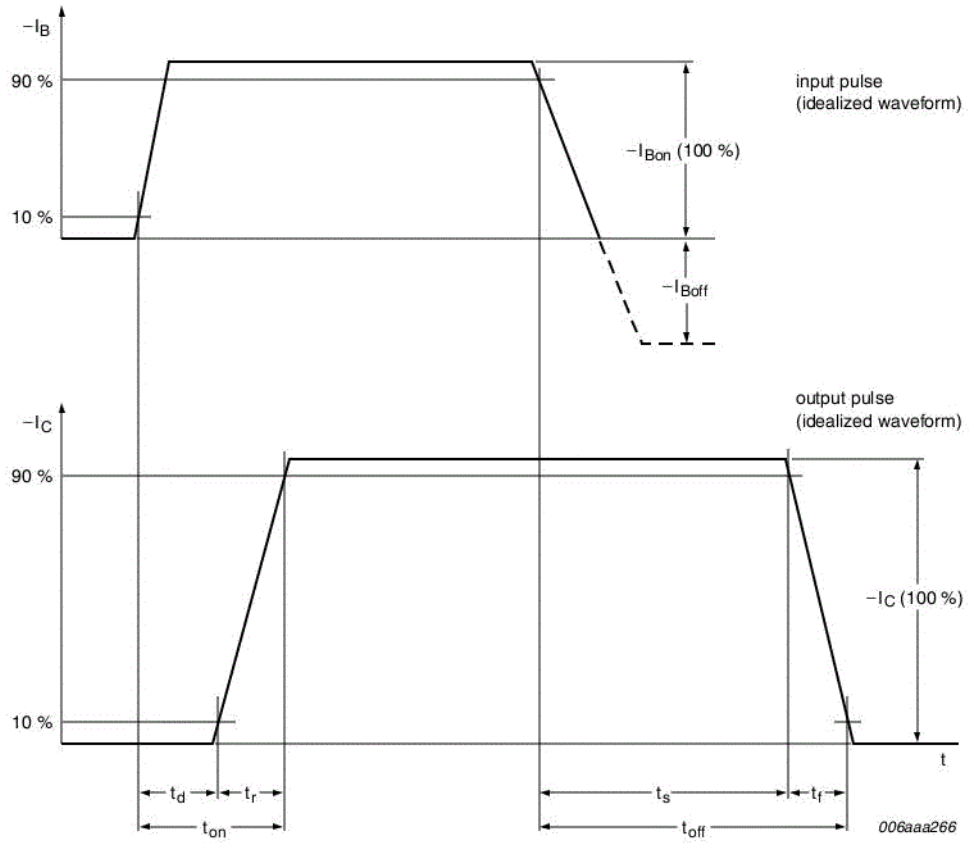



Fig. 28. TR2 (PNP): BISS transistor switching time definition

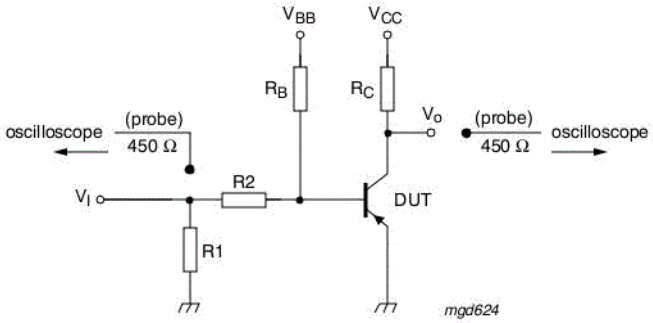



Fig. 29. TR2 (PNP): Test circuit for switching times

## 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.


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## 12. Package outline

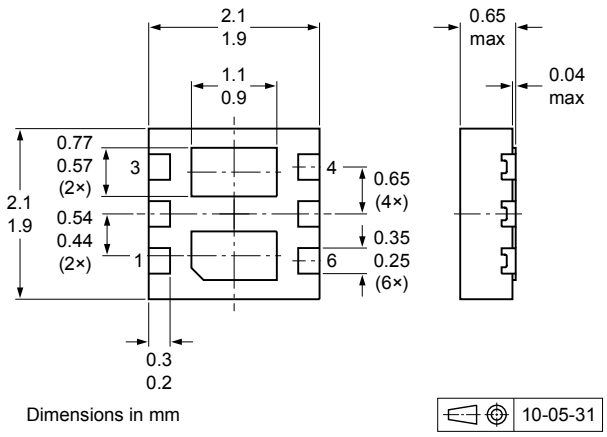



Fig. 30. Package outline DFN2020-6 (SOT1118)

## 13. Soldering

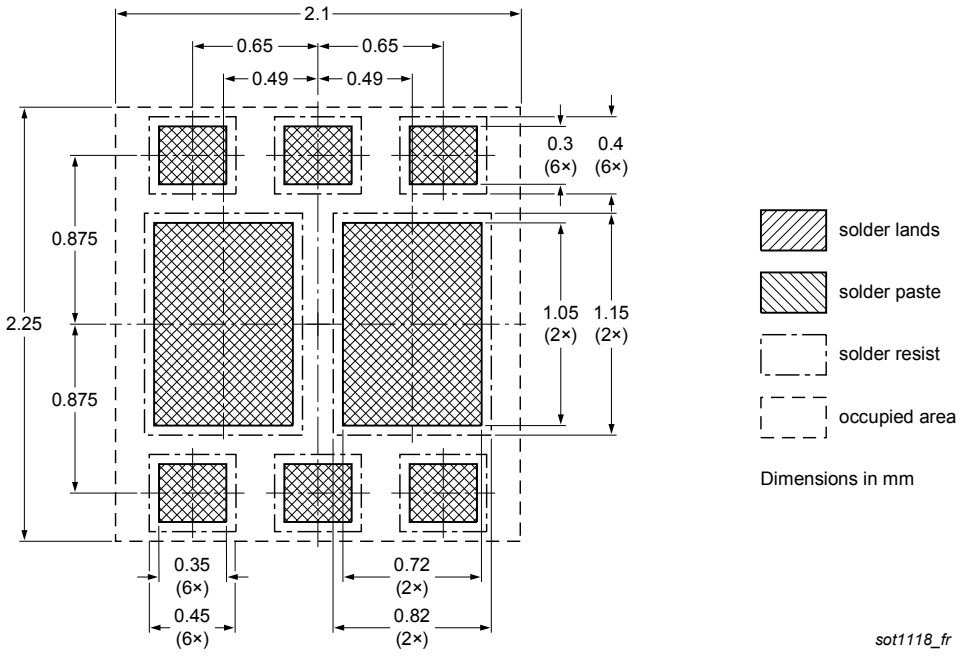



Fig. 31. Reflow soldering footprint for DFN2020-6 (SOT1118)

## 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 | - | - |


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# 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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