

BC807K-16VL Datasheet



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| | |
|------------------------------|--|
| DiGi Electronics Part Number | BC807K-16VL-DG |
| Manufacturer | Nexperia USA Inc. |
| Manufacturer Product Number | BC807K-16VL |
| Description | TRANS PNP 45V 0.5A TO236AB |
| Detailed Description | Bipolar (BJT) Transistor PNP 45 V 500 mA 80MHz 250 mW Surface Mount TO-236AB |



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

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Purchase and inquiry

Manufacturer Product Number:

BC807K-16VL

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

45 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

250 mW

Operating Temperature:

150°C (TJ)

Qualification:

AEC-Q100

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

BC807

Manufacturer:

Nexperia USA Inc.

Product Status:

Active

Current - Collector (Ic) (Max):

500 mA

Vce Saturation (Max) @ Ib, Ic:

700mV @ 50mA, 500mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 100mA, 1V

Frequency - Transition:

80MHz

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

TO-236AB

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



BC807K series

45 V, 500 mA PNP general-purpose transistors

Rev. 2 — 24 April 2018

Product data sheet

1 Product profile

1.1 General description

PNP general-purpose transistors in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package.

Table 1. Product overview

| Type number | Package | | NPN complement |
|-------------|----------|----------|----------------|
| | Nexperia | JEDEC | |
| BC807K-16 | SOT23 | TO-236AB | BC817K-16 |
| BC807K-25 | | | BC817K-25 |
| BC807K-40 | | | BC817K-40 |

1.2 Features and benefits

- Three current gain selections
- High power dissipation capability
- AEC-Q101 qualified

1.3 Applications

- General-purpose switching and amplification

1.4 Quick reference data

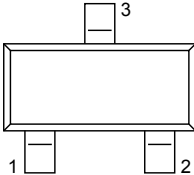
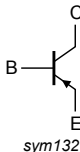
Table 2. Quick reference data
 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|-----------|---------------------------|--|-----|-----|------|------|---|
| V_{CEO} | collector-emitter voltage | open base | - | - | -45 | V | |
| I_C | collector current | | - | - | -500 | mA | |
| I_{CM} | peak collector current | single pulse; $t_p \leq 1\text{ ms}$ | - | - | -1 | A | |
| h_{FE} | DC current gain | $V_{CE} = -1\text{ V}; I_C = -100\text{ mA}$ | | | | | |
| | BC807K-16 | | [1] | 100 | - | 250 | - |
| | BC807K-25 | | [1] | 160 | - | 400 | - |
| | BC807K-40 | | [1] | 250 | - | 600 | - |

 [1] pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$

2 Pinning information

Table 3. Pinning

| Pin | Symbol | Description | Simplified outline | Graphic symbol |
|-----|--------|-------------|--|---|
| 1 | B | base |  |  |
| 2 | E | emitter | | |
| 3 | C | collector | | |

3 Ordering information

Table 4. Ordering information

| Type number | Package | | Version |
|-------------|----------|--|---------|
| | Name | Description | |
| BC807K-16 | TO-236AB | Plastic surface-mounted package; 3 leads | SOT23 |
| BC807K-25 | | | |
| BC807K-40 | | | |

4 Marking

Table 5. Marking

| Type number | Marking code |
|-------------|--------------------|
| BC807K-16 | ^[1] HA% |
| BC807K-25 | ^[1] HB% |
| BC807K-40 | ^[1] HC% |

[1] % = placeholder for manufacturing site code

5 Limiting values

Table 6. Limiting values

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

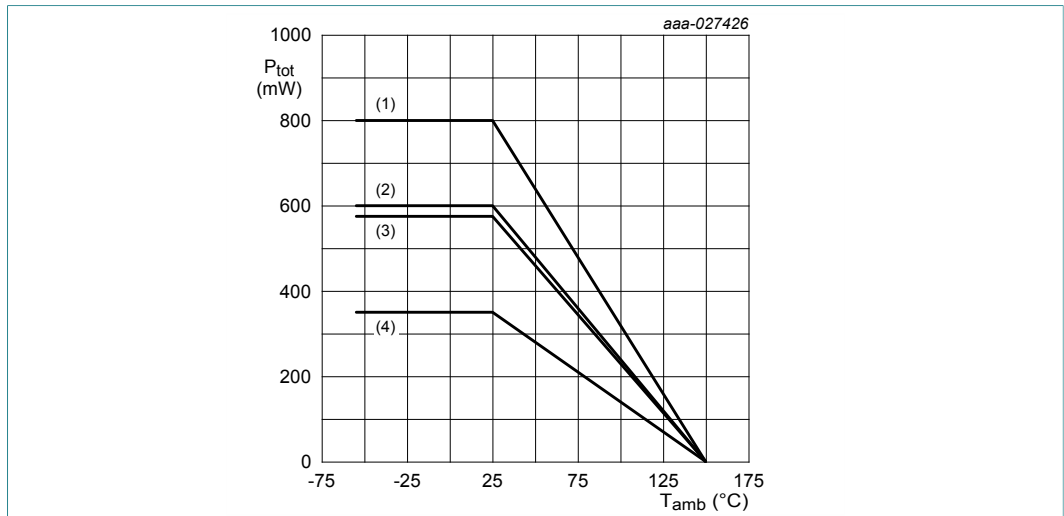
| Symbol | Parameter | Conditions | Min | Max | Unit | |
|-----------|---------------------------|-------------------------------|----------------|------|------|----|
| V_{CBO} | collector-base voltage | open emitter | - | -50 | V | |
| V_{CEO} | collector-emitter voltage | open base | - | -45 | V | |
| V_{EBO} | emitter-base voltage | open collector | - | -5 | V | |
| I_C | collector current | | - | -500 | mA | |
| I_{CM} | peak collector current | single pulse; $t_p \leq 1$ ms | - | -1 | A | |
| I_{BM} | peak base current | single pulse; $t_p \leq 1$ ms | - | -200 | mA | |
| P_{tot} | total power dissipation | $T_{amb} \leq 25$ °C | ^[1] | - | 350 | mW |
| | | | ^[2] | - | 575 | mW |
| | | | ^[3] | - | 600 | mW |
| | | | ^[4] | - | 800 | 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 Printed-Circuit-Board (PCB); single-sided copper; tin-plated and standard footprint.

[2] Device mounted on an FR4 Printed-Circuit-Board (PCB); single-sided copper; tin-plated; mounting pad for collector 1 cm².

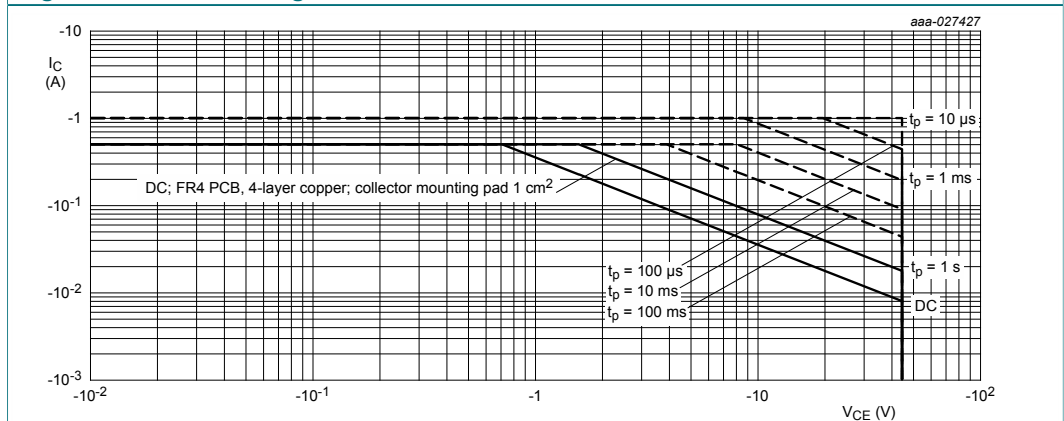
[3] Device mounted on an FR4 Printed-Circuit-Board (PCB); 4-layer copper; tin-plated and standard footprint.

[4] Device mounted on an FR4 Printed-Circuit-Board (PCB); 4-layer copper; tin-plated; mounting pad for collector 1 cm².



- (1) FR4 PCB, 4-layer copper; 1 cm²
- (2) FR4 PCB, 4-layer copper; standard footprint
- (3) FR4 PCB, single-sided copper; 1 cm²
- (4) FR4 PCB, single-sided copper; standard footprint

Figure 1. Power derating curves



FR4 PCB, single-sided copper; standard footprint; single pulse;

T_{amb} = 25 °C

Figure 2. Safe operating area; junction to ambient; continuous and peak collector currents as a function of collector-emitter voltage

6 Thermal characteristics

Table 7. Thermal characteristics

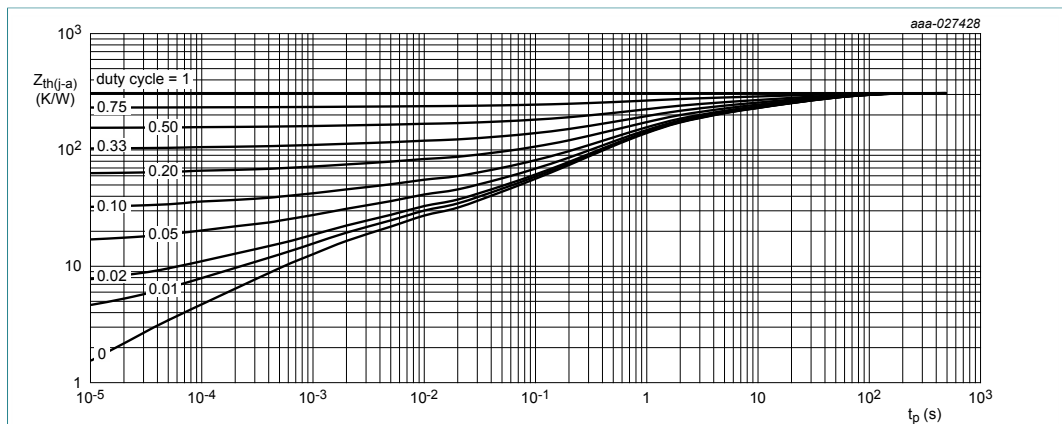
| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|----------------|--|-------------|-----|-----|-----|-----|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | - | 358 | K/W |
| | | | [2] | - | - | 218 | K/W |
| | | | [3] | - | - | 209 | K/W |
| | | | [4] | - | - | 157 | K/W |
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | | - | - | 60 | K/W |

[1] Device mounted on an FR4 PCB; single-sided copper; tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm².

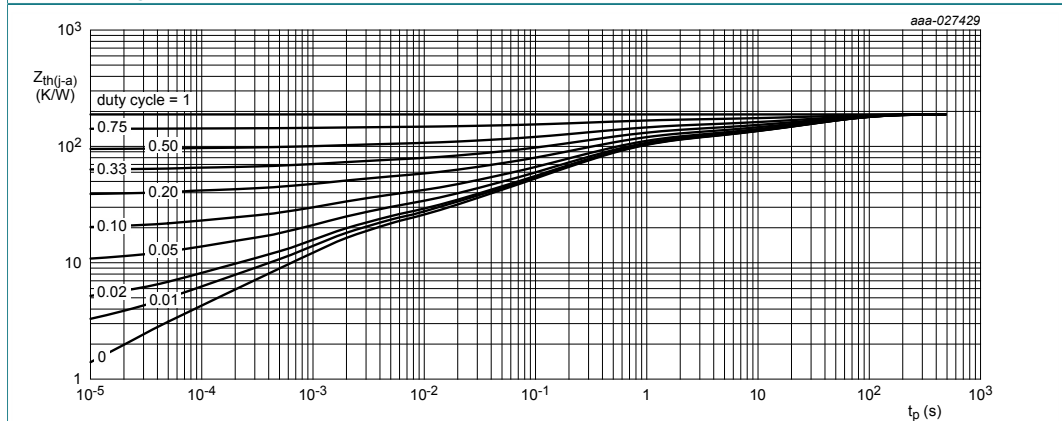
[3] Device mounted on an FR4 PCB; 4-layer copper; tin-plated and standard footprint.

[4] Device mounted on an FR4 PCB; 4-layer copper; tin-plated; mounting pad for collector 1 cm².



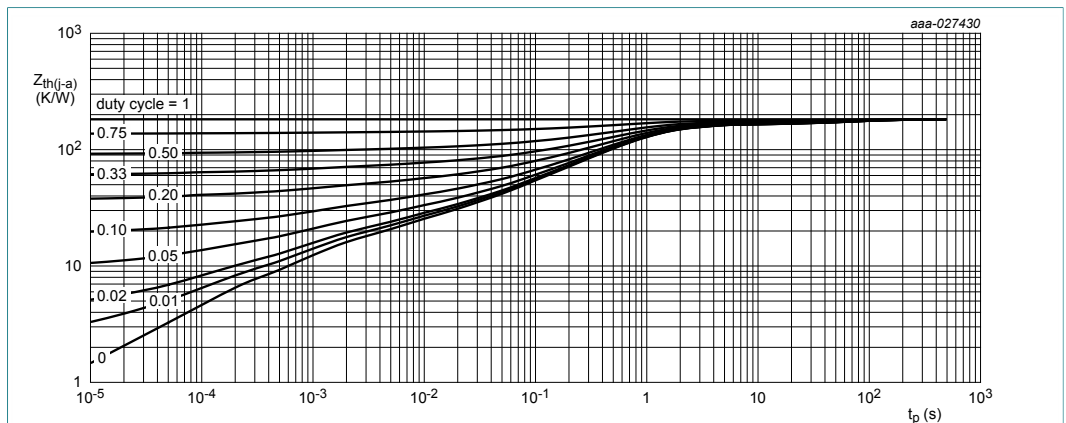
FR4 PCB; single-sided copper; tin-plated and standard footprint

Figure 3. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



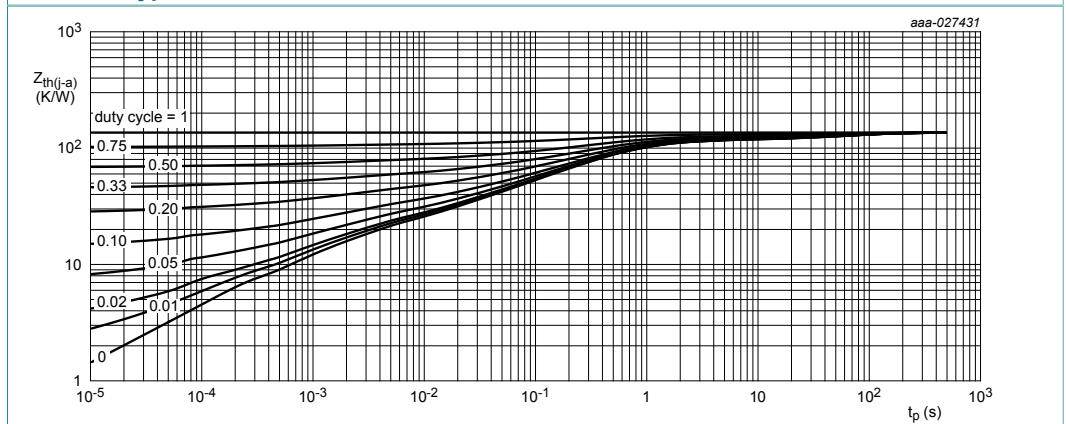
FR4 PCB; single-sided copper; tin-plated; mounting pad for collector 1 cm²

Figure 4. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



FR4 PCB; 4-layer copper; tin plated and standard footprint

Figure 5. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



FR4 PCB; 4-layer copper; tin plated; mounting pad for collector 1 cm^2

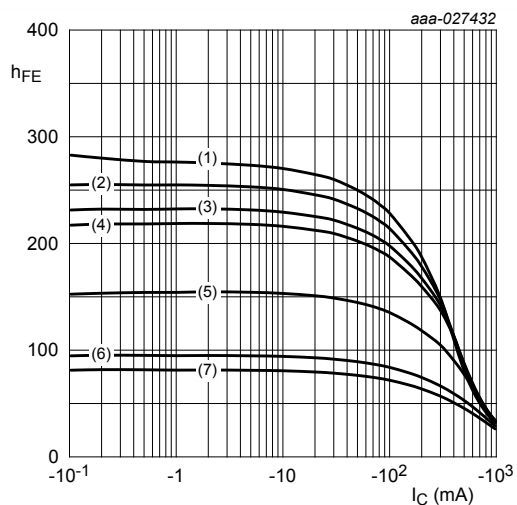
Figure 6. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

7 Characteristics

Table 8. Characteristics
 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|---------------|--------------------------------------|--|-----|-----|------|---------------|-----|
| $V_{(BR)CBO}$ | collector-base breakdown voltage | $I_C = -100\text{ }\mu\text{A}; I_E = 0\text{ A}$ | -50 | - | - | V | |
| $V_{(BR)CEO}$ | collector-emitter breakdown voltage | $I_C = -10\text{ mA}; I_B = 0\text{ A}$ | -45 | - | - | V | |
| $V_{(BR)EBO}$ | emitter-base breakdown voltage | $I_E = -100\text{ }\mu\text{A}; I_C = 0\text{ A}$ | -5 | - | - | V | |
| I_{CBO} | collector-base cut-off current | $V_{CB} = -25\text{ V}; I_E = 0\text{ A}$ | - | - | -100 | nA | |
| | | $V_{CB} = -25\text{ V}; I_E = 0\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$ | - | - | -5 | μA | |
| I_{EBO} | emitter-base cut-off current | $V_{EB} = -5\text{ V}; I_C = 0\text{ A}$ | - | - | -100 | nA | |
| h_{FE} | DC current gain | | | | | | |
| | BC807K-16 | $V_{CE} = -1\text{ V}; I_C = -100\text{ mA}$ | [1] | 100 | - | 250 | |
| | BC807K-25 | $V_{CE} = -1\text{ V}; I_C = -100\text{ mA}$ | [1] | 160 | - | 400 | |
| | BC807K-40 | $V_{CE} = -1\text{ V}; I_C = -100\text{ mA}$ | [1] | 250 | - | 600 | |
| | BC807K-16, -25, -40 | $V_{CE} = -1\text{ V}; I_C = -500\text{ mA}$ | [1] | 40 | - | - | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -500\text{ mA}; I_B = -50\text{ mA}$ | [1] | - | - | -700 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -500\text{ mA}; I_B = -50\text{ mA}$ | [1] | - | - | -1.2 | V |
| V_{BE} | base-emitter voltage | $V_{CE} = -1\text{ V}; I_C = -500\text{ mA}$ | [1] | - | - | -1.2 | V |
| f_T | transition frequency | $V_{CE} = -5\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}$ | 80 | - | - | | MHz |
| C_c | collector capacitance | $V_{CB} = -10\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$ | - | 7 | - | | pF |
| C_e | emitter capacitance | $V_{EB} = -0.5\text{ V}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$ | | | | | |
| | BC807K-16 | | - | 50 | - | | pF |
| | BC807K-25 | | - | 45 | - | | pF |
| | BC807K-40 | | - | 37 | - | | pF |

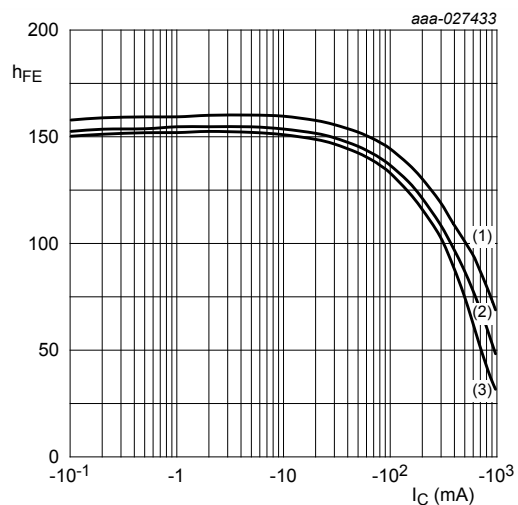
 [1] pulsed; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = 150 \text{ }^\circ\text{C}$
- (2) $T_{amb} = 125 \text{ }^\circ\text{C}$
- (3) $T_{amb} = 100 \text{ }^\circ\text{C}$
- (4) $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5) $T_{amb} = 25 \text{ }^\circ\text{C}$
- (6) $T_{amb} = -40 \text{ }^\circ\text{C}$
- (7) $T_{amb} = -55 \text{ }^\circ\text{C}$

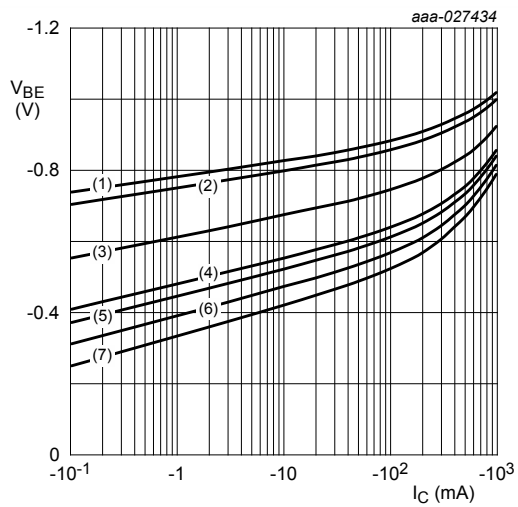
Figure 7. BC807K-16: DC current gain as a function of collector current; typical values



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

- (1) $V_{CE} = -5 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -1 \text{ V}$

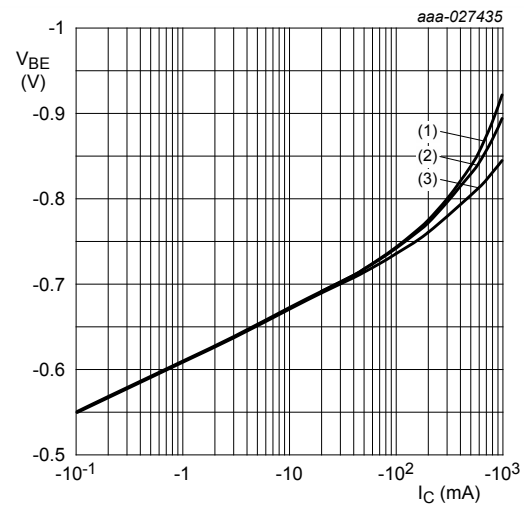
Figure 8. BC807K-16: DC current gain as a function of collector current; typical values



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = -55 \text{ }^\circ\text{C}$
- (2) $T_{amb} = -40 \text{ }^\circ\text{C}$
- (3) $T_{amb} = 25 \text{ }^\circ\text{C}$
- (4) $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5) $T_{amb} = 100 \text{ }^\circ\text{C}$
- (6) $T_{amb} = 125 \text{ }^\circ\text{C}$
- (7) $T_{amb} = 150 \text{ }^\circ\text{C}$

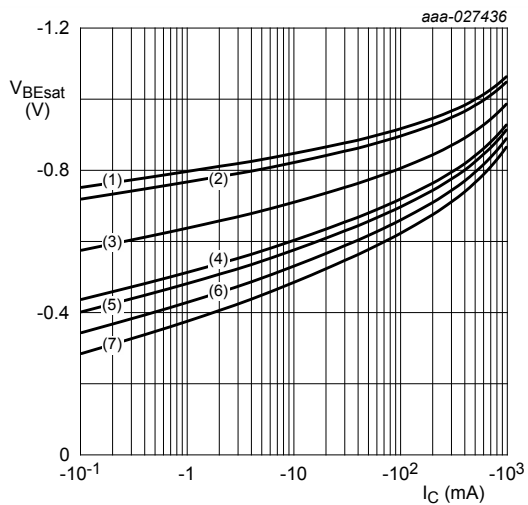
Figure 9. BC807K-16: Base-emitter voltage as a function of collector current; typical values



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

- (1) $V_{CE} = -1 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -5 \text{ V}$

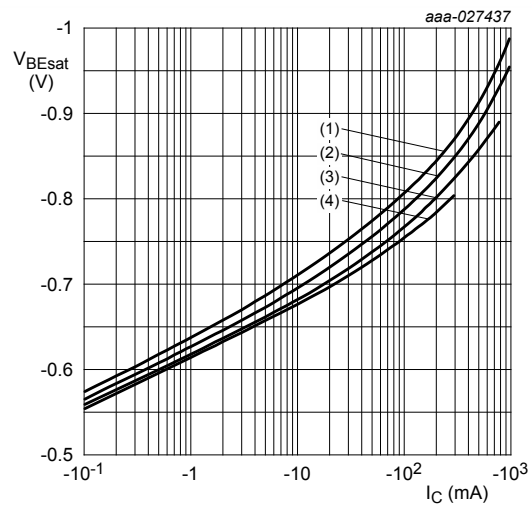
Figure 10. BC807K-16: Base-emitter voltage as a function of collector current; typical values



$I_C/I_B = 10$

- (1) $T_{amb} = -55\text{ °C}$
- (2) $T_{amb} = -40\text{ °C}$
- (3) $T_{amb} = 25\text{ °C}$
- (4) $T_{amb} = 85\text{ °C}$
- (5) $T_{amb} = 100\text{ °C}$
- (6) $T_{amb} = 125\text{ °C}$
- (7) $T_{amb} = 150\text{ °C}$

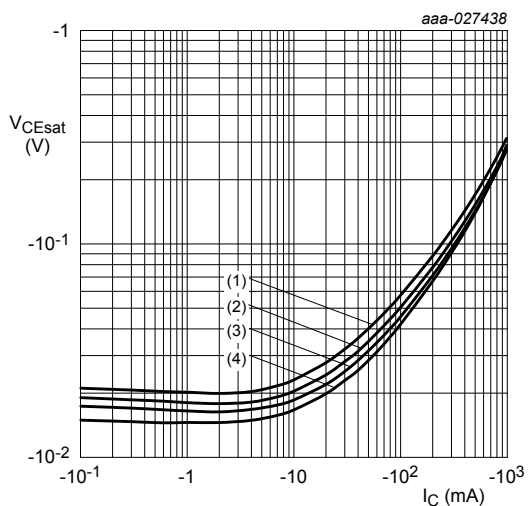
Figure 11. BC807K-16: Base-emitter saturation voltage as a function of collector current; typical values



$T_{amb} = 25\text{ °C}$

- (1) $I_C/I_B = 10$
- (2) $I_C/I_B = 20$
- (3) $I_C/I_B = 50$
- (4) $I_C/I_B = 100$

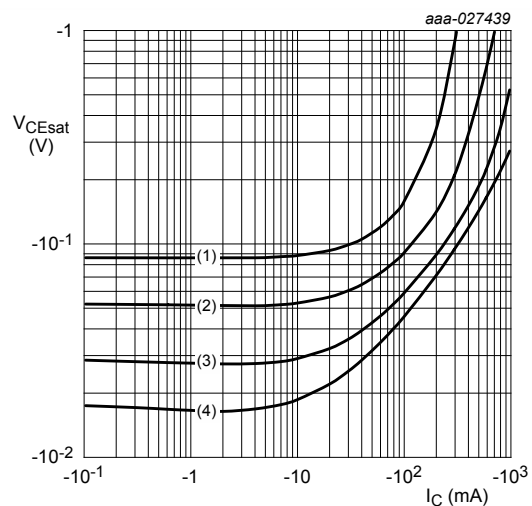
Figure 12. BC807K-16: Base-emitter saturation voltage as a function of collector current; typical values



$I_C/I_B = 10$

- (1) $T_{amb} = 150\text{ °C}$
- (2) $T_{amb} = 85\text{ °C}$
- (3) $T_{amb} = 25\text{ °C}$
- (4) $T_{amb} = -40\text{ °C}$

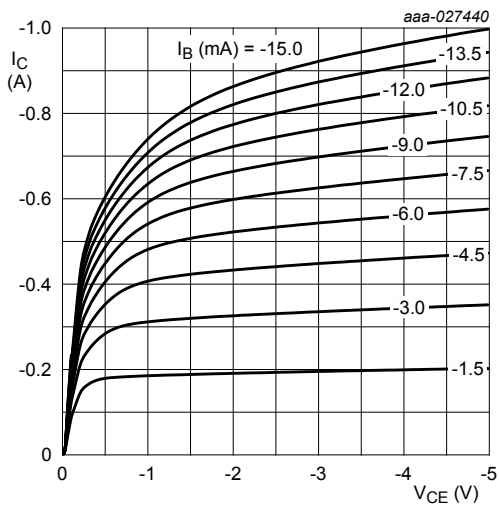
Figure 13. BC807K-16: Collector-emitter saturation voltage as a function of collector current; typical values



$T_{amb} = 25\text{ °C}$

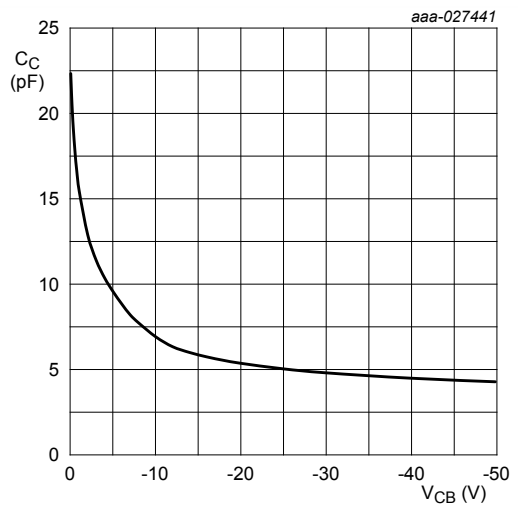
- (1) $I_C/I_B = 100$
- (2) $I_C/I_B = 50$
- (3) $I_C/I_B = 20$
- (4) $I_C/I_B = 10$

Figure 14. BC807K-16: Collector-emitter saturation voltage as a function of collector current; typical values



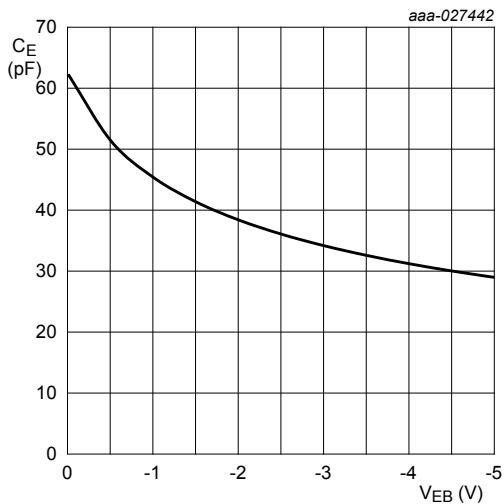
$T_{amb} = 25\text{ }^\circ\text{C}$

Figure 15. BC807K-16: Collector current as a function of collector-emitter voltage; typical values



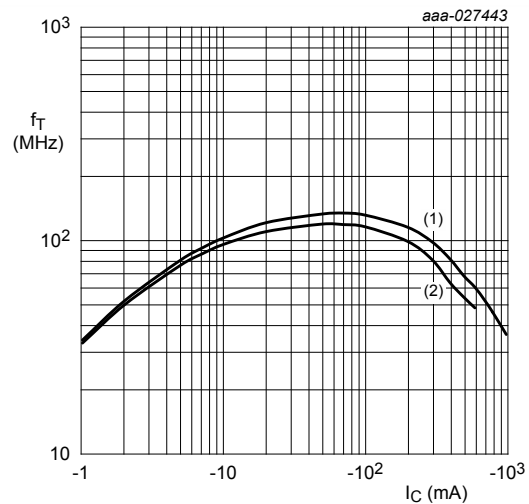
$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

Figure 16. BC807K-16: Collector capacitance as a function of collector-base voltage; typical values



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

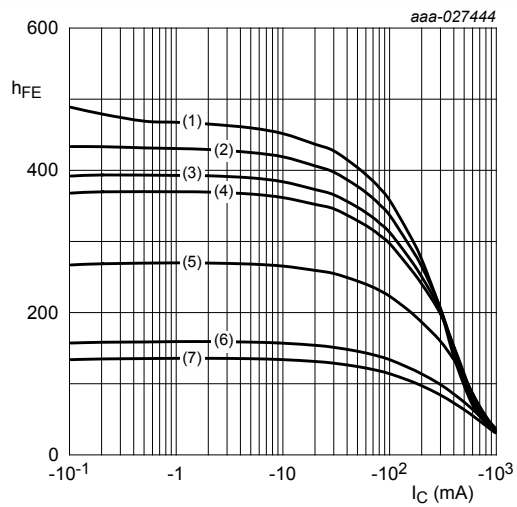
Figure 17. BC807K-16: Emitter capacitance as a function of emitter-base voltage; typical values



$f = 100\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

- (1) $V_{CE} = -5\text{ V}$
- (2) $V_{CE} = -1\text{ V}$

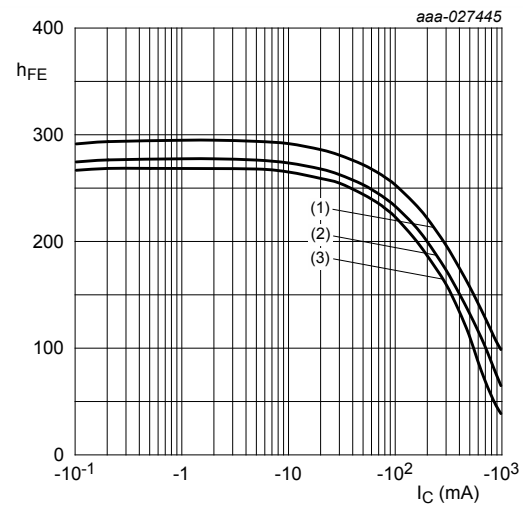
Figure 18. BC807K-16: Transition frequency as a function of collector current voltage; typical values



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = 150 \text{ }^\circ\text{C}$
- (2) $T_{amb} = 125 \text{ }^\circ\text{C}$
- (3) $T_{amb} = 100 \text{ }^\circ\text{C}$
- (4) $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5) $T_{amb} = 25 \text{ }^\circ\text{C}$
- (6) $T_{amb} = -40 \text{ }^\circ\text{C}$
- (7) $T_{amb} = -55 \text{ }^\circ\text{C}$

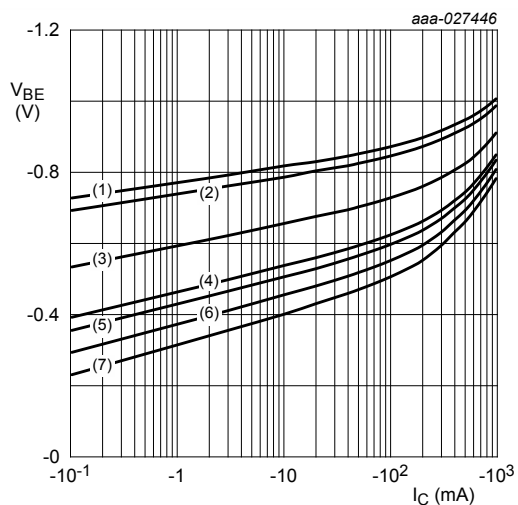
Figure 19. BC807K-25: DC current gain as a function of collector current; typical values



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

- (1) $V_{CE} = -5 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -1 \text{ V}$

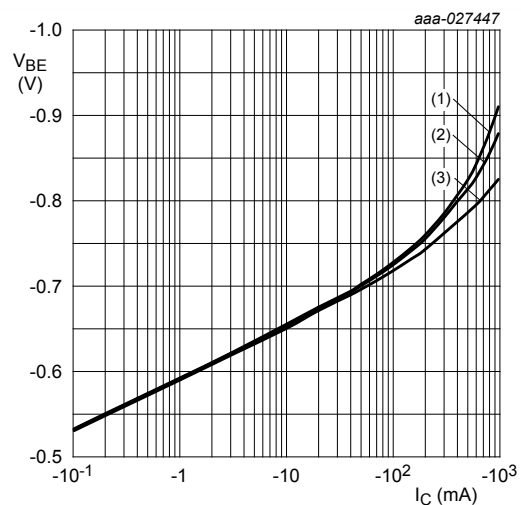
Figure 20. BC807K-25: DC current gain as a function of collector current; typical values



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = -55 \text{ }^\circ\text{C}$
- (2) $T_{amb} = -40 \text{ }^\circ\text{C}$
- (3) $T_{amb} = 25 \text{ }^\circ\text{C}$
- (4) $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5) $T_{amb} = 100 \text{ }^\circ\text{C}$
- (6) $T_{amb} = 125 \text{ }^\circ\text{C}$
- (7) $T_{amb} = 150 \text{ }^\circ\text{C}$

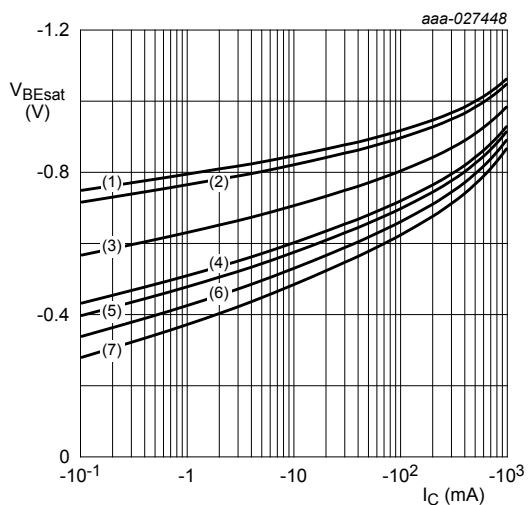
Figure 21. BC807K-25: Base-emitter voltage as a function of collector current; typical values



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

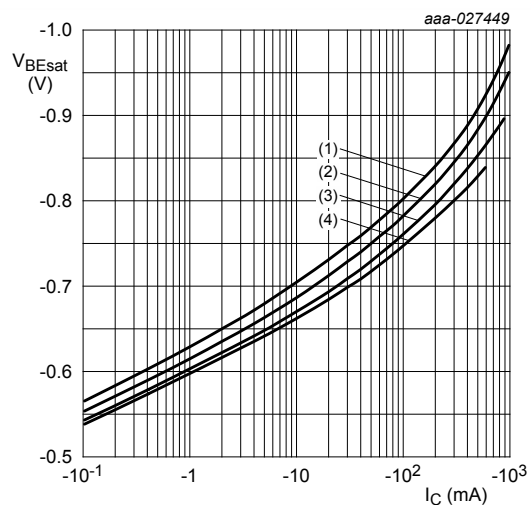
- (1) $V_{CE} = -1 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -5 \text{ V}$

Figure 22. BC807K-25: Base-emitter voltage as a function of collector current; typical values


 $I_C/I_B = 10$

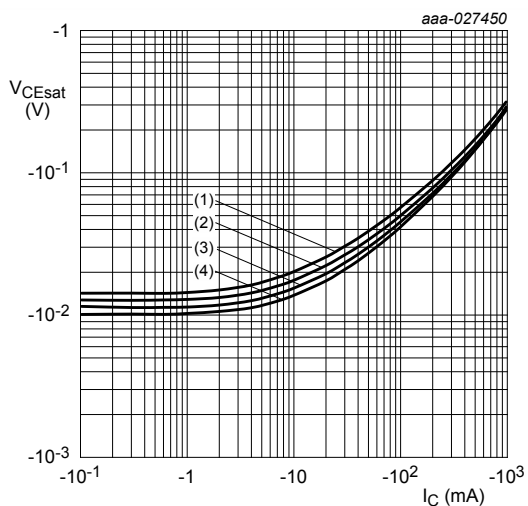
- (1) $T_{amb} = -55\text{ °C}$
- (2) $T_{amb} = -40\text{ °C}$
- (3) $T_{amb} = 25\text{ °C}$
- (4) $T_{amb} = 85\text{ °C}$
- (5) $T_{amb} = 100\text{ °C}$
- (6) $T_{amb} = 125\text{ °C}$
- (7) $T_{amb} = 150\text{ °C}$

Figure 23. BC807K-25: Base-emitter saturation voltage as a function of collector current; typical values


 $T_{amb} = 25\text{ °C}$

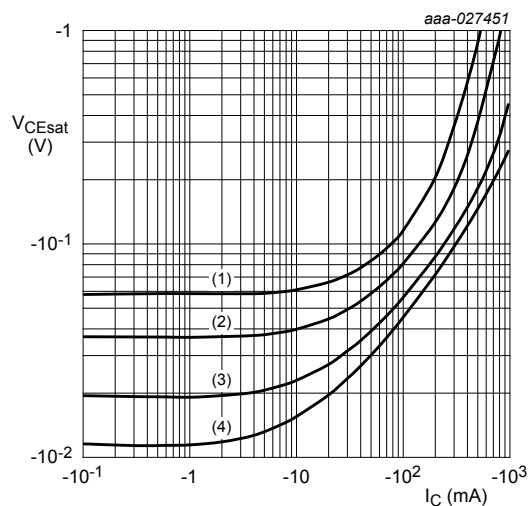
- (1) $I_C/I_B = 10$
- (2) $I_C/I_B = 20$
- (3) $I_C/I_B = 50$
- (4) $I_C/I_B = 100$

Figure 24. BC807K-25: Base-emitter saturation voltage as a function of collector current; typical values


 $I_C/I_B = 10$

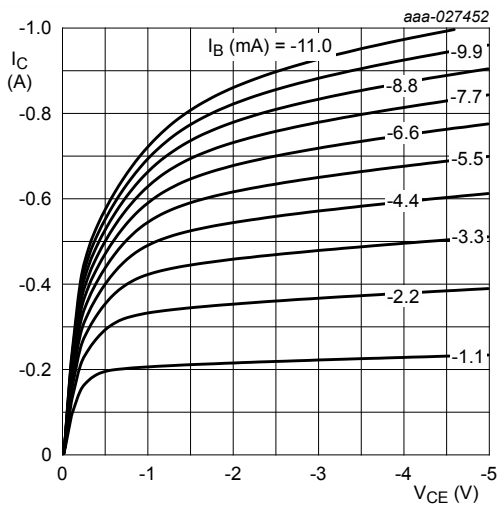
- (1) $T_{amb} = 150\text{ °C}$
- (2) $T_{amb} = 85\text{ °C}$
- (3) $T_{amb} = 25\text{ °C}$
- (4) $T_{amb} = -40\text{ °C}$

Figure 25. BC807K-25: Collector-emitter saturation voltage as a function of collector current; typical values


 $T_{amb} = 25\text{ °C}$

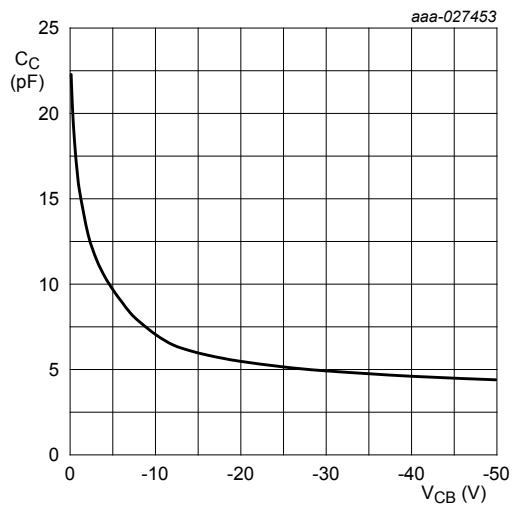
- (1) $I_C/I_B = 100$
- (2) $I_C/I_B = 50$
- (3) $I_C/I_B = 20$
- (4) $I_C/I_B = 10$

Figure 26. BC807K-25: Collector-emitter saturation voltage as a function of collector current; typical values



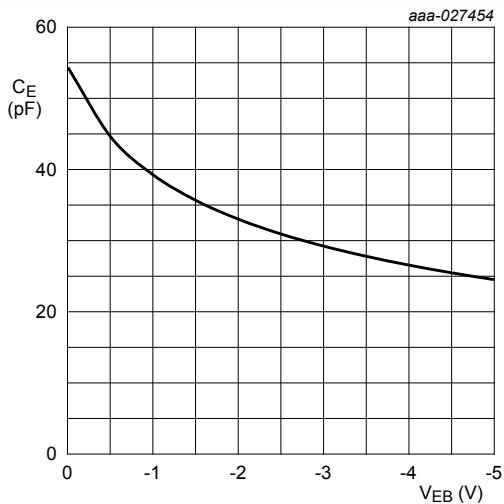
$T_{amb} = 25\text{ }^\circ\text{C}$

Figure 27. BC807K-25: Collector current as a function of collector-emitter voltage; typical values



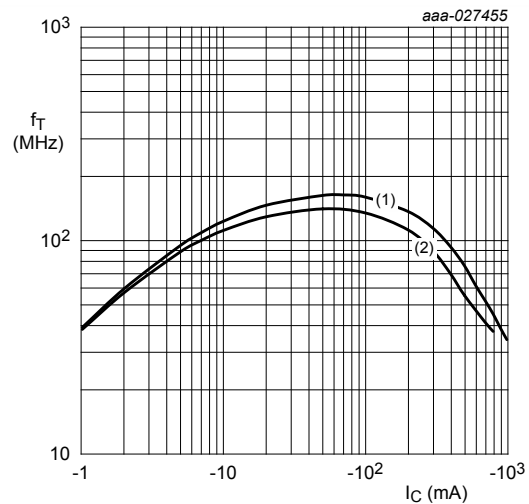
$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

Figure 28. BC807K-25: Collector capacitance as a function of collector-base voltage; typical values



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

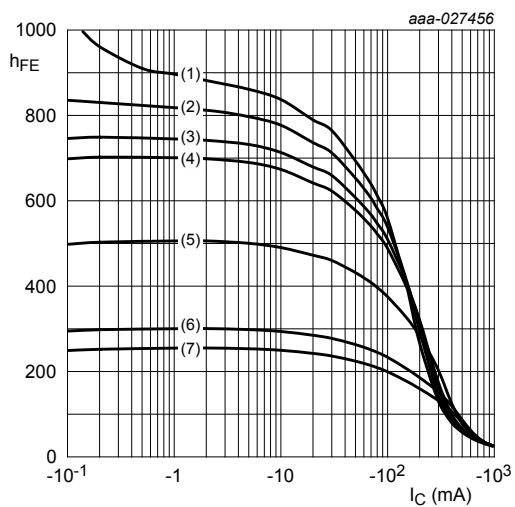
Figure 29. BC807K-25: Emitter capacitance as a function of emitter-base voltage; typical values



$f = 100\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C}$

- (1) $V_{CE} = -5\text{ V}$
- (2) $V_{CE} = -1\text{ V}$

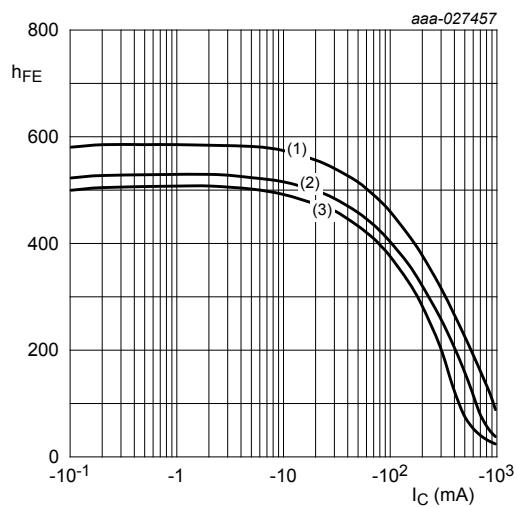
Figure 30. BC807K-25: Transition frequency as a function of collector current voltage; typical values



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = 150 \text{ }^{\circ}\text{C}$
- (2) $T_{amb} = 125 \text{ }^{\circ}\text{C}$
- (3) $T_{amb} = 100 \text{ }^{\circ}\text{C}$
- (4) $T_{amb} = 85 \text{ }^{\circ}\text{C}$
- (5) $T_{amb} = 25 \text{ }^{\circ}\text{C}$
- (6) $T_{amb} = -40 \text{ }^{\circ}\text{C}$
- (7) $T_{amb} = -55 \text{ }^{\circ}\text{C}$

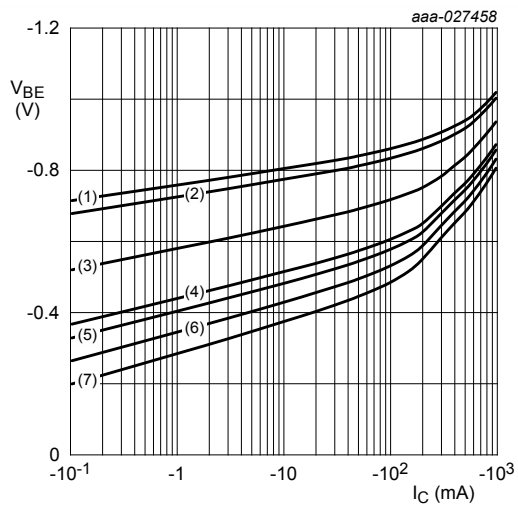
Figure 31. BC807K-40: DC current gain as a function of collector current; typical values



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

- (1) $V_{CE} = -5 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -1 \text{ V}$

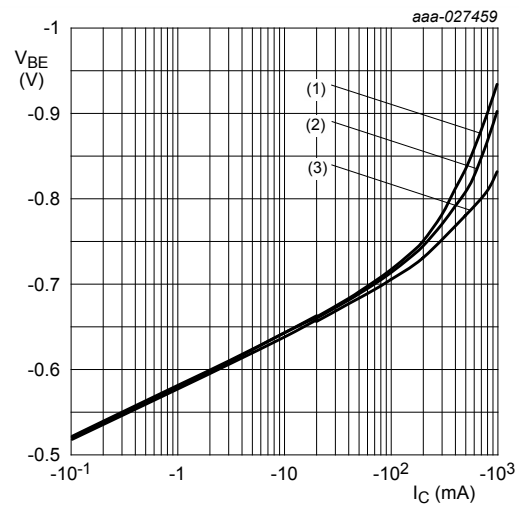
Figure 32. BC807K-40: DC current gain as a function of collector current; typical values



$V_{CE} = -1 \text{ V}$

- (1) $T_{amb} = -55 \text{ }^\circ\text{C}$
- (2) $T_{amb} = -40 \text{ }^\circ\text{C}$
- (3) $T_{amb} = 25 \text{ }^\circ\text{C}$
- (4) $T_{amb} = 85 \text{ }^\circ\text{C}$
- (5) $T_{amb} = 100 \text{ }^\circ\text{C}$
- (6) $T_{amb} = 125 \text{ }^\circ\text{C}$
- (7) $T_{amb} = 150 \text{ }^\circ\text{C}$

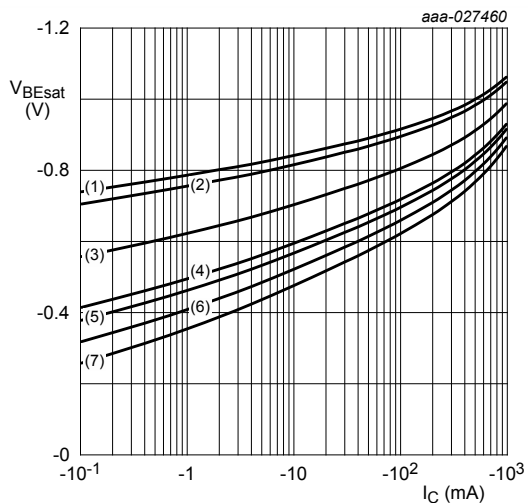
Figure 33. BC807K-40: Base-emitter voltage as a function of collector current; typical values



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

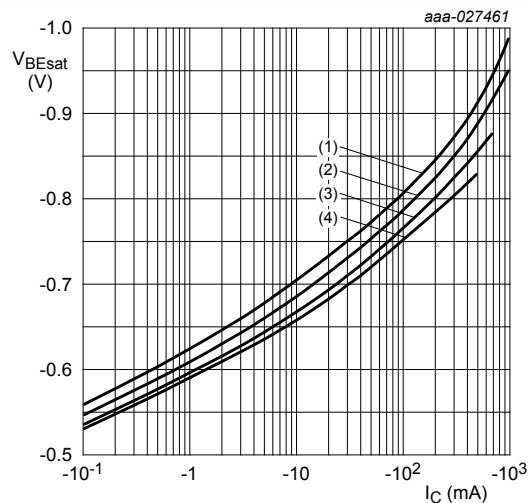
- (1) $V_{CE} = -1 \text{ V}$
- (2) $V_{CE} = -2 \text{ V}$
- (3) $V_{CE} = -5 \text{ V}$

Figure 34. BC807K-40: Base-emitter voltage as a function of collector current; typical values



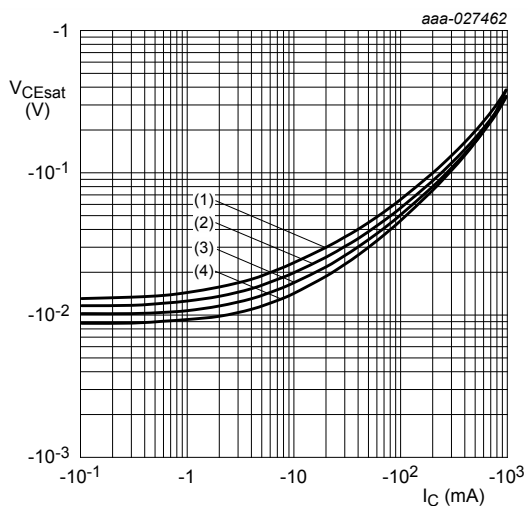
- $I_C/I_B = 10$
- (1) $T_{amb} = -55\text{ }^\circ\text{C}$
 - (2) $T_{amb} = -40\text{ }^\circ\text{C}$
 - (3) $T_{amb} = 25\text{ }^\circ\text{C}$
 - (4) $T_{amb} = 85\text{ }^\circ\text{C}$
 - (5) $T_{amb} = 100\text{ }^\circ\text{C}$
 - (6) $T_{amb} = 125\text{ }^\circ\text{C}$
 - (7) $T_{amb} = 150\text{ }^\circ\text{C}$

Figure 35. BC807K-40: Base-emitter saturation voltage as a function of collector current; typical values



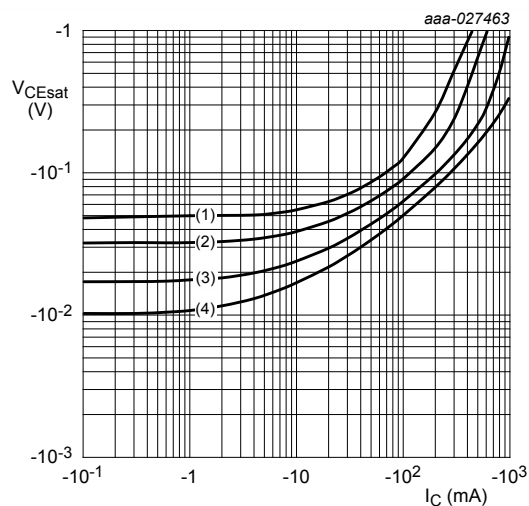
- $T_{amb} = 25\text{ }^\circ\text{C}$
- (1) $I_C/I_B = 10$
 - (2) $I_C/I_B = 20$
 - (3) $I_C/I_B = 50$
 - (4) $I_C/I_B = 100$

Figure 36. BC807K-40: Base-emitter saturation voltage as a function of collector current; typical values



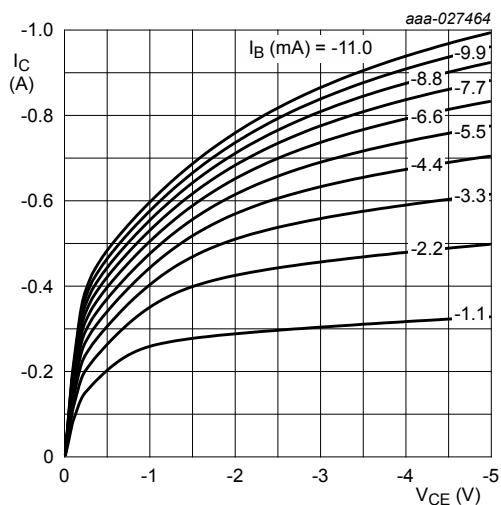
- $I_C/I_B = 10$
- (1) $T_{amb} = 150\text{ }^\circ\text{C}$
 - (2) $T_{amb} = 85\text{ }^\circ\text{C}$
 - (3) $T_{amb} = 25\text{ }^\circ\text{C}$
 - (4) $T_{amb} = -40\text{ }^\circ\text{C}$

Figure 37. BC807K-40: Collector-emitter saturation voltage as a function of collector current; typical values



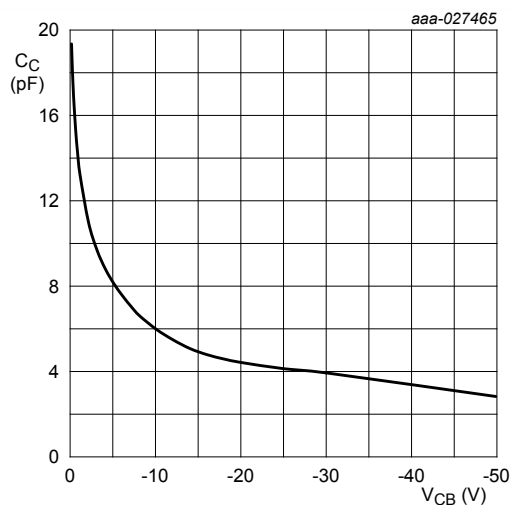
- $T_{amb} = 25\text{ }^\circ\text{C}$
- (1) $I_C/I_B = 100$
 - (2) $I_C/I_B = 50$
 - (3) $I_C/I_B = 20$
 - (4) $I_C/I_B = 10$

Figure 38. BC807K-40: Collector-emitter saturation voltage as a function of collector current; typical values



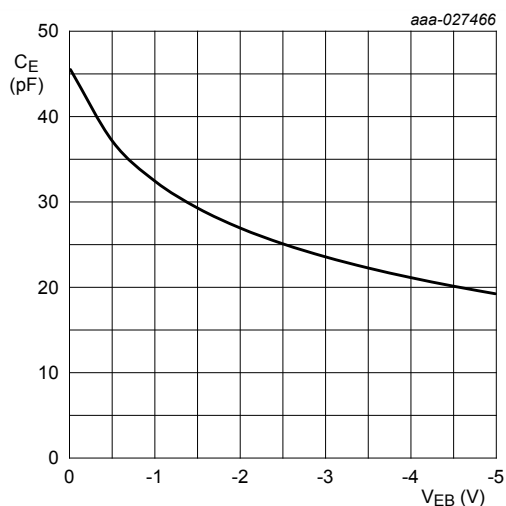
$T_{amb} = 25\text{ }^{\circ}\text{C}$

Figure 39. BC807K-40: Collector current as a function of collector-emitter voltage; typical values



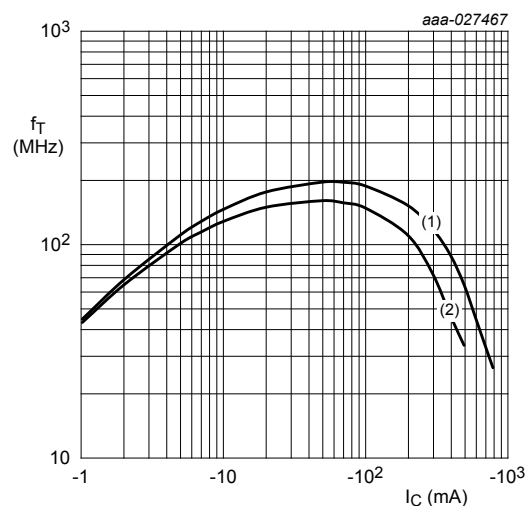
$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

Figure 40. BC807K-40: Collector capacitance as a function of collector-base voltage; typical values



$f = 1\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

Figure 41. BC807K-40: Emitter capacitance as a function of emitter-base voltage; typical values



$f = 100\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$

(1) $V_{CE} = -5\text{ V}$

(2) $V_{CE} = -1\text{ V}$

Figure 42. BC807K-40: Transition frequency as a function of collector current voltage; typical values

8 Test information

8.1 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.

9 Package outline

Table 9. Package outline

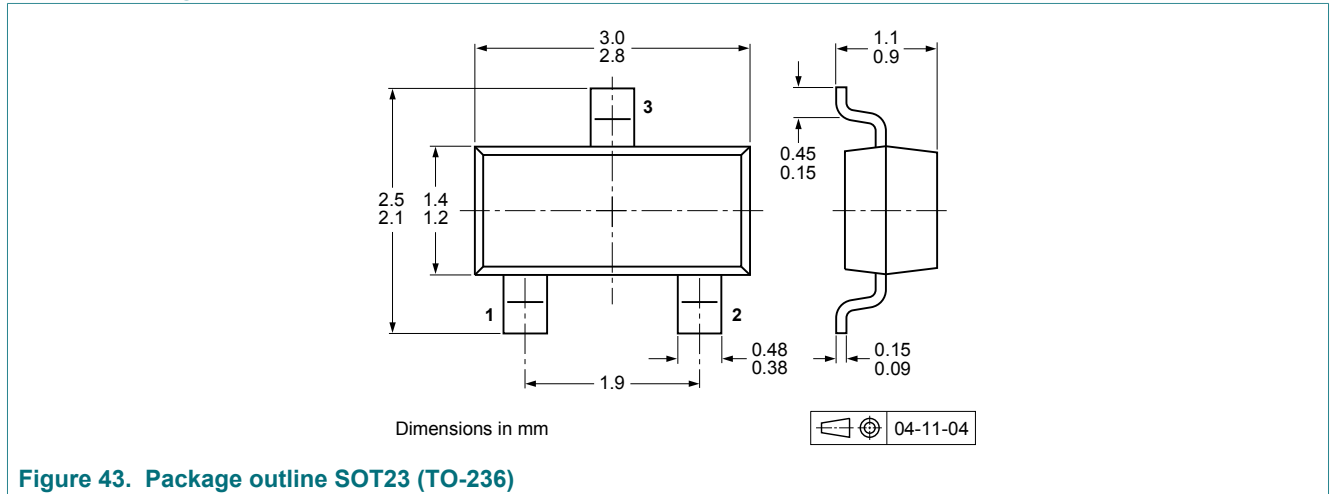


Figure 43. Package outline SOT23 (TO-236)

10 Soldering

Table 10. Soldering

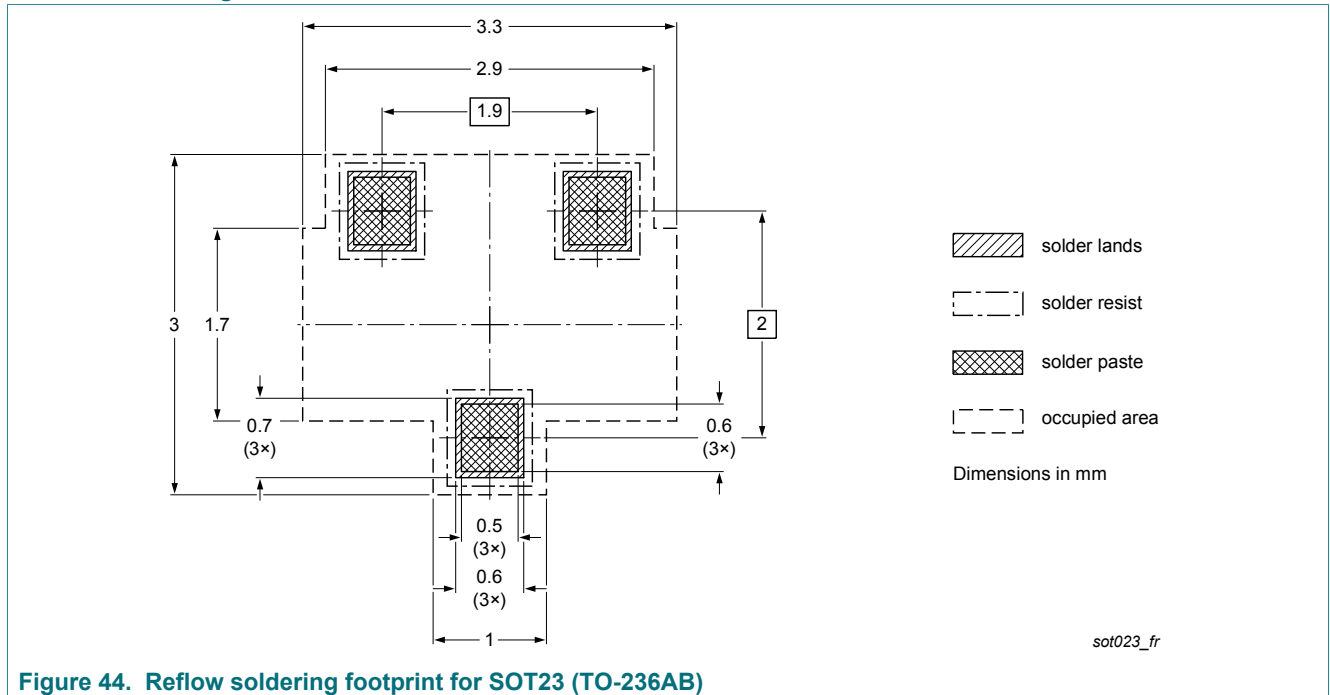
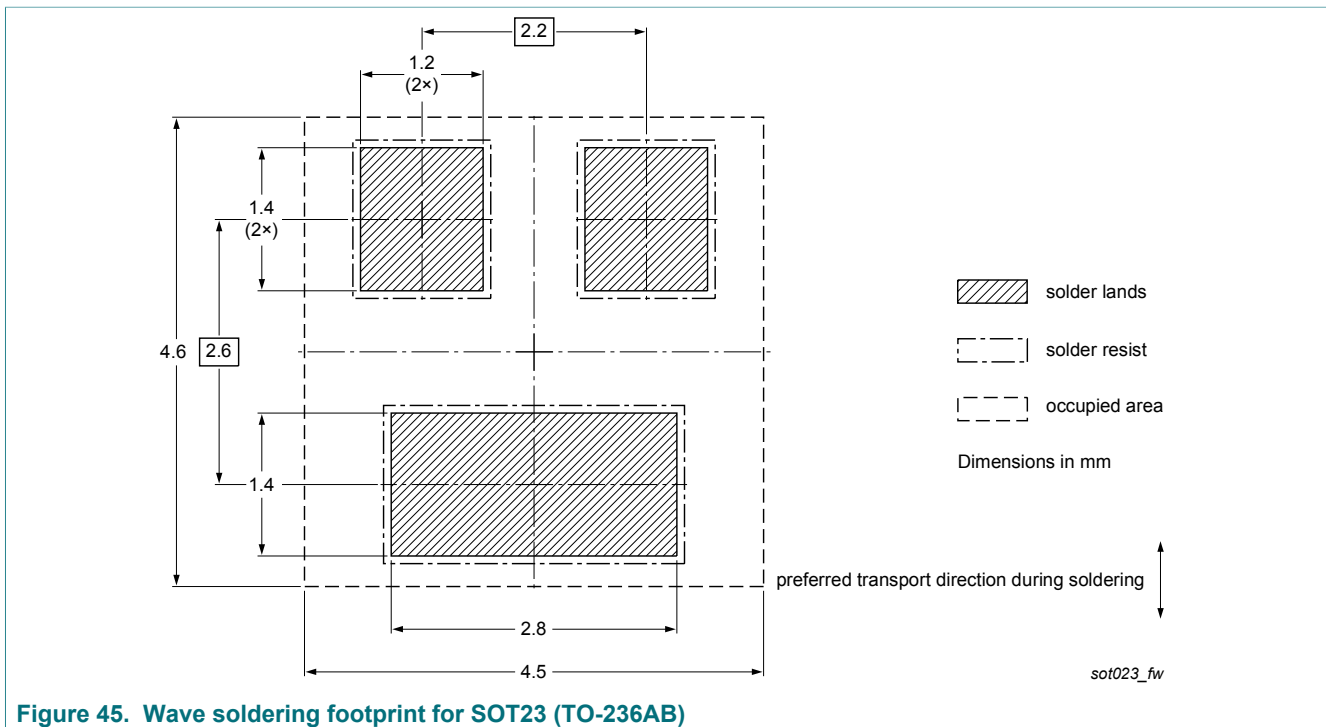


Figure 44. Reflow soldering footprint for SOT23 (TO-236AB)



11 Revision history

Table 11. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|----------------|--|--------------------|---------------|---------------|
| BC807K_SER v.2 | 20180424 | Product data sheet | - | BC807_SER v.1 |
| Modifications: | • Characteristics: Figures are updated | | | |
| BC807_SER v.1 | 20171108 | Product data sheet | - | - |

12 Legal information

12.1 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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nexperia.com>.

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For sales office addresses, please send an email to: salesaddresses@nexperia.com

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