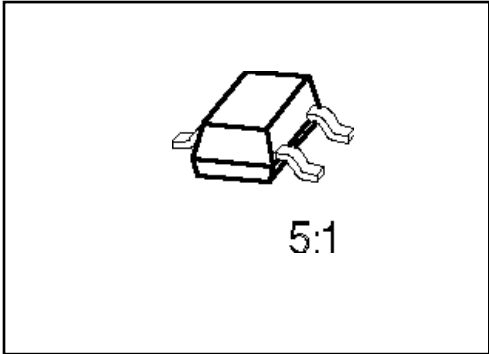


## PNP Silicon AF Transistors

**BC 807**  
**BC 808**

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC 817, BC 818 (NPN)



| Type      | Marking | Ordering Code | Pin Configuration |   |   | Package <sup>1)</sup> |
|-----------|---------|---------------|-------------------|---|---|-----------------------|
|           |         |               | 1                 | 2 | 3 |                       |
| BC 807-16 | 5As     | Q62702-C1735  | B                 | E | C | SOT-23                |
| BC 807-25 | 5Bs     | Q62702-C1689  |                   |   |   |                       |
| BC 807-40 | 5Cs     | Q62702-C1721  |                   |   |   |                       |
| BC 808-16 | 5Es     | Q62702-C1736  |                   |   |   |                       |
| BC 808-25 | 5Fs     | Q62702-C1504  |                   |   |   |                       |
| BC 808-40 | 5Gs     | Q62702-C1692  |                   |   |   |                       |

<sup>1)</sup> For detailed information see chapter Package Outlines.

## Maximum Ratings

| Parameter                                                   | Symbol           | Values         |        | Unit               |
|-------------------------------------------------------------|------------------|----------------|--------|--------------------|
|                                                             |                  | BC 807         | BC 808 |                    |
| Collector-emitter voltage                                   | $V_{CE0}$        | 45             | 25     | V                  |
| Collector-base voltage                                      | $V_{CB0}$        | 50             | 30     |                    |
| Emitter-base voltage                                        | $V_{EB0}$        | 5              | 5      |                    |
| Collector current                                           | $I_C$            | 500            |        | mA                 |
| Peak collector current                                      | $I_{CM}$         | 1              |        | A                  |
| Base current                                                | $I_B$            | 100            |        | mA                 |
| Peak base current                                           | $I_{BM}$         | 200            |        |                    |
| Total power dissipation, $T_C = 79\text{ }^{\circ}\text{C}$ | $P_{\text{tot}}$ | 330            |        | mW                 |
| Junction temperature                                        | $T_j$            | 150            |        | $^{\circ}\text{C}$ |
| Storage temperature range                                   | $T_{\text{stg}}$ | − 65 ... + 150 |        |                    |

## Thermal Resistance

|                                  |              |       |     |
|----------------------------------|--------------|-------|-----|
| Junction - ambient <sup>1)</sup> | $R_{th\ JA}$ | ≤ 285 | K/W |
| Junction - soldering point       | $R_{th\ JS}$ | ≤ 215 |     |

<sup>1)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

## Electrical Characteristics

at  $T_A = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified.

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

### DC characteristics

|                                                                                                                    |               |     |     |     |               |
|--------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|---------------|
| Collector-emitter breakdown voltage<br>$I_C = 10\text{ mA}$                                                        | $V_{(BR)CE0}$ |     |     |     | V             |
| BC 807                                                                                                             |               | 45  | —   | —   |               |
| BC 808                                                                                                             |               | 25  | —   | —   |               |
| Collector-base breakdown voltage<br>$I_C = 100\text{ }\mu\text{A}$                                                 | $V_{(BR)CB0}$ |     |     |     |               |
| BC 807                                                                                                             |               | 50  | —   | —   |               |
| BC 808                                                                                                             |               | 30  | —   | —   |               |
| Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$                                                      | $V_{(BR)EB0}$ | 5   | —   | —   |               |
| Collector cutoff current<br>$V_{CB} = 25\text{ V}$<br>$V_{CB} = 25\text{ V}$ , $T_A = 150\text{ }^{\circ}\text{C}$ | $I_{CB0}$     | —   | —   | 100 | nA            |
|                                                                                                                    |               | —   | —   | 5   | $\mu\text{A}$ |
| Emitter cutoff current, $V_{EB} = 4\text{ V}$                                                                      | $I_{EB0}$     | —   | —   | 100 | nA            |
| DC current gain <sup>1)</sup><br>$I_C = 100\text{ mA}$ ; $V_{CE} = 1\text{ V}$                                     | $h_{FE}$      |     |     |     | —             |
| BC 807-16, BC 808-16                                                                                               |               | 100 | 160 | 250 |               |
| BC 807-25, BC 808-25                                                                                               |               | 160 | 250 | 400 |               |
| BC 807-40, BC 808-40                                                                                               |               | 250 | 350 | 630 |               |
| $I_C = 300\text{ mA}$ ; $V_{CE} = 1\text{ V}$                                                                      |               |     |     |     |               |
| BC 807-16, BC 808-16                                                                                               |               | 60  | —   | —   |               |
| BC 807-25, BC 808-25                                                                                               |               | 100 | —   | —   |               |
| BC 807-40, BC 808-40                                                                                               |               | 170 | —   | —   |               |
| Collector-emitter saturation voltage <sup>1)</sup><br>$I_C = 500\text{ mA}$ ; $I_B = 50\text{ mA}$                 | $V_{CEsat}$   | —   | —   | 0.7 | V             |
| Base-emitter saturation voltage <sup>1)</sup><br>$I_C = 500\text{ mA}$ ; $I_B = 50\text{ mA}$                      | $V_{BEsat}$   | —   | —   | 2   |               |

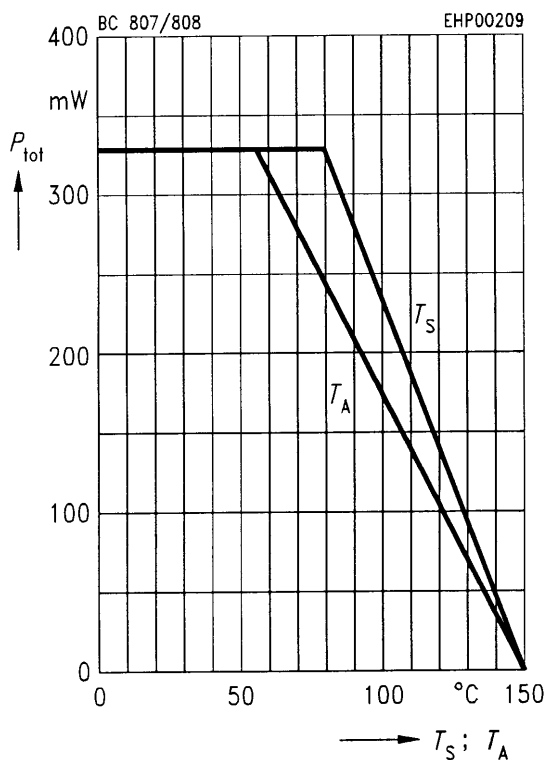
### AC characteristics

|                                                                                            |           |   |     |   |     |
|--------------------------------------------------------------------------------------------|-----------|---|-----|---|-----|
| Transition frequency<br>$I_C = 50\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 20\text{ MHz}$ | $f_T$     | — | 200 | — | MHz |
| Output capacitance<br>$V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$                          | $C_{obo}$ | — | 10  | — | pF  |
| Input capacitance<br>$V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$                          | $C_{ibo}$ | — | 60  | — |     |

<sup>1)</sup> Pulse test:  $t \leq 300\text{ }\mu\text{s}$ ,  $D \leq 2\text{ }\%$ .

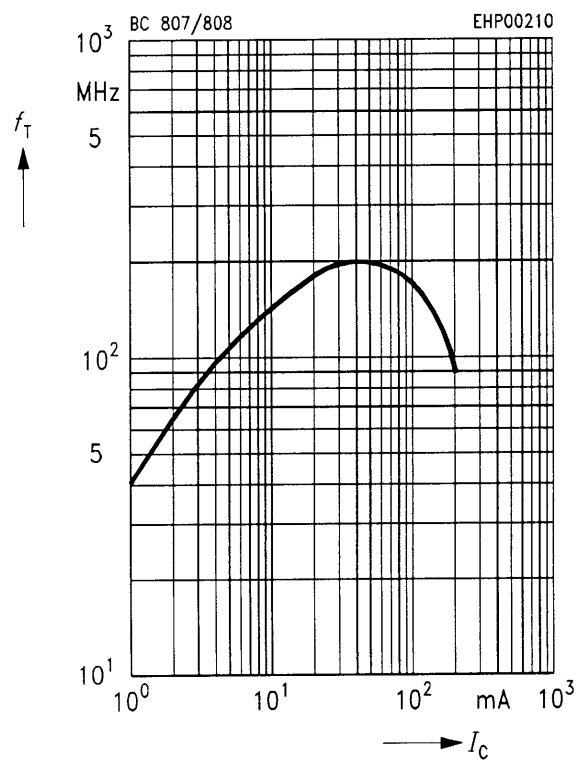
## Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

\* Package mounted on epoxy



## Transition frequency $f_T = f(I_C)$

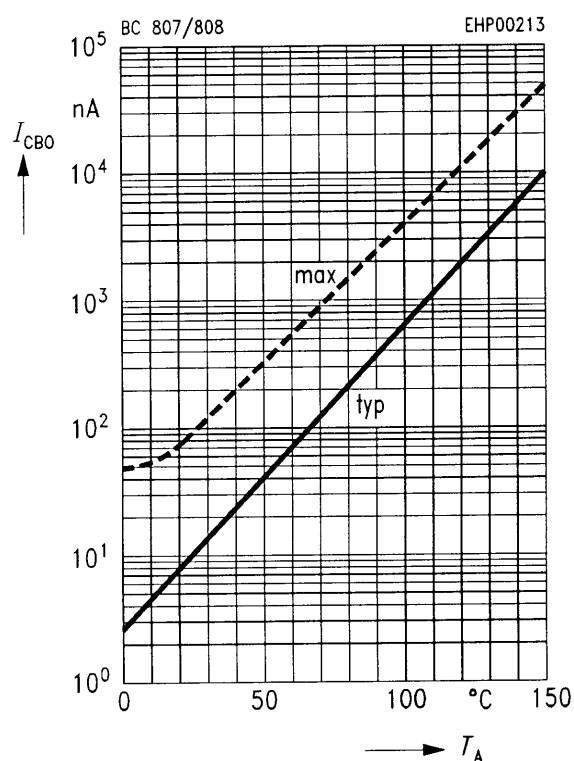
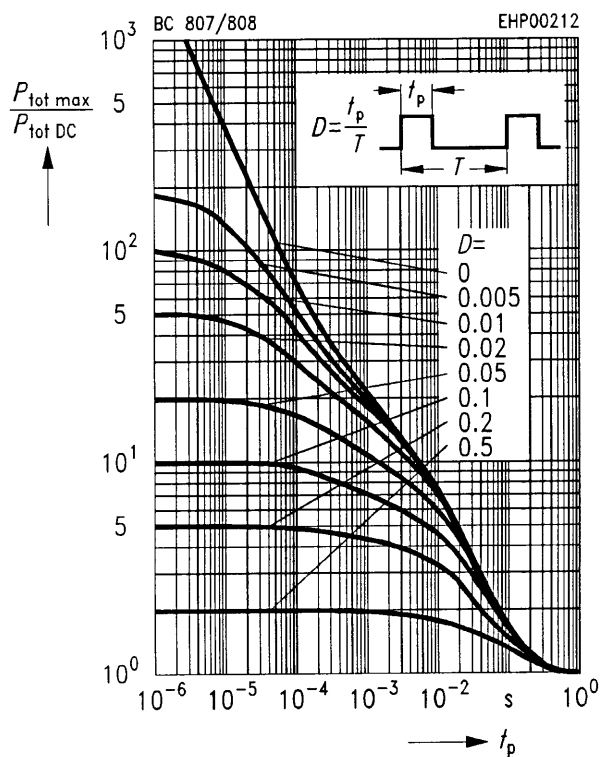
$V_{CE} = 5 \text{ V}$



## Permissible pulse load $P_{\text{tot max}}/P_{\text{tot DC}} = f(t_p)$

## Collector cutoff current $I_{CB0} = f(T_A)$

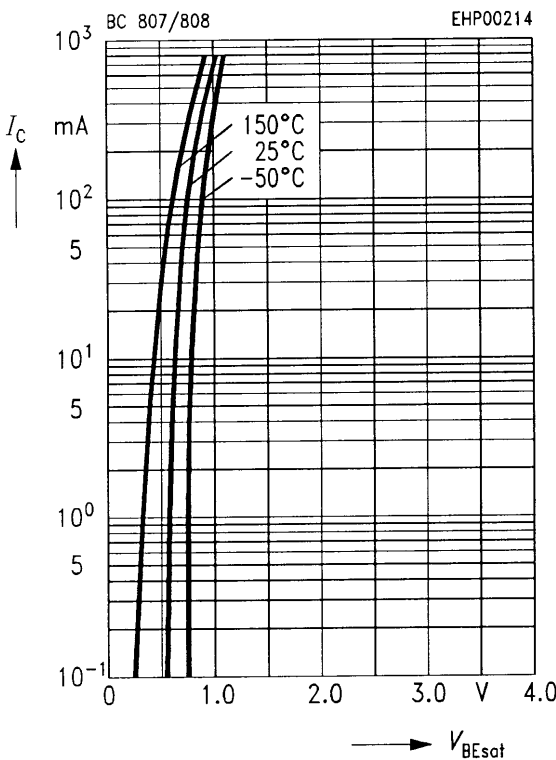
$V_{CB0} = 60 \text{ V}$



Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

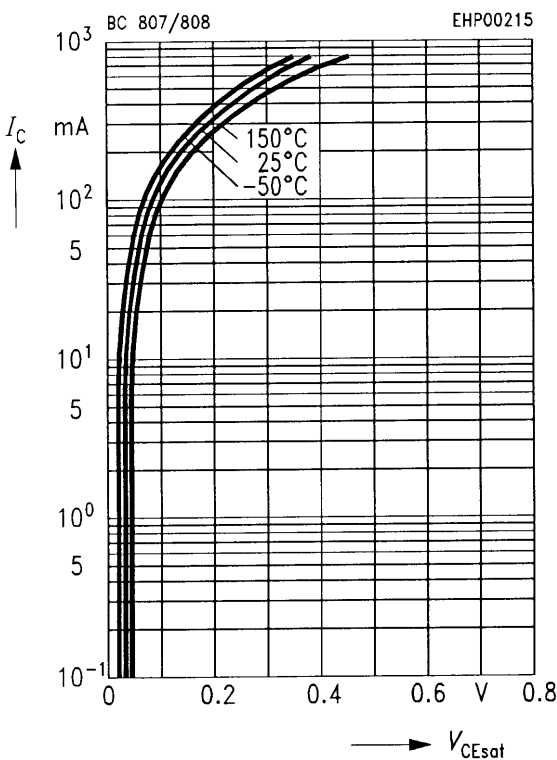
$h_{FE} = 10$



Collector-emitter saturation voltage

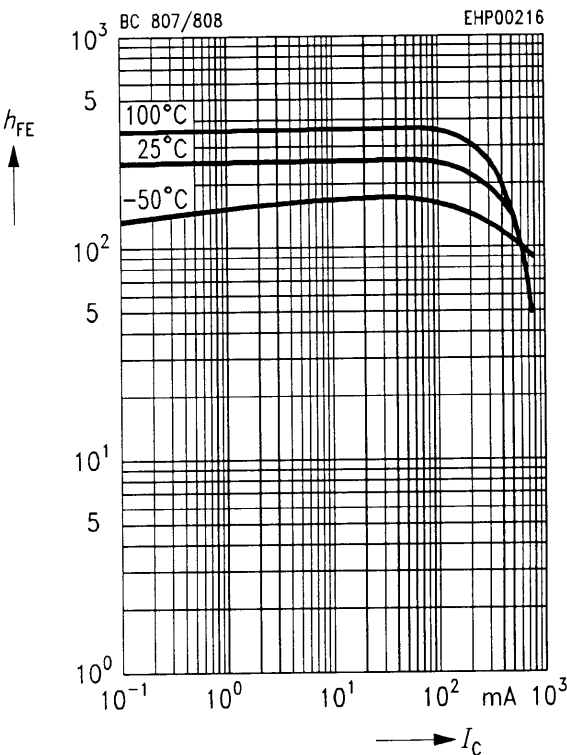
$I_C = f(V_{CEsat})$

$h_{FE} = 10$



DC current gain  $h_{FE} = f(I_C)$

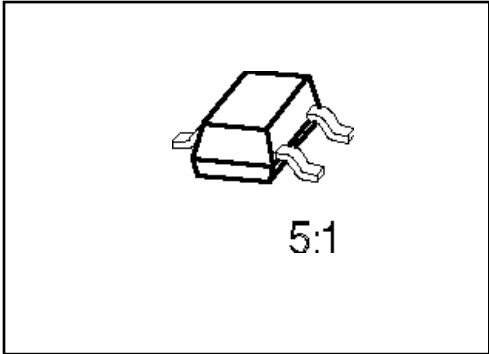
$V_{CE} = 1$  V



## NPN Silicon AF Transistors

**BC 817**  
**BC 818**

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC 807, BC 808 (PNP)



| Type      | Marking | Ordering Code | Pin Configuration |   |   | Package <sup>1)</sup> |
|-----------|---------|---------------|-------------------|---|---|-----------------------|
|           |         |               | 1                 | 2 | 3 |                       |
| BC 817-16 | 6As     | Q62702-C1732  | B                 | E | C | SOT-23                |
| BC 817-25 | 6Bs     | Q62702-C1690  |                   |   |   |                       |
| BC 817-40 | 6Cs     | Q62702-C1738  |                   |   |   |                       |
| BC 818-16 | 6Es     | Q62702-C1739  |                   |   |   |                       |
| BC 818-25 | 6Fs     | Q62702-C1740  |                   |   |   |                       |
| BC 818-40 | 6Gs     | Q62702-C1505  |                   |   |   |                       |

<sup>1)</sup> For detailed information see chapter Package Outlines.

## Maximum Ratings

| Parameter                                                   | Symbol           | Values         |        | Unit               |
|-------------------------------------------------------------|------------------|----------------|--------|--------------------|
|                                                             |                  | BC 817         | BC 818 |                    |
| Collector-emitter voltage                                   | $V_{CE0}$        | 45             | 25     | V                  |
| Collector-base voltage                                      | $V_{CB0}$        | 50             | 30     |                    |
| Emitter-base voltage                                        | $V_{EB0}$        | 5              | 5      |                    |
| Collector current                                           | $I_C$            | 500            |        | mA                 |
| Peak collector current                                      | $I_{CM}$         | 1              |        | A                  |
| Base current                                                | $I_B$            | 100            |        | mA                 |
| Peak base current                                           | $I_{BM}$         | 200            |        |                    |
| Total power dissipation, $T_C = 79\text{ }^{\circ}\text{C}$ | $P_{\text{tot}}$ | 330            |        | mW                 |
| Junction temperature                                        | $T_j$            | 150            |        | $^{\circ}\text{C}$ |
| Storage temperature range                                   | $T_{\text{stg}}$ | − 65 ... + 150 |        |                    |

## Thermal Resistance

|                                  |              |       |     |
|----------------------------------|--------------|-------|-----|
| Junction - ambient <sup>1)</sup> | $R_{th\ JA}$ | ≤ 285 | K/W |
| Junction - soldering point       | $R_{th\ JS}$ | ≤ 215 |     |

<sup>1)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

## Electrical Characteristics

at  $T_A = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified.

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

### DC characteristics

|                                                                                                                    |               |     |     |     |               |
|--------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-----|---------------|
| Collector-emitter breakdown voltage<br>$I_C = 10\text{ mA}$                                                        | $V_{(BR)CE0}$ |     |     |     | V             |
| BC 817                                                                                                             |               | 45  | —   | —   |               |
| BC 818                                                                                                             |               | 25  | —   | —   |               |
| Collector-base breakdown voltage<br>$I_C = 100\text{ }\mu\text{A}$                                                 | $V_{(BR)CB0}$ |     |     |     |               |
| BC 817                                                                                                             |               | 50  | —   | —   |               |
| BC 818                                                                                                             |               | 30  | —   | —   |               |
| Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$                                                      | $V_{(BR)EB0}$ | 5   | —   | —   |               |
| Collector cutoff current<br>$V_{CB} = 25\text{ V}$<br>$V_{CB} = 25\text{ V}$ , $T_A = 150\text{ }^{\circ}\text{C}$ | $I_{CB0}$     | —   | —   | 100 | nA            |
|                                                                                                                    |               | —   | —   | 5   | $\mu\text{A}$ |
| Emitter cutoff current, $V_{EB} = 4\text{ V}$                                                                      | $I_{EB0}$     | —   | —   | 100 | nA            |
| DC current gain <sup>1)</sup><br>$I_C = 100\text{ mA}$ ; $V_{CE} = 1\text{ V}$                                     | $h_{FE}$      |     |     |     | —             |
| BC 817-16, BC 818-16                                                                                               |               | 100 | 160 | 250 |               |
| BC 817-25, BC 818-25                                                                                               |               | 160 | 250 | 400 |               |
| BC 817-40, BC 818-40                                                                                               |               | 250 | 350 | 630 |               |
| $I_C = 300\text{ mA}$ ; $V_{CE} = 1\text{ V}$                                                                      |               |     |     |     |               |
| BC 817-16, BC 818-16                                                                                               |               | 60  | —   | —   |               |
| BC 817-25, BC 818-25                                                                                               |               | 100 | —   | —   |               |
| BC 817-40, BC 818-40                                                                                               |               | 170 | —   | —   |               |
| Collector-emitter saturation voltage <sup>1)</sup><br>$I_C = 500\text{ mA}$ ; $I_B = 50\text{ mA}$                 | $V_{CEsat}$   | —   | —   | 0.7 | V             |
| Base-emitter saturation voltage <sup>1)</sup><br>$I_C = 500\text{ mA}$ ; $I_B = 50\text{ mA}$                      | $V_{BEsat}$   | —   | —   | 2   |               |

### AC characteristics

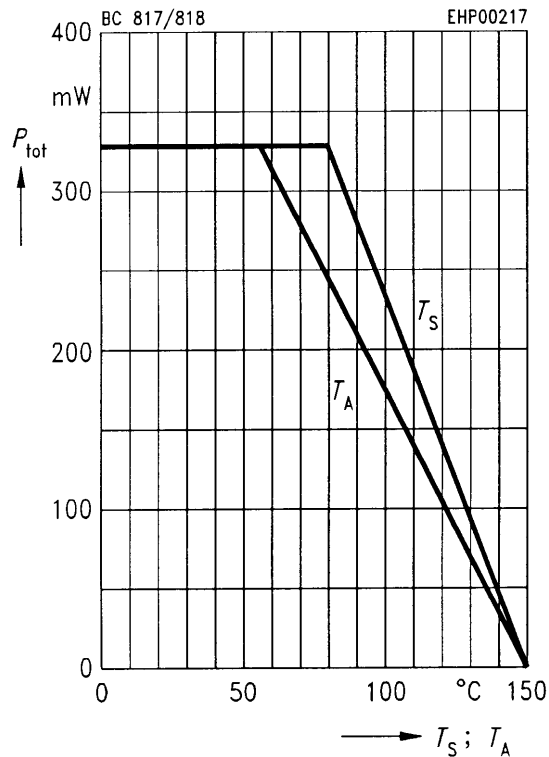
|                                                                                            |           |   |     |   |     |
|--------------------------------------------------------------------------------------------|-----------|---|-----|---|-----|
| Transition frequency<br>$I_C = 50\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 20\text{ MHz}$ | $f_T$     | — | 170 | — | MHz |
| Output capacitance<br>$V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$                          | $C_{obo}$ | — | 6   | — | pF  |
| Input capacitance<br>$V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$                          | $C_{ibo}$ | — | 60  | — |     |

<sup>1)</sup> Pulse test:  $t \leq 300\text{ }\mu\text{s}$ ,  $D \leq 2\text{ }\%$ .



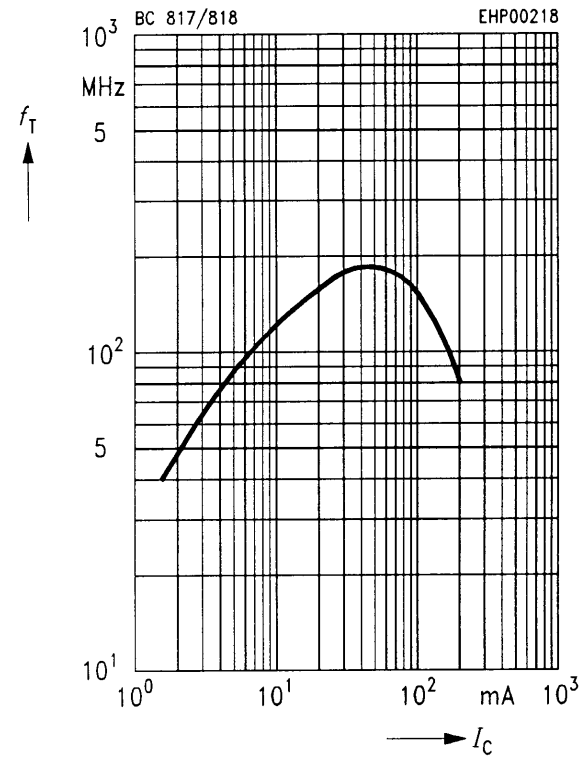
## Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

\* Package mounted on epoxy



## Transition frequency $f_T = f(I_C)$

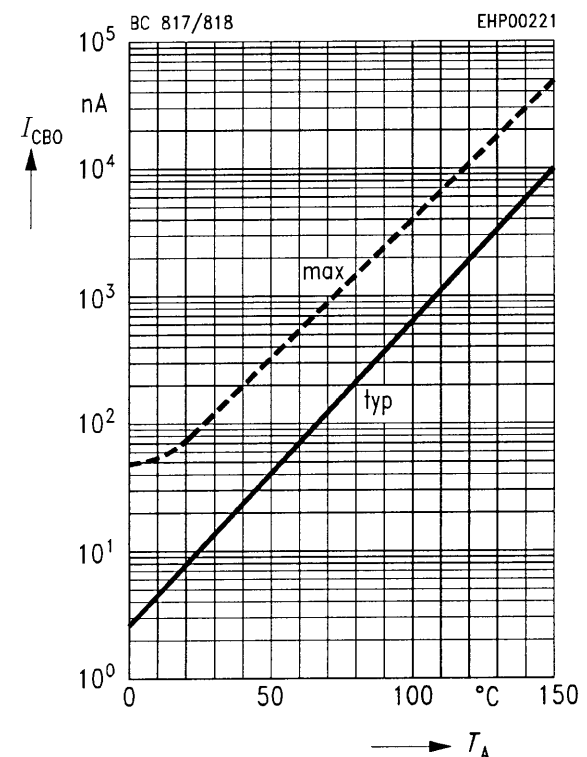
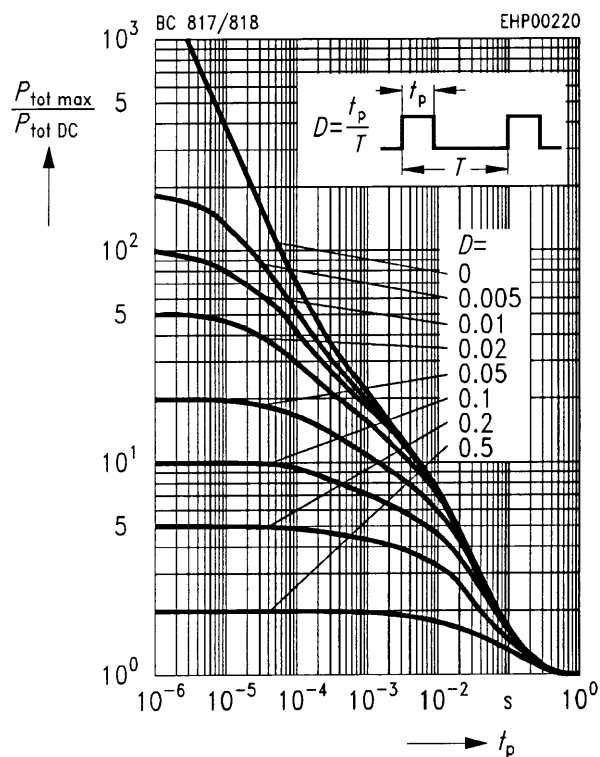
$V_{CE} = 5 \text{ V}$



## Permissible pulse load $P_{\text{tot max}}/P_{\text{tot DC}} = f(t_p)$

## Collector cutoff current $I_{CB0} = f(T_A)$

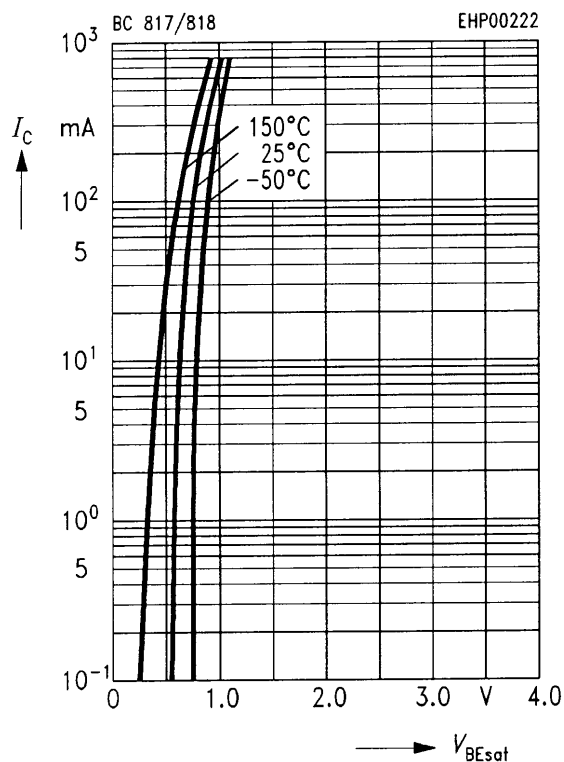
$V_{CB0} = 60 \text{ V}$



## Base-emitter saturation voltage

$$I_C = f(V_{BEsat})$$

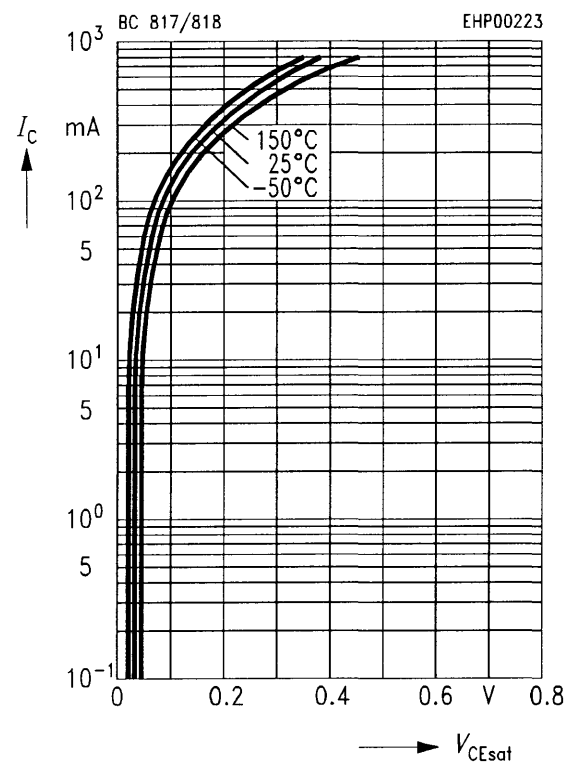
$$h_{FE} = 10$$



## Collector-emitter saturation voltage

$$I_C = f(V_{CEsat})$$

$$h_{FE} = 10$$



## DC current gain $h_{FE} = f(I_C)$

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

