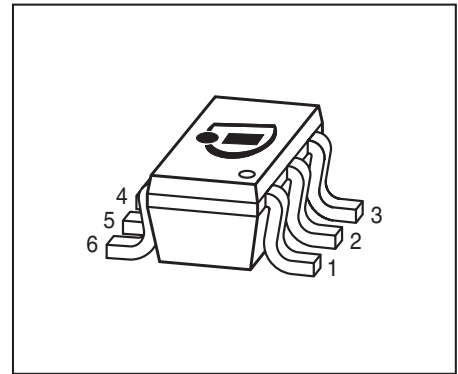
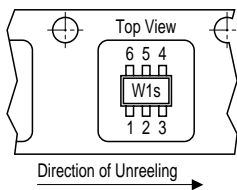


NPN Silicon AF Transistor Array

- For AF stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Two (galvanic) internal isolated NPN/PNP transistors in one package
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

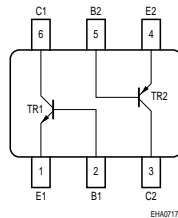


Tape loading orientation



Marking on SC74 package (for example W1s) corresponds to pin 1 of device

Position in tape: pin 1 opposite of feed hole side



| Type | Marking | Pin Configuration | | | | | | Package |
|----------|---------|-------------------|------|------|------|------|------|---------|
| BC817UPN | 1Bs | 1=E1 | 2=B1 | 3=C2 | 4=E2 | 5=B2 | 6=C1 | SC74 |

Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------|
| Collector-emitter voltage | V_{CEO} | 45 | V |
| Collector-base voltage | V_{CBO} | 50 | |
| Emitter-base voltage | V_{EBO} | 5 | |
| Collector current | I_C | 500 | mA |
| Peak collector current, $t_p \leq 10$ ms | I_{CM} | 1000 | |
| Base current | I_B | 100 | |
| Peak base current | I_{BM} | 200 | mW |
| Total power dissipation- $T_S \leq 115$ °C | P_{tot} | 330 | |
| Junction temperature | T_j | 150 | |
| Storage temperature | T_{stg} | -65 ... 150 | |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|--|------------|------------|------|
| Junction - soldering point ¹⁾ | R_{thJS} | ≤ 105 | K/W |

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

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

DC Characteristics

| | | | | | |
|--|---------------|------------|-----|-----------|---------------|
| Collector-emitter breakdown voltage $I_C = 10\text{ mA}, I_B = 0$ | $V_{(BR)CEO}$ | 45 | - | - | V |
| Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}, I_E = 0$ | $V_{(BR)CBO}$ | 50 | - | - | |
| Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}, I_C = 0$ | $V_{(BR)EBO}$ | 5 | - | - | |
| Collector-base cutoff current $V_{CB} = 25\text{ V}, I_E = 0$ $V_{CB} = 25\text{ V}, I_E = 0, T_A = 150\text{ }^\circ\text{C}$ | I_{CBO} | - | - | 0.1 50 | μA |
| Emitter-base cutoff current $V_{EB} = 4\text{ V}, I_C = 0$ | I_{EBO} | - | - | 100 | nA |
| DC current gain ²⁾ $I_C = 100\text{ mA}, V_{CE} = 1\text{ V}$ $I_C = 300\text{ mA}, V_{CE} = 1\text{ V}$ | h_{FE} | 160 100 | 250 | 400 | - |
| Collector-emitter saturation voltage ²⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ | V_{CEsat} | - | - | 0.7 | V |
| Base emitter saturation voltage ²⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ | V_{BEsat} | - | - | 1.2 | |

AC Characteristics

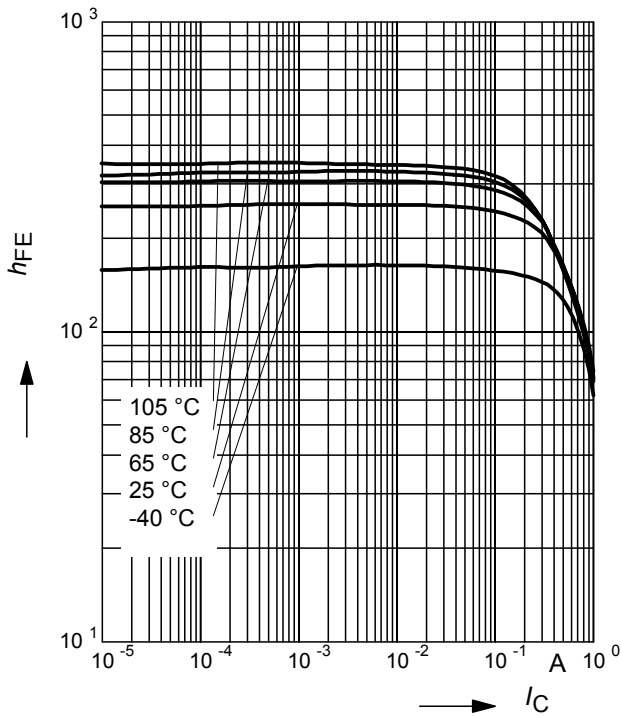
| | | | | | |
|---|----------|---|-----|---|-----|
| Transition frequency $I_C = 50\text{ mA}, V_{CE} = 5\text{ V}, f = 100\text{ MHz}$ | f_T | - | 170 | - | MHz |
| Collector-base capacitance $f = 1\text{ MHz}, V_{BE} = 10\text{ V}$ | C_{cb} | - | 6 | - | pF |
| Emitter-base capacitance $V_{EB} = 0.5\text{ V}, f = 1\text{ MHz}$ | C_{eb} | - | 60 | - | |

¹⁾For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

²⁾Pulse test: $t < 300\mu\text{s}; D < 2\%$

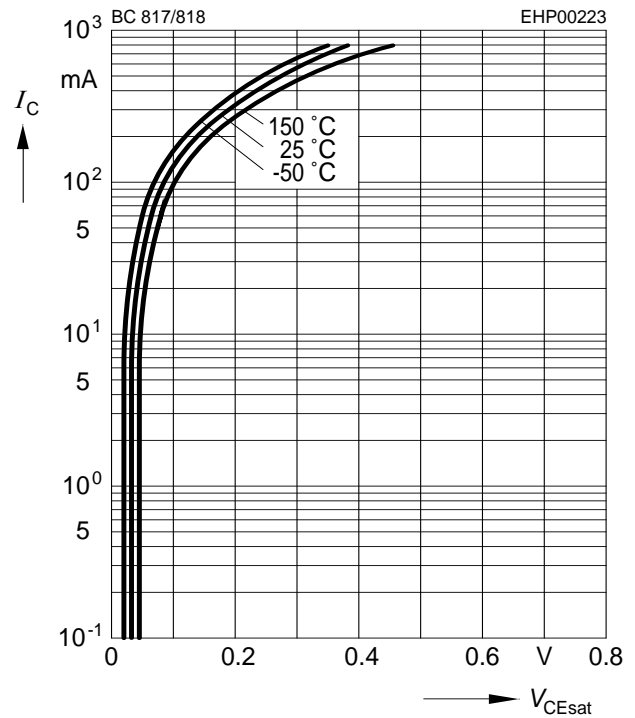
DC current gain $h_{FE} = f(I_C)$

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



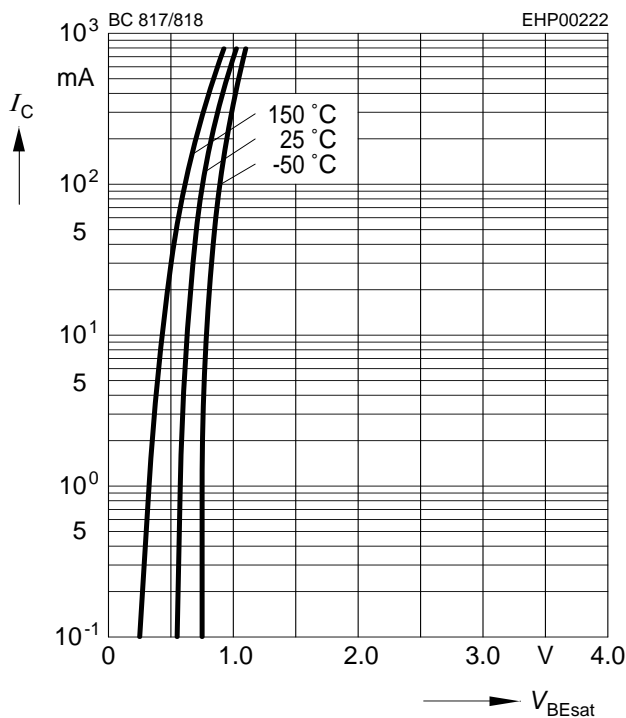
Collector-emitter saturation voltage

$I_C = f(V_{CEsat}), h_{FE} = 10$



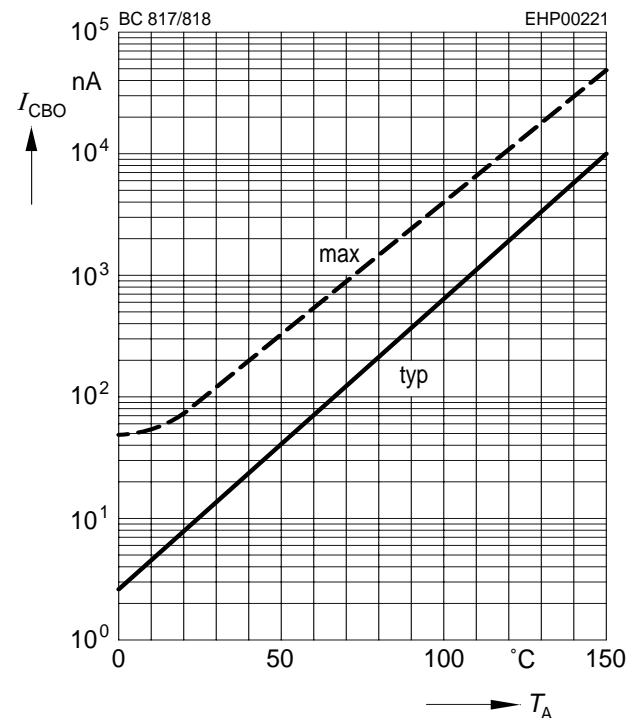
Base-emitter saturation voltage

$I_C = f(V_{BEsat}), h_{FE} = 10$



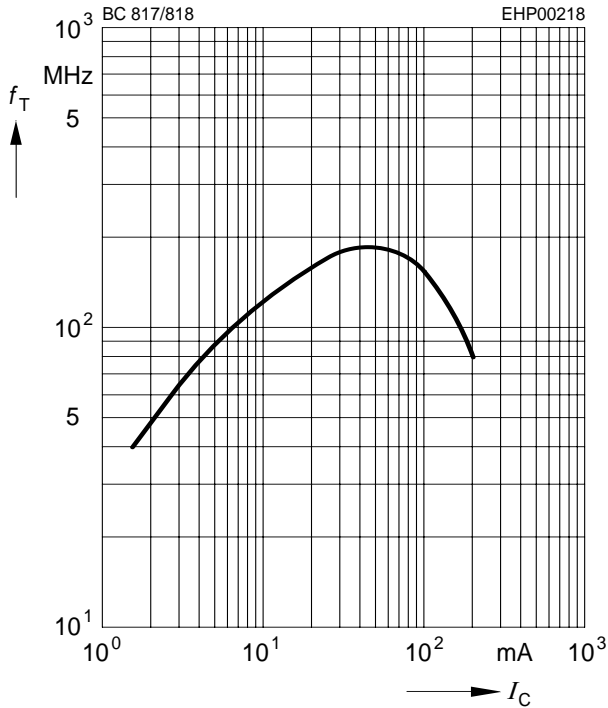
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CBO} = 25\text{ V}$



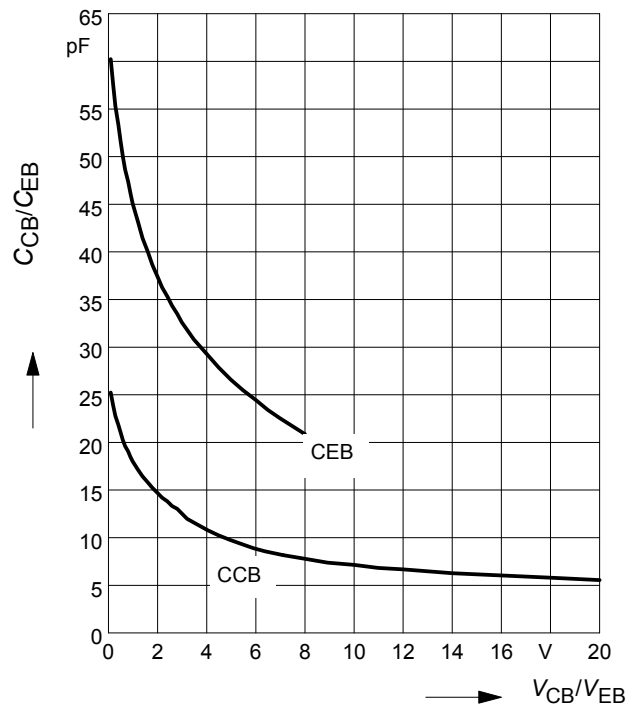
Transition frequency $f_T = f(I_C)$

V_{CE} = parameter in V, $f = 2$ GHz

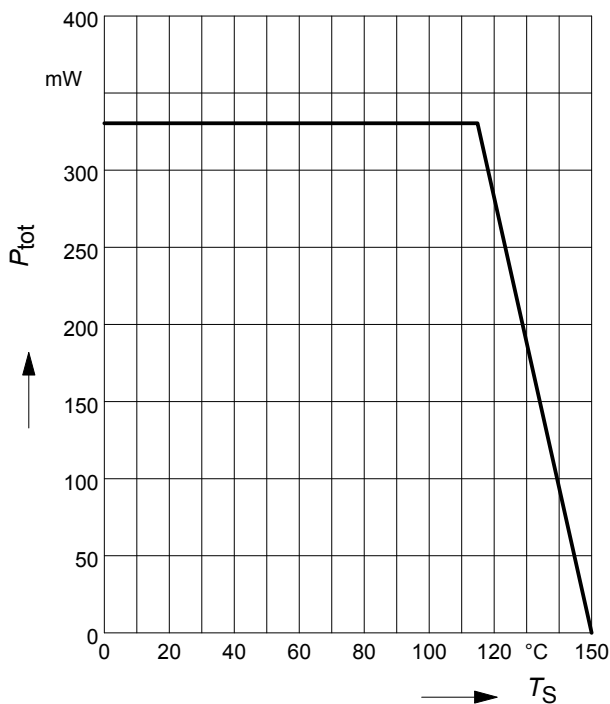


Collector-base capacitance $C_{cb} = f(V_{CB})$

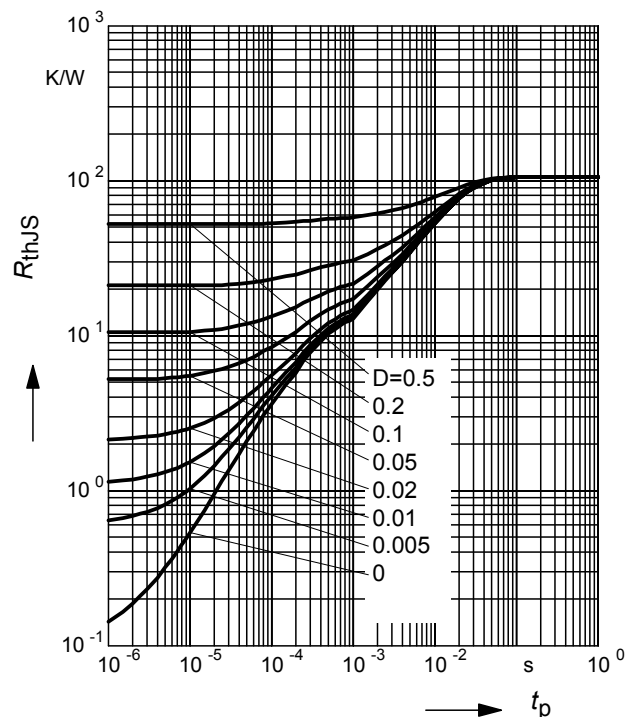
Emitter-base capacitance $C_{eb} = f(V_{EB})$



Total power dissipation $P_{tot} = f(T_S)$

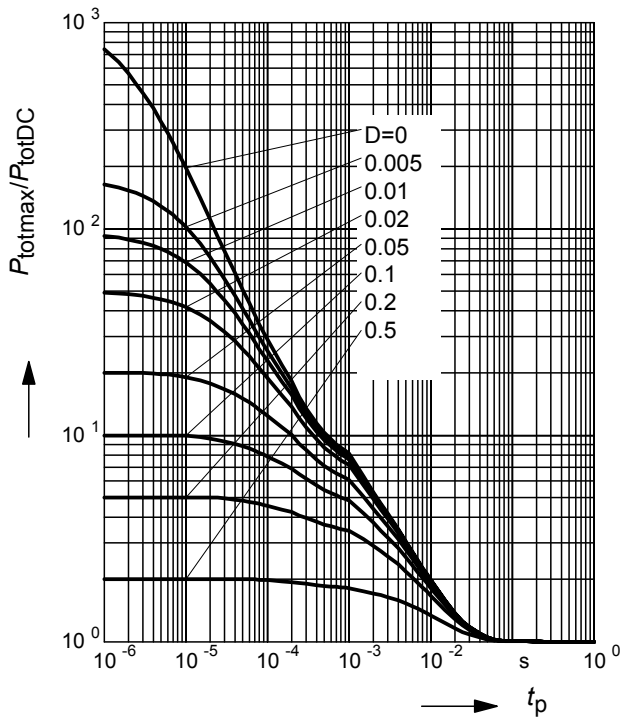


Permissible Pulse Load $R_{thJS} = f(t_p)$



Permissible Pulse Load

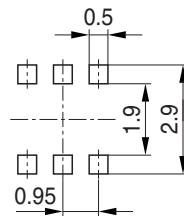
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$



Package Outline

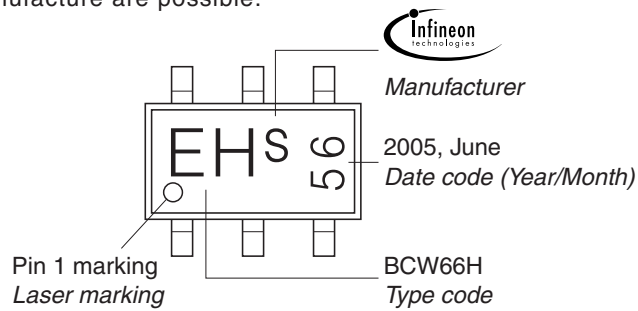


Foot Print



Marking Layout (Example)

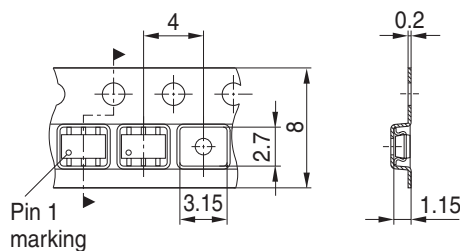
Small variations in positioning of Date code, Type code and Manufacture are possible.



Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



Edition 2009-11-16

**Published by
Infineon Technologies AG
81726 Munich, Germany**

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