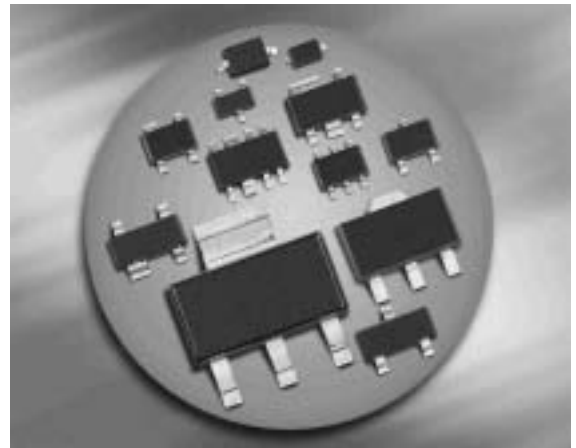


**PNP Silicon AF Transistor**

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary type:  
BC817.../W, BC818.../W (NPN)
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



| Type      | Marking | Pin Configuration |       |       |   |   |   | Package |
|-----------|---------|-------------------|-------|-------|---|---|---|---------|
| BC807-16  | 5As     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT23   |
| BC807-16W | 5As     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT323  |
| BC807-25  | 5Bs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT23   |
| BC807-25W | 5Bs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT323  |
| BC807-40  | 5Cs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT23   |
| BC807-40W | 5Cs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT323  |
| BC808-25  | 5Fs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT23   |
| BC808-25W | 5Fs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT323  |
| BC808-40  | 5Gs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT23   |
| BC808-40W | 5Gs     | 1 = B             | 2 = E | 3 = C | - | - | - | SOT323  |

<sup>1</sup>Pb-containing package may be available upon special request

**Maximum Ratings**

| Parameter                                                                                                   | Symbol    | Value       | Unit |
|-------------------------------------------------------------------------------------------------------------|-----------|-------------|------|
| Collector-emitter voltage<br>BC807...<br>BC808...                                                           | $V_{CEO}$ | 45<br>25    | V    |
| Collector-base voltage<br>BC807...<br>BC808...                                                              | $V_{CBO}$ | 50<br>30    |      |
| Emitter-base voltage                                                                                        | $V_{EBO}$ | 5           |      |
| Collector current                                                                                           | $I_C$     | 500         | mA   |
| Peak collector current                                                                                      | $I_{CM}$  | 1000        |      |
| Base current                                                                                                | $I_B$     | 100         |      |
| Peak base current                                                                                           | $I_{BM}$  | 200         |      |
| Total power dissipation-<br>$T_S \leq 79\text{ °C}$ BC807, BC808<br>$T_S \leq 130\text{ °C}$ BC807W, BC808W | $P_{tot}$ | 330<br>250  | mW   |
| Junction temperature                                                                                        | $T_j$     | 150         |      |
| Storage temperature                                                                                         | $T_{stg}$ | -65 ... 150 | °C   |

**Thermal Resistance**

| Parameter                                                                  | Symbol     | Value                   | Unit |
|----------------------------------------------------------------------------|------------|-------------------------|------|
| Junction - soldering point <sup>1)</sup><br>BC807, BC808<br>BC807W, BC808W | $R_{thJS}$ | $\leq 215$<br>$\leq 80$ | K/W  |

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

**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<br>$I_C = 10\text{ mA}$ , $I_B = 0$ , BC807...<br>$I_C = 10\text{ mA}$ , $I_B = 0$ , BC808...                                                                                                                                                                               | $V_{(BR)CEO}$ | 45<br>25                | -<br>-                 | -<br>-                 | V    |
| Collector-base breakdown voltage<br>$I_C = 10\text{ }\mu\text{A}$ , $I_E = 0$ , BC807...<br>$I_C = 10\text{ }\mu\text{A}$ , $I_E = 0$ , BC808...                                                                                                                                                                | $V_{(BR)CBO}$ | 50<br>30                | -<br>-                 | -<br>-                 |      |
| Emitter-base breakdown voltage<br>$I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$                                                                                                                                                                                                                                     | $V_{(BR)EBO}$ | 5                       | -                      | -                      |      |
| Collector-base cutoff current<br>$V_{CB} = 25\text{ V}$ , $I_E = 0$<br>$V_{CB} = 25\text{ V}$ , $I_E = 0$ , $T_A = 150\text{ }^{\circ}\text{C}$                                                                                                                                                                 | $I_{CBO}$     | -<br>-                  | -<br>-                 | 0.1<br>50              |      |
| Emitter-base cutoff current<br>$V_{EB} = 4\text{ V}$ , $I_C = 0$                                                                                                                                                                                                                                                | $I_{EBO}$     | -                       | -                      | 100                    | nA   |
| DC current gain <sup>1)</sup><br>$I_C = 100\text{ mA}$ , $V_{CE} = 1\text{ V}$ , $h_{FE}\text{-grp. 16}$<br>$I_C = 100\text{ mA}$ , $V_{CE} = 1\text{ V}$ , $h_{FE}\text{-grp. 25}$<br>$I_C = 100\text{ mA}$ , $V_{CE} = 1\text{ V}$ , $h_{FE}\text{ grp. 40}$<br>$I_C = 500\text{ mA}$ , $V_{CE} = 1\text{ V}$ | $h_{FE}$      | 100<br>160<br>250<br>40 | 160<br>250<br>350<br>- | 250<br>400<br>630<br>- | -    |
| 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>$I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$                                                                                                                                                                                                                   | $V_{BEsat}$   | -                       | -                      | 1.2                    |      |

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

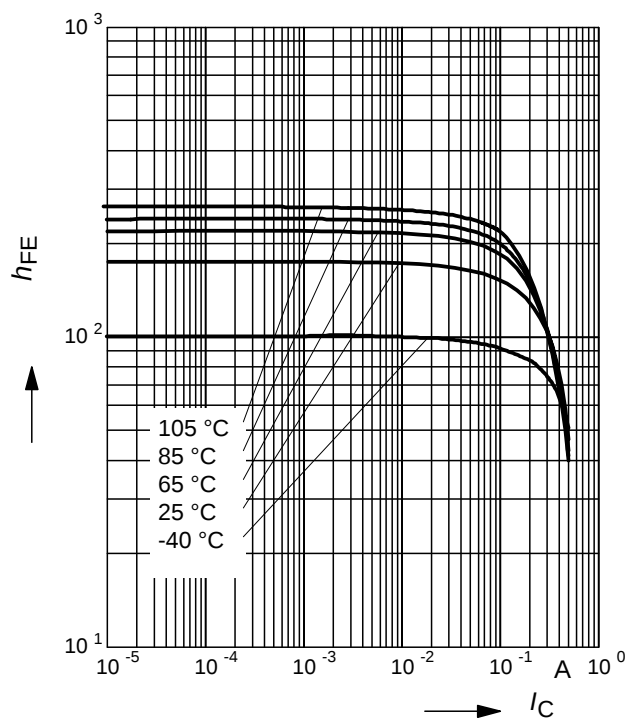
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                                                   | Symbol   | Values |      |      | Unit |
|---------------------------------------------------------------------------------------------|----------|--------|------|------|------|
|                                                                                             |          | min.   | typ. | max. |      |
| AC Characteristics                                                                          |          |        |      |      |      |
| Transition frequency<br>$I_C = 50\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 100\text{ MHz}$ | $f_T$    | -      | 200  | -    | MHz  |
| Collector-base capacitance<br>$V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$                   | $C_{cb}$ | -      | 8    | -    | pF   |
| Emitter-base capacitance<br>$V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$                    | $C_{eb}$ | -      | 60   | -    |      |

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

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

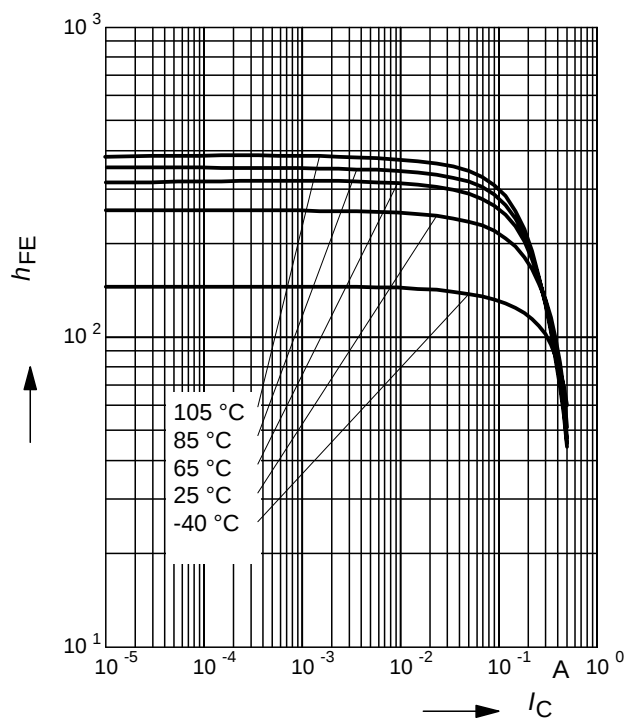
$h_{FE}$ -grp. 16



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

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

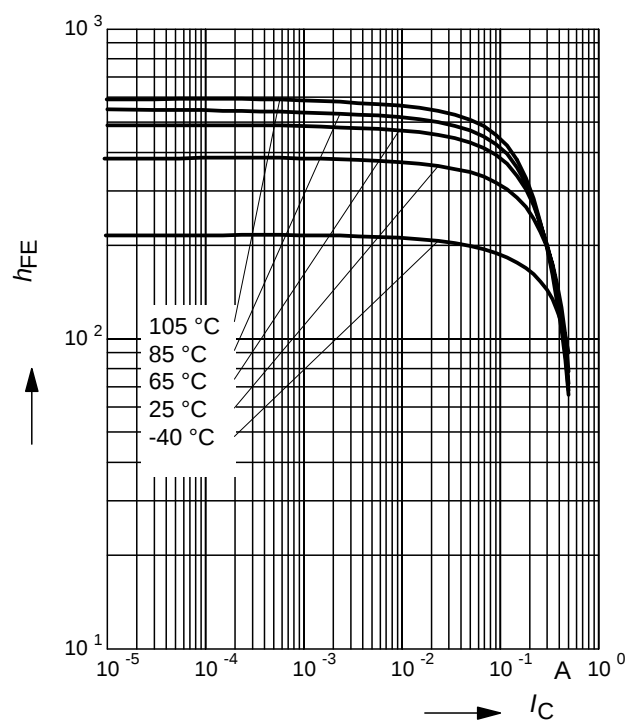
$h_{FE}$ -grp. 25



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

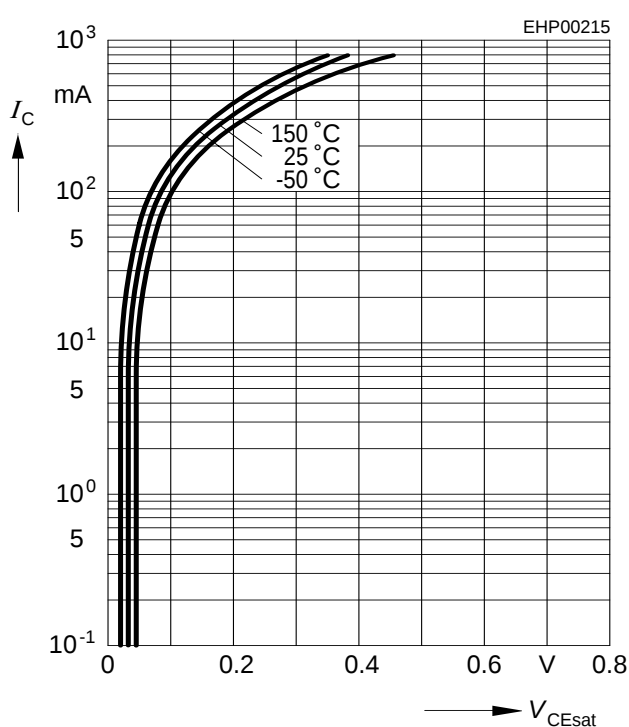
$V_{CE} = 1 \text{ V}$

$h_{FE}$ -grp. 40



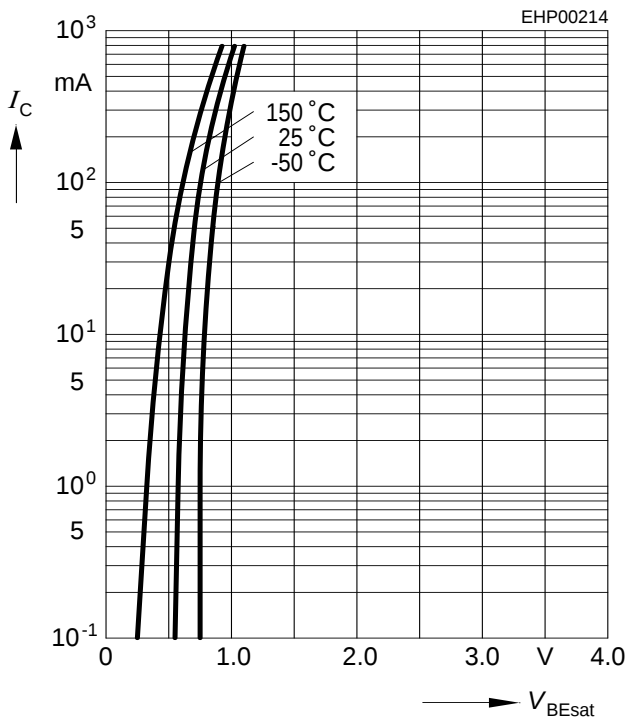
### Collector-emitter saturation voltage

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



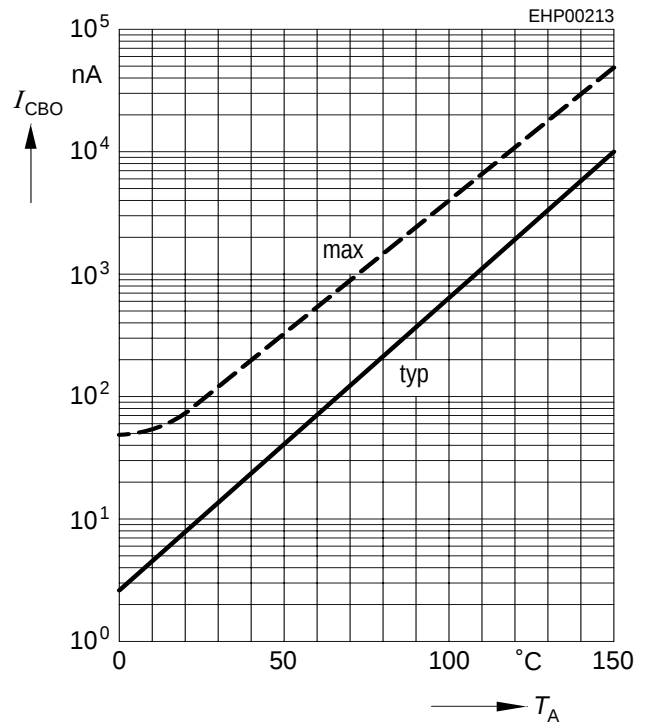
### Base-emitter saturation voltage

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



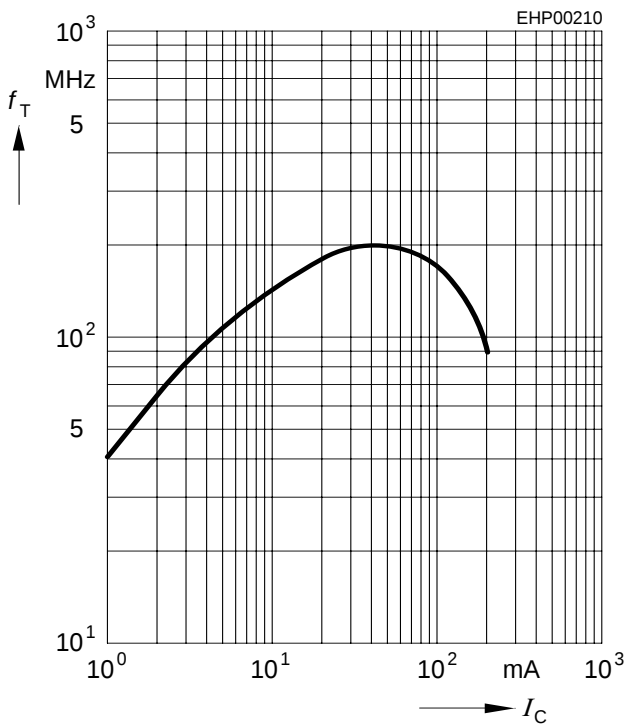
### Collector cutoff current $I_{CBO} = f(T_A)$

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



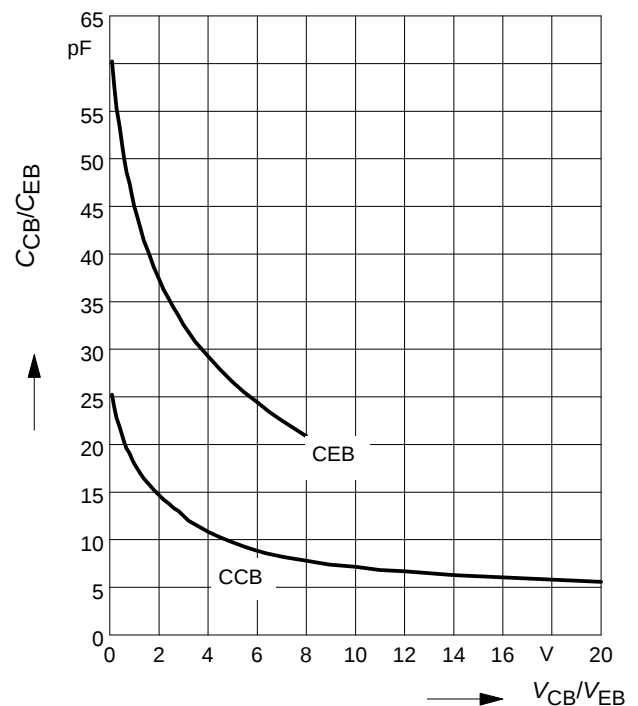
### Transition frequency $f_T = f(I_C)$

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



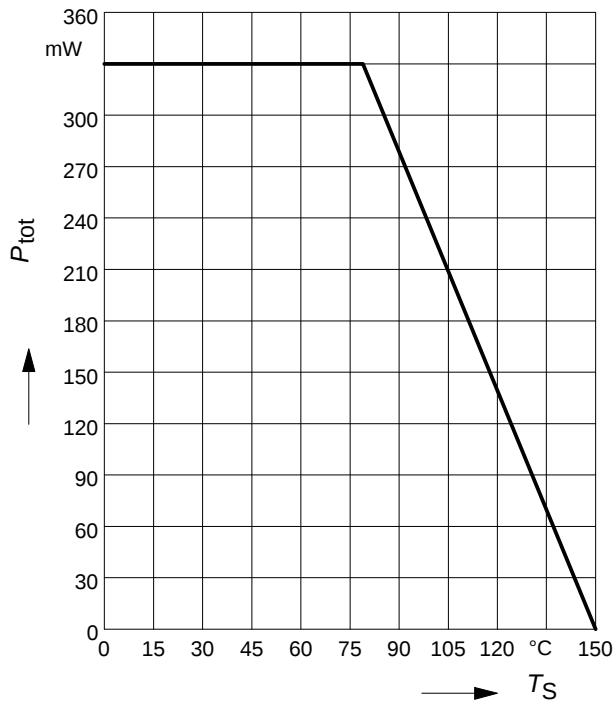
### Collector-base capacitance $C_{cb} = f(V_{CB})$

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



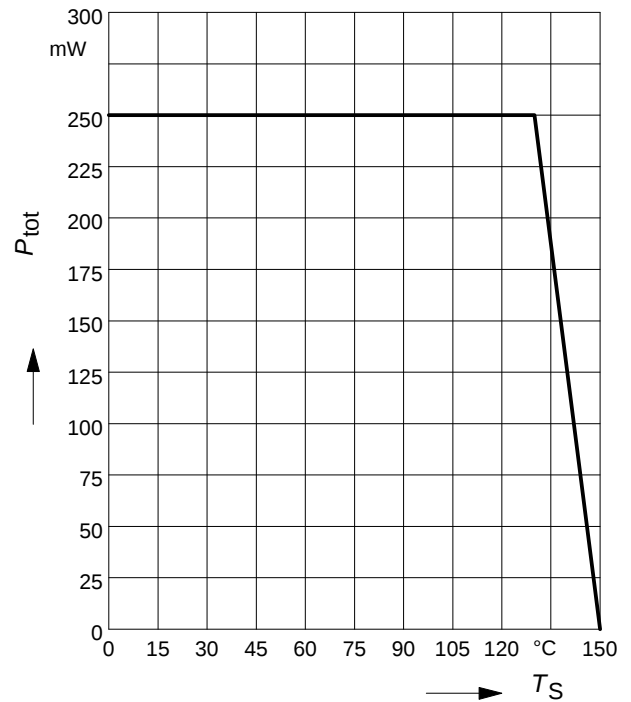
### Total power dissipation $P_{\text{tot}} = f(T_S)$

BC807, BC808



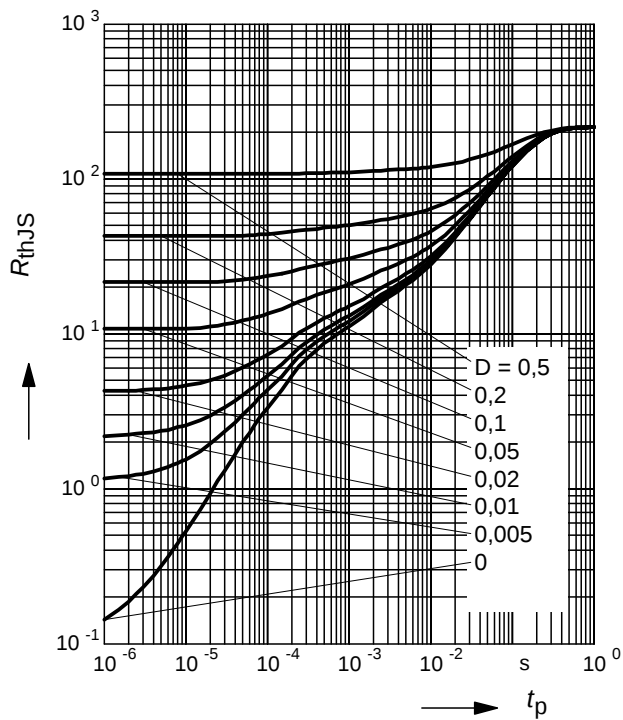
### Total power dissipation $P_{\text{tot}} = f(T_S)$

BC807W, BC808W



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

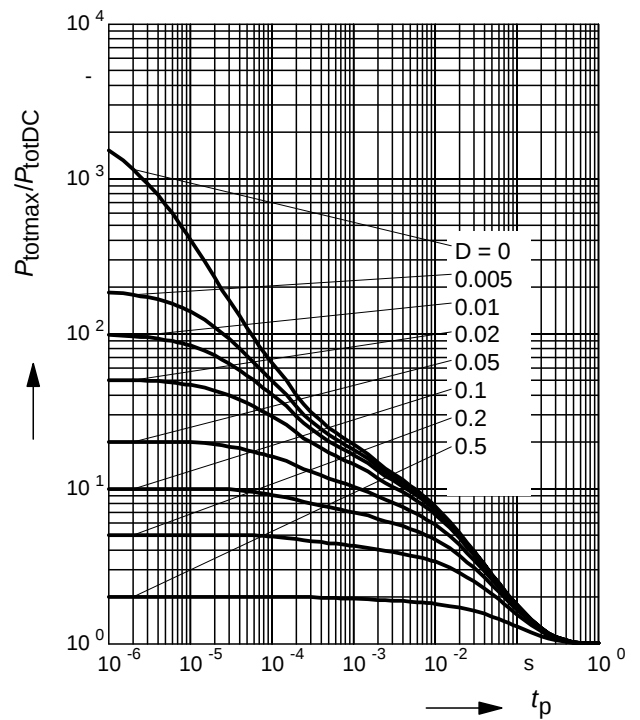
BC807, BC808



### Permissible Pulse Load

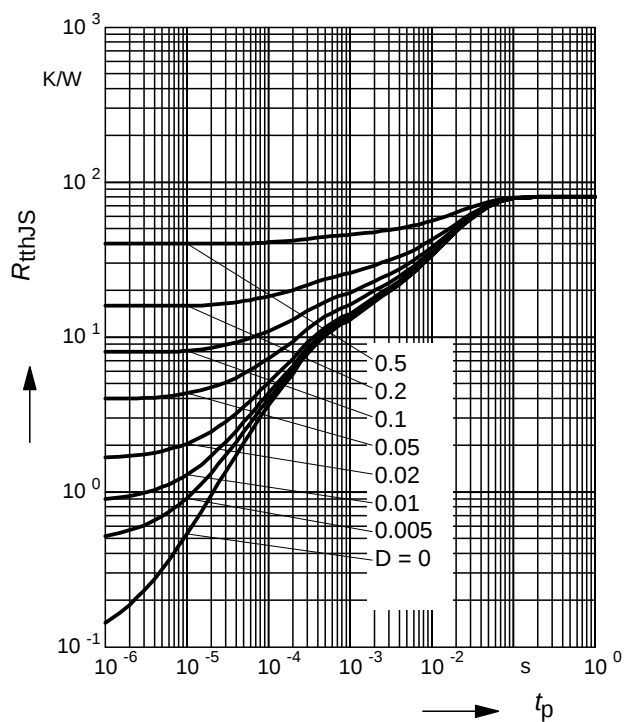
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BC807, BC808



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

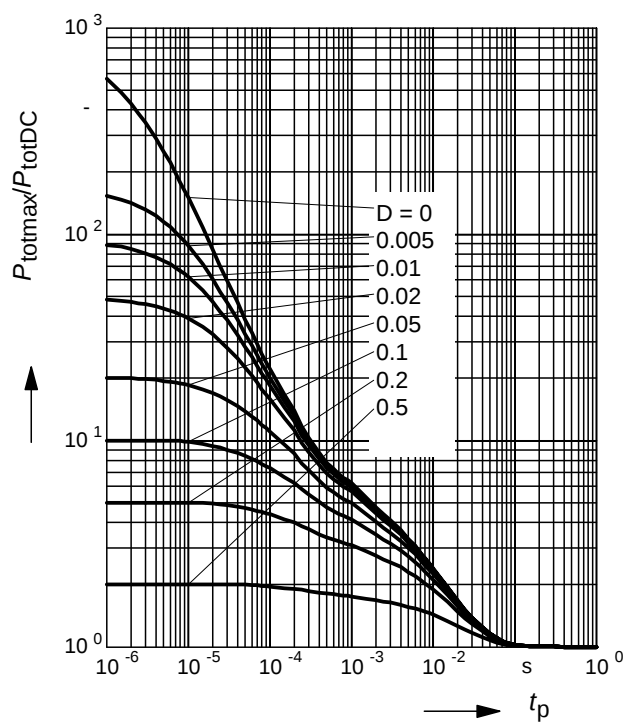
BC807W, BC808W

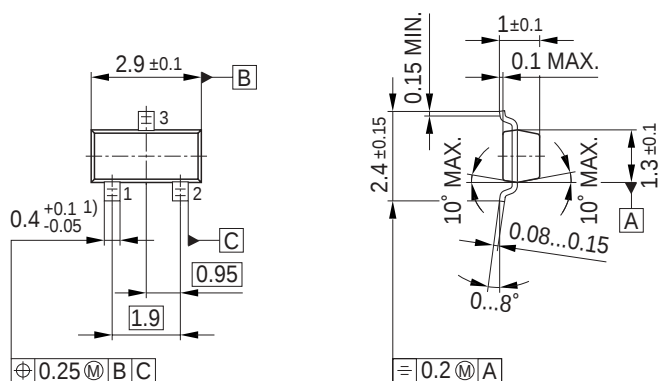


# Permissible Pulse Load

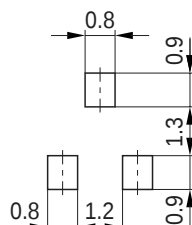
$$P_{totmax}/P_{totDC} = f(t_p)$$

BC807W, BC808W



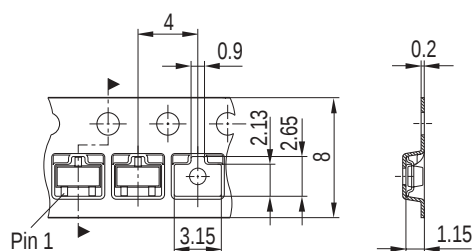


## Foot Print

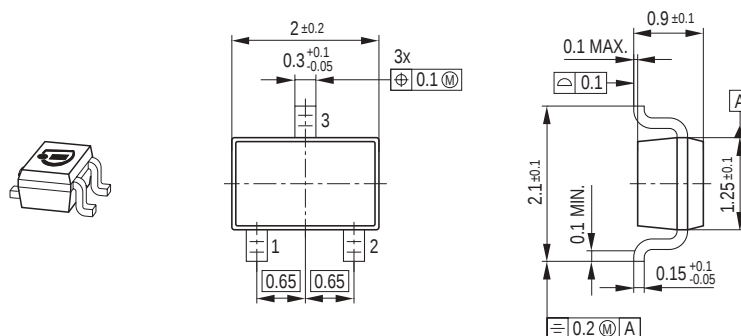


The diagram shows a top-down view of a BCW66 LED package. It is a rectangular component with four pins. The top pin is labeled 'Pin 1'. The package has a central rectangular area containing the text 'EHS' and a date code '05 06'. To the right of the package, the Infineon logo is shown with the text 'Manufacturer'. Below the logo, the text '2005, June' is shown with the text 'Date code (YM)' below it. At the bottom right, the text 'BCW66' is shown with the text 'Type code' below it.

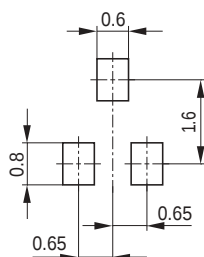
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



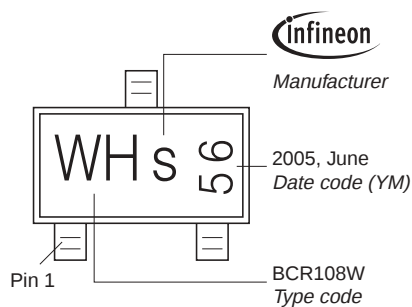
## Package Outline



## Foot Print

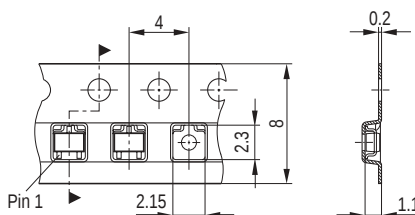


## Marking Layout (Example)



## Standard Packing

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



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