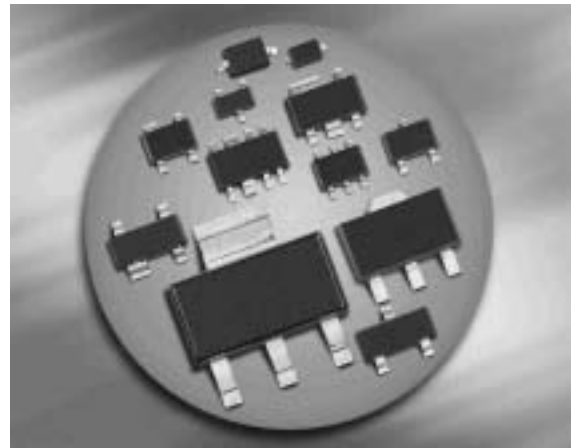


PNP Silicon AF Transistor

- 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) package¹⁾
- Qualified according AEC Q101



| Type | Marking | Pin Configuration | | | | | | Package |
|-----------|---------|-------------------|-------|-------|---|---|---|---------|
| | | 1 = B | 2 = E | 3 = C | - | - | - | |
| 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 |

¹Pb-containing package may be available upon special request

Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------|
| Collector-emitter voltage BC807... BC808... | V_{CEO} | 45 25 | V |
| Collector-base voltage BC807... BC808... | V_{CBO} | 50 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- $T_S \leq 79\text{ °C}$ BC807, BC808 $T_S \leq 130\text{ °C}$ BC807W, BC808W | P_{tot} | 330 250 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -65 ... 150 | |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|--|------------|-------------------------|------|
| Junction - soldering point ¹⁾ BC807, BC808 BC807W, BC808W | R_{thJS} | ≤ 215 ≤ 80 | K/W |

¹For 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 $I_C = 10\text{ mA}$, $I_B = 0$, BC807... $I_C = 10\text{ mA}$, $I_B = 0$, BC808... | $V_{(BR)CEO}$ | 45 25 | - - | - - | V |
| Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BC807... $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BC808... | $V_{(BR)CBO}$ | 50 30 | - - | - - | |
| Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_C = 0$ | $V_{(BR)EBO}$ | 5 | - | - | |
| Collector-base cutoff current $V_{CB} = 25\text{ V}$, $I_E = 0$ $V_{CB} = 25\text{ V}$, $I_E = 0$, $T_A = 150^\circ\text{C}$ | 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 ¹⁾ $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, h_{FE} -grp. 16 $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, h_{FE} -grp. 25 $I_C = 100\text{ mA}$, $V_{CE} = 1\text{ V}$, h_{FE} grp. 40 $I_C = 500\text{ mA}$, $V_{CE} = 1\text{ V}$ | h_{FE} | 100 160 250 40 | 160 250 350 - | 250 400 630 - | - |
| Collector-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | V_{CEsat} | - | - | 0.7 | V |
| Base emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | V_{BEsat} | - | - | 1.2 | |

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

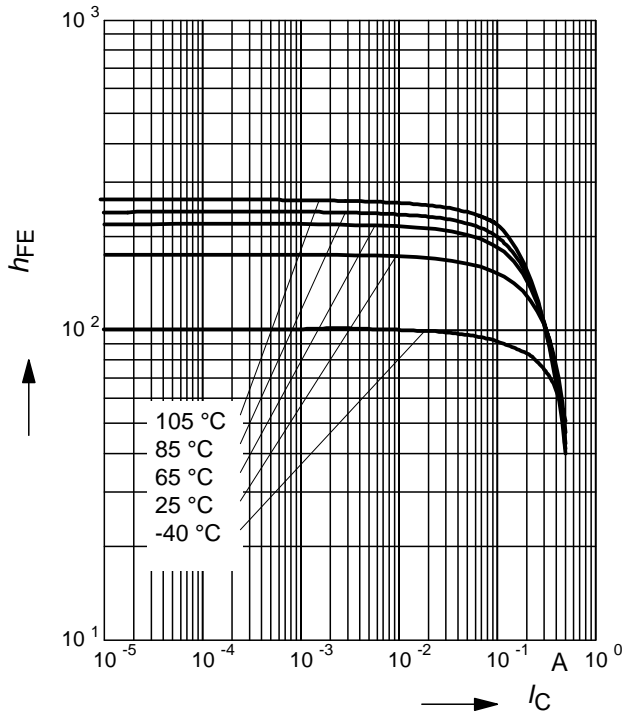
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

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

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

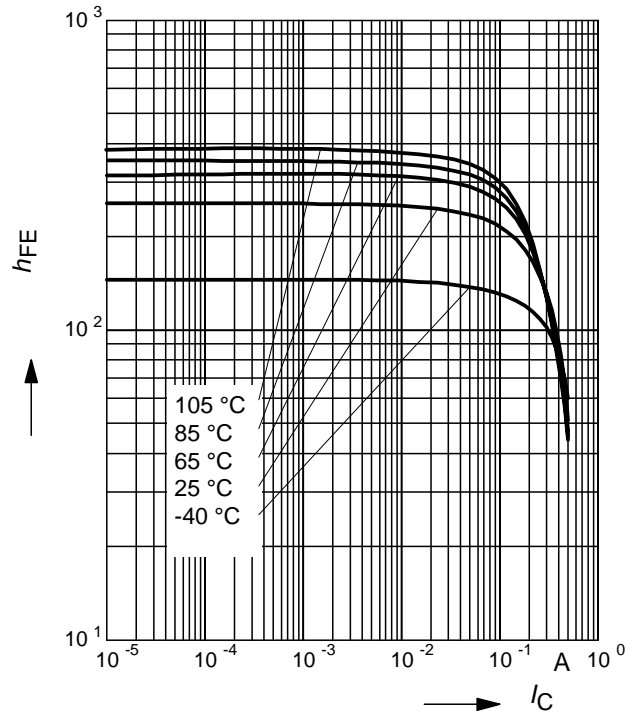
h_{FE} -grp. 16



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

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

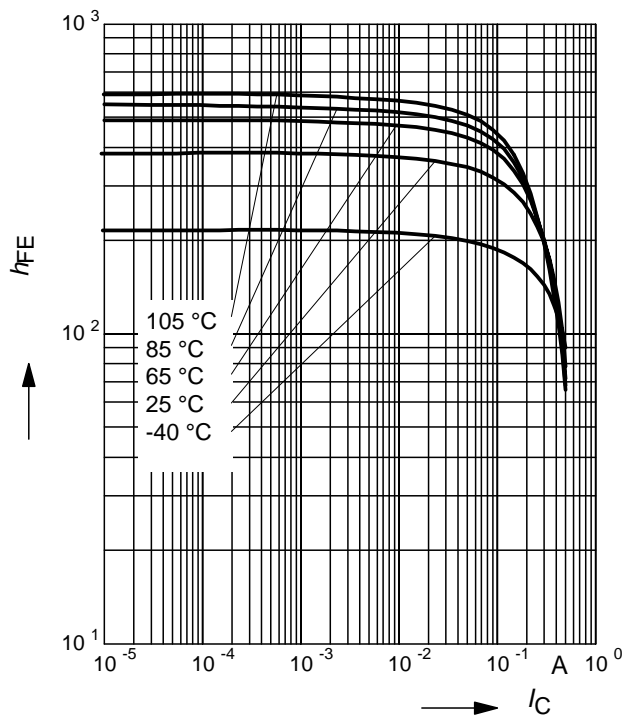
h_{FE} -grp. 25



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

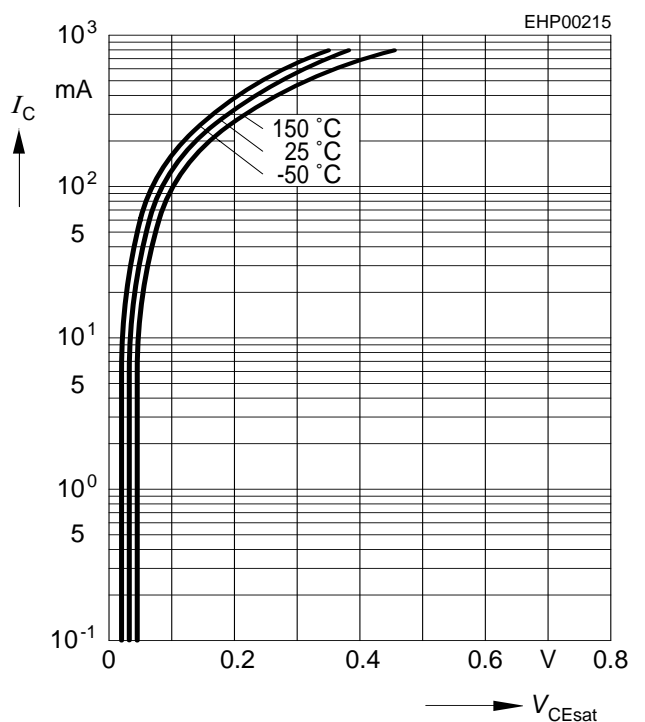
$V_{CE} = 1\text{ V}$

h_{FE} -grp. 40



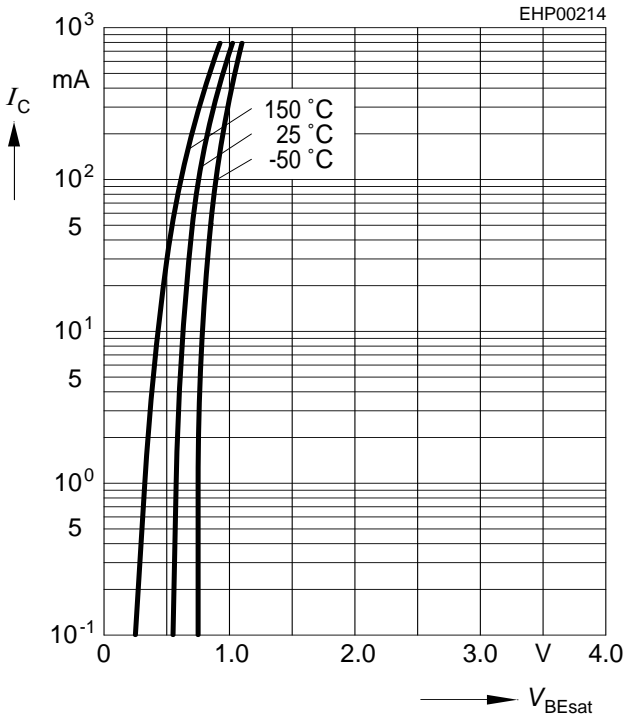
Collector-emitter saturation voltage

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



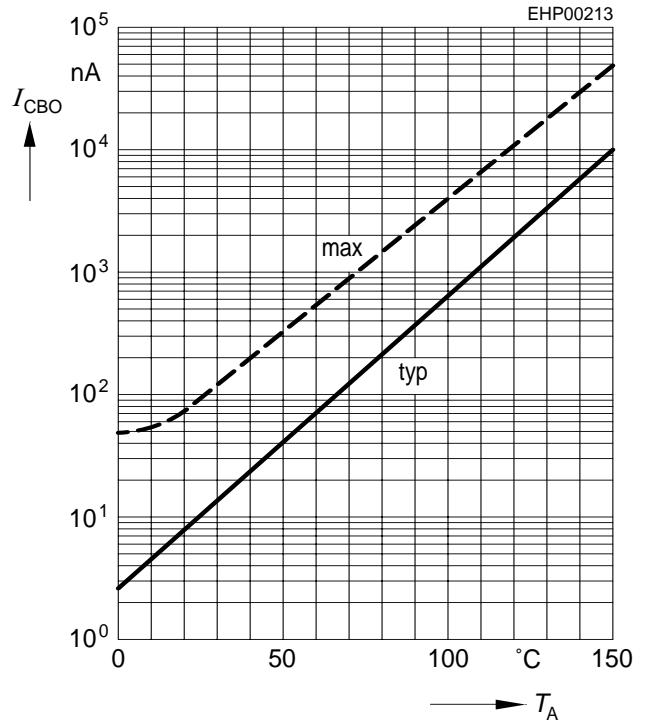
Base-emitter saturation voltage

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



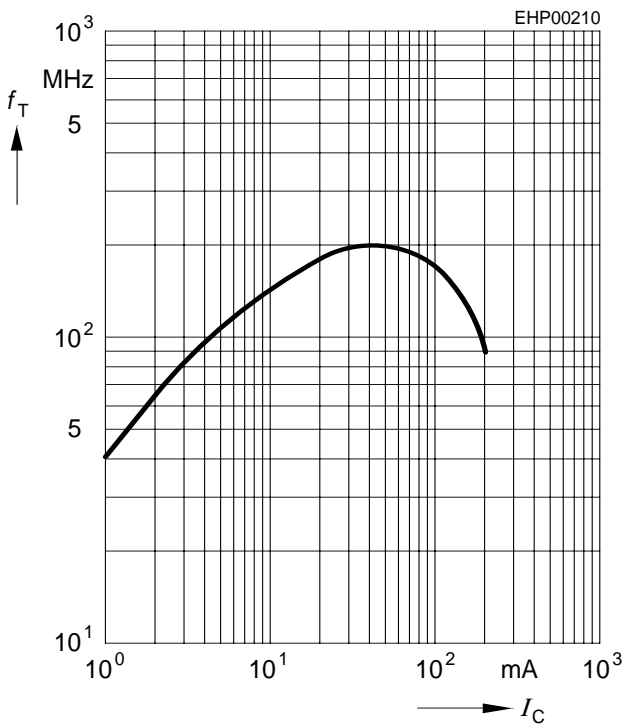
Collector cutoff current $I_{CBO} = f(T_A)$

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



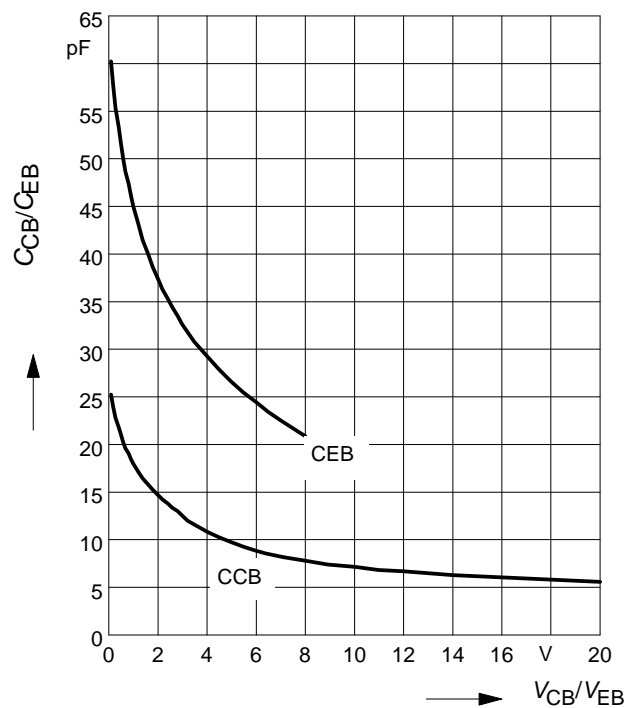
Transition frequency $f_T = f(I_C)$

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



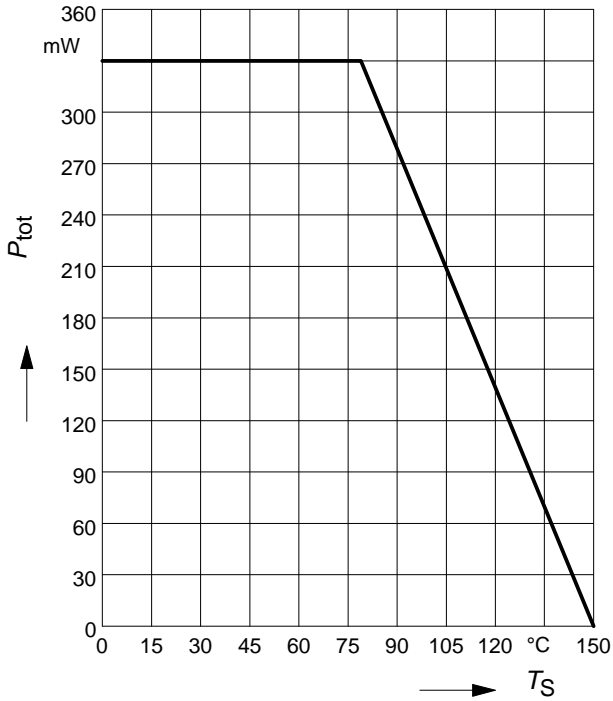
Collector-base capacitance $C_{cb} = f(V_{CB})$

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



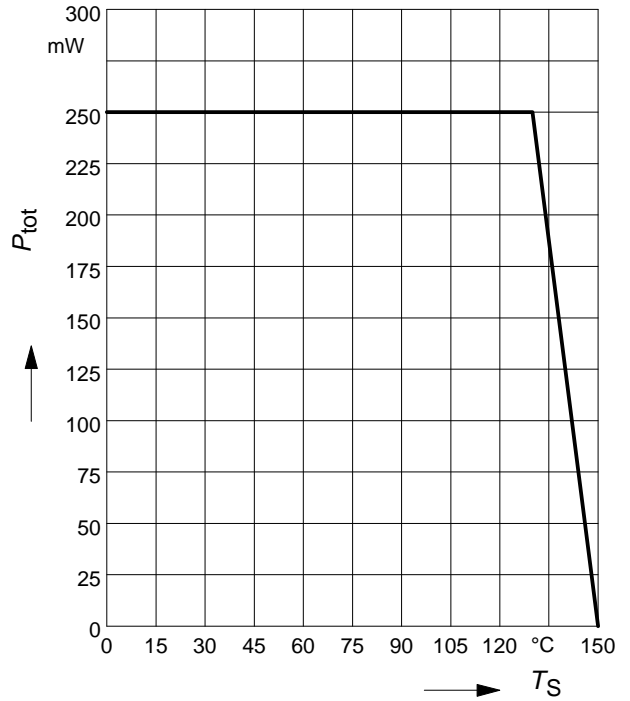
Total power dissipation $P_{tot} = f(T_S)$

BC807, BC808



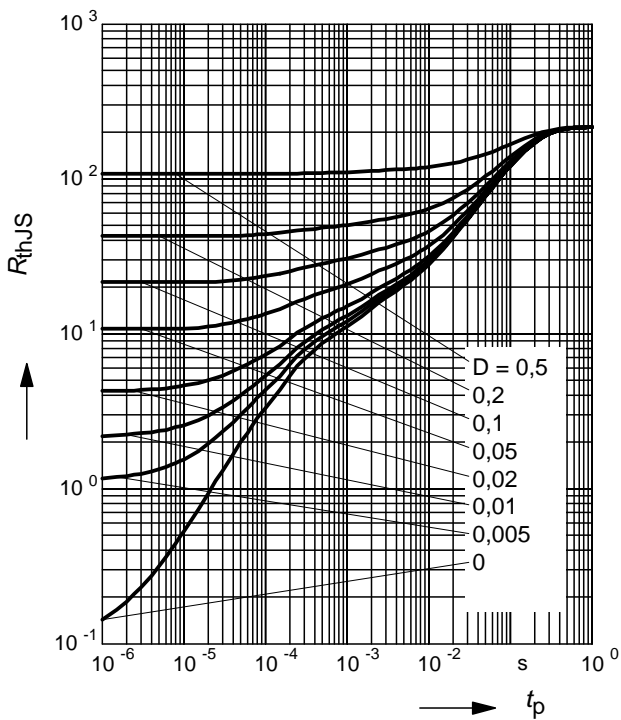
Total power dissipation $P_{tot} = f(T_S)$

BC807W, BC808W



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

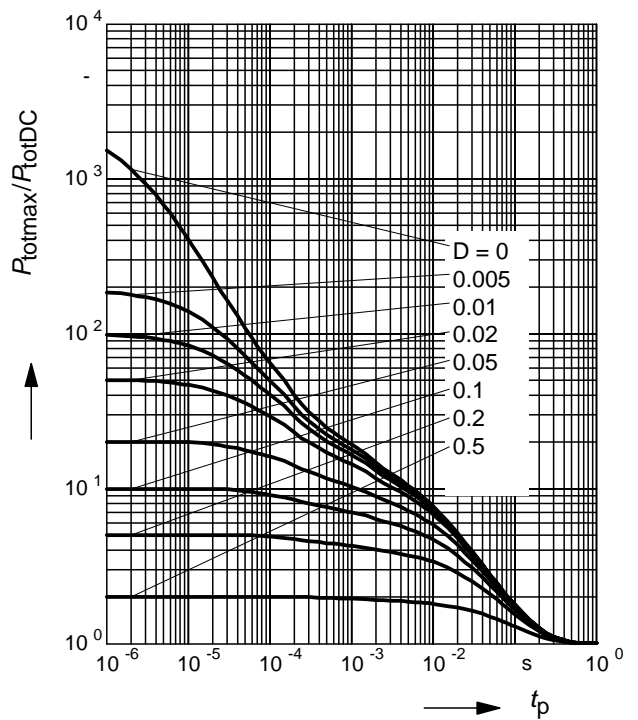
BC807, BC808



Permissible Pulse Load

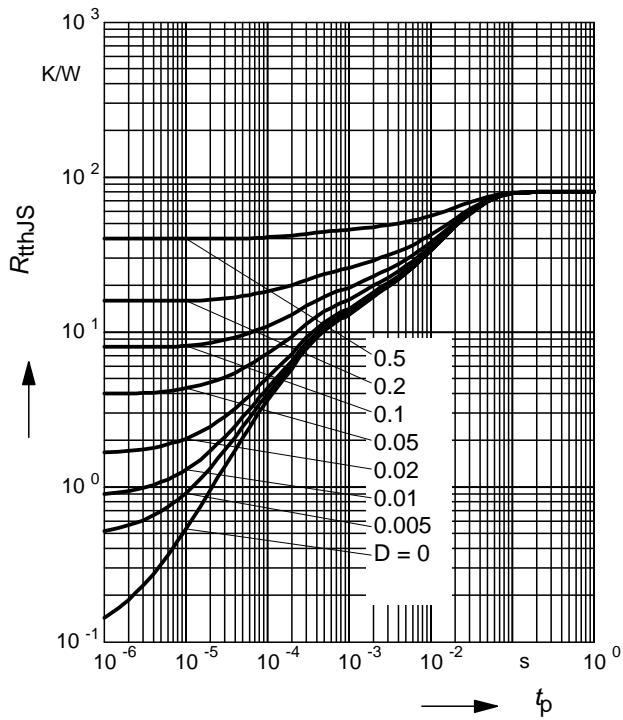
$P_{totmax}/P_{totDC} = f(t_p)$

BC807, BC808



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

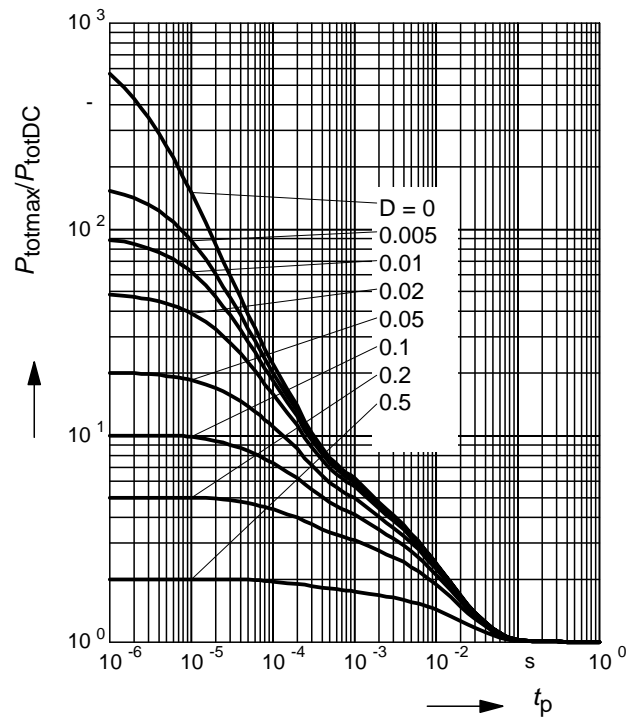
BC807W, BC808W



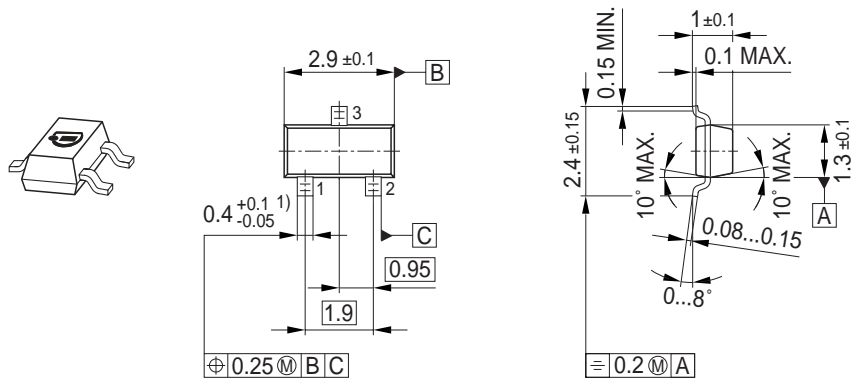
Permissible Pulse Load

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

BC807W, BC808W

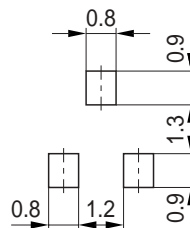


Package Outline

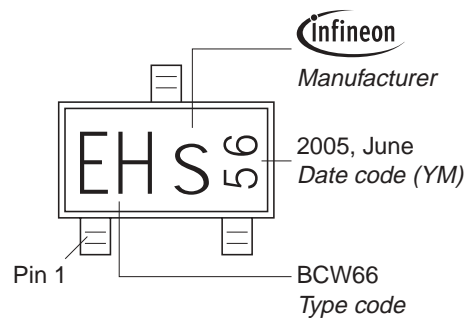


1) Lead width can be 0.6 max. in dambar area

Foot Print

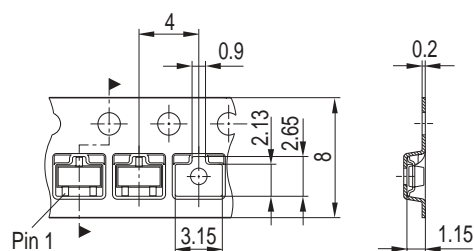


Marking Layout (Example)

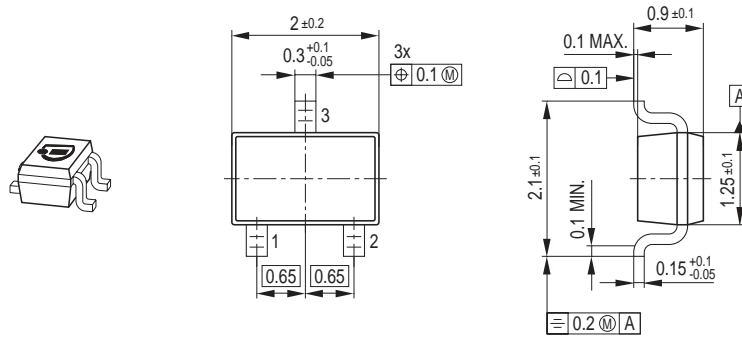


Standard Packing

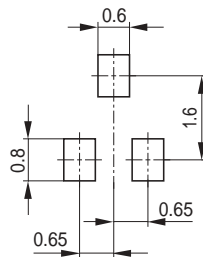
Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



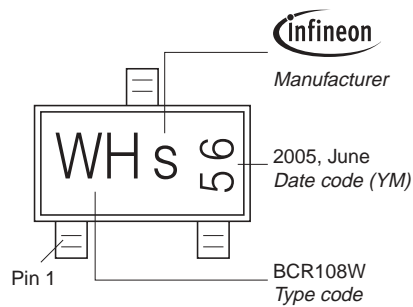
Package Outline



Foot Print

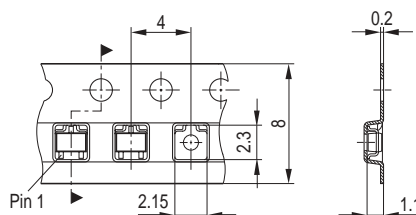


Marking Layout (Example)



Standard Packing

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



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