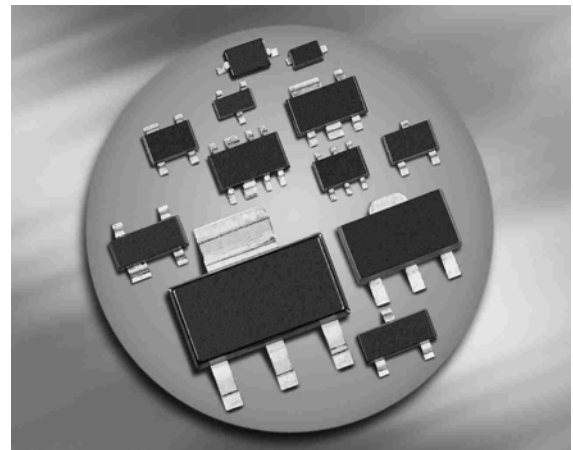
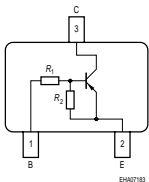


**PNP Silicon Digital Transistor**

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ( $R_1 = 4.7k\Omega$  ,  $R_2 = 4.7k\Omega$  )



**BCR162/F/L3**  
**BCR162T**



| Type     | Marking | Pin Configuration |     |     |   |   |   | Package  |
|----------|---------|-------------------|-----|-----|---|---|---|----------|
|          |         | 1=B               | 2=E | 2=C | - | - | - |          |
| BCR162   | WUs     | 1=B               | 2=E | 2=C | - | - | - | SOT23    |
| BCR162F  | WUs     | 1=B               | 2=E | 2=C | - | - | - | TSFP-3   |
| BCR162L3 | WU      | 1=B               | 2=E | 2=C | - | - | - | TSLP-3-4 |
| BCR162T  | WUs     | 1=B               | 2=E | 2=C | - | - | - | SC75     |

**Maximum Ratings**

| Parameter  | Symbol      | Value                    | Unit |
|--|-------------|--------------------------|------|
| Collector-emitter voltage  | $V_{CEO}$   | 50                       | V    |
| Collector-base voltage   | $V_{CBO}$   | 50                       |      |
| Emitter-base voltage   | $V_{EBO}$   | 10                       |      |
| Input on voltage   | $V_{i(on)}$ | 15                       |      |
| Collector current  | $I_C$       | 100                      | mA   |
| Total power dissipation-<br>BCR162, $T_S \leq 102^\circ\text{C}$<br>BCR162F, $T_S \leq 128^\circ\text{C}$<br>BCR162L3, $T_S \leq 135^\circ\text{C}$<br>BCR162T, $T_S \leq 109^\circ\text{C}$ | $P_{tot}$   | 200<br>250<br>250<br>250 | mW   |
| Junction temperature   | $T_j$       | 150                      | °C   |
| Storage temperature  | $T_{stg}$   | -65 ... 150              |      |

**Thermal Resistance**

| Parameter  | Symbol     | Value  | Unit |
|--|------------|--|------|
| Junction - soldering point <sup>1)</sup><br>BCR162<br>BCR162F<br>BCR162L3<br>BCR162T | $R_{thJS}$ | $\leq 240$<br>$\leq 90$<br>$\leq 60$<br>$\leq 165$ | K/W  |

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

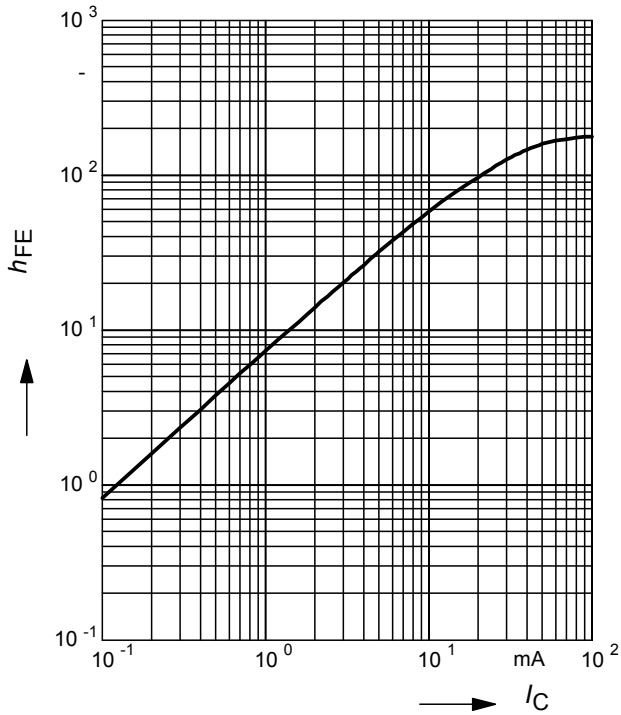
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

| Parameter   | Symbol        | Values |      |      | Unit       |
|---|---------------|--------|------|------|------------|
|   |               | min.   | typ. | max. |            |
| <b>DC Characteristics</b>   |               |        |      |      |            |
| Collector-emitter breakdown voltage<br>$I_C = 100 \mu\text{A}, I_B = 0$                           | $V_{(BR)CEO}$ | 50     | -    | -    | V          |
| Collector-base breakdown voltage<br>$I_C = 10 \mu\text{A}, I_E = 0$                               | $V_{(BR)CBO}$ | 50     | -    | -    |            |
| Collector-base cutoff current<br>$V_{CB} = 40 \text{ V}, I_E = 0$                                 | $I_{CBO}$     | -      | -    | 100  | nA         |
| Emitter-base cutoff current<br>$V_{EB} = 10 \text{ V}, I_C = 0$                                   | $I_{EBO}$     | -      | -    | 1.61 | mA         |
| DC current gain <sup>1)</sup><br>$I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$                       | $h_{FE}$      | 20     | -    | -    | -          |
| Collector-emitter saturation voltage <sup>1)</sup><br>$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ | $V_{CEsat}$   | -      | -    | 0.3  | V          |
| Input off voltage<br>$I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$                                | $V_{i(off)}$  | 0.8    | -    | 1.5  |            |
| Input on voltage<br>$I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$                                  | $V_{i(on)}$   | 1      | -    | 2.5  |            |
| Input resistor  | $R_1$         | 3.2    | 4.7  | 6.2  | k $\Omega$ |
| Resistor ratio  | $R_1/R_2$     | 0.9    | 1    | 1.1  | -          |
| <b>AC Characteristics</b>   |               |        |      |      |            |
| Transition frequency<br>$I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$          | $f_T$         | -      | 200  | -    | MHz        |
| Collector-base capacitance<br>$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$                          | $C_{cb}$      | -      | 3    | -    | pF         |

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

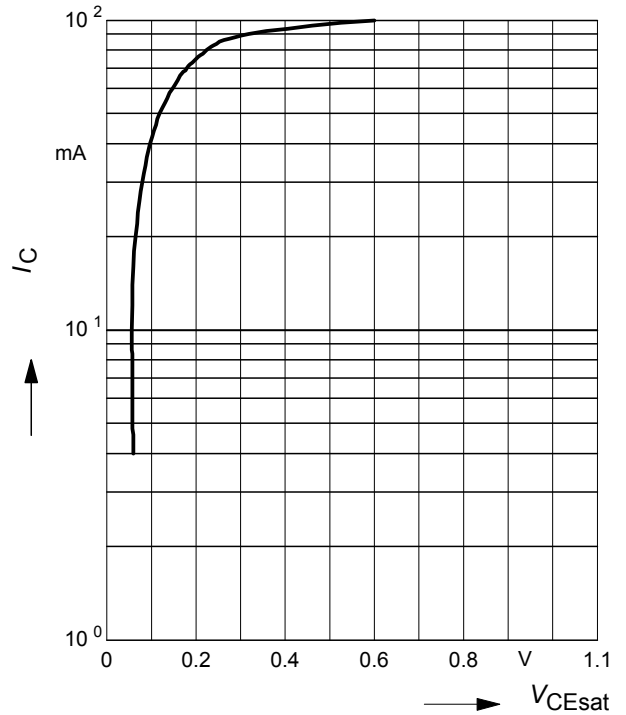
**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 5\text{ V}$  (common emitter configuration)



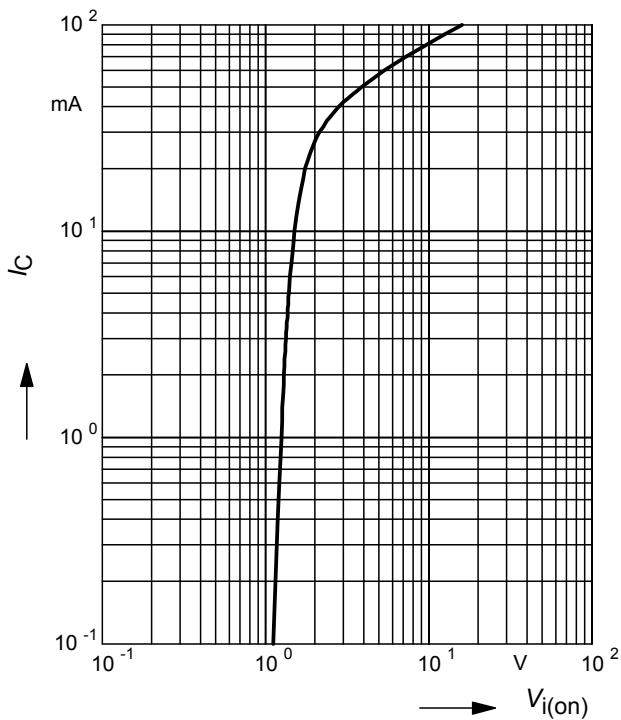
**Collector-emitter saturation voltage**

$V_{CEsat} = f(I_C), h_{FE} = 20$



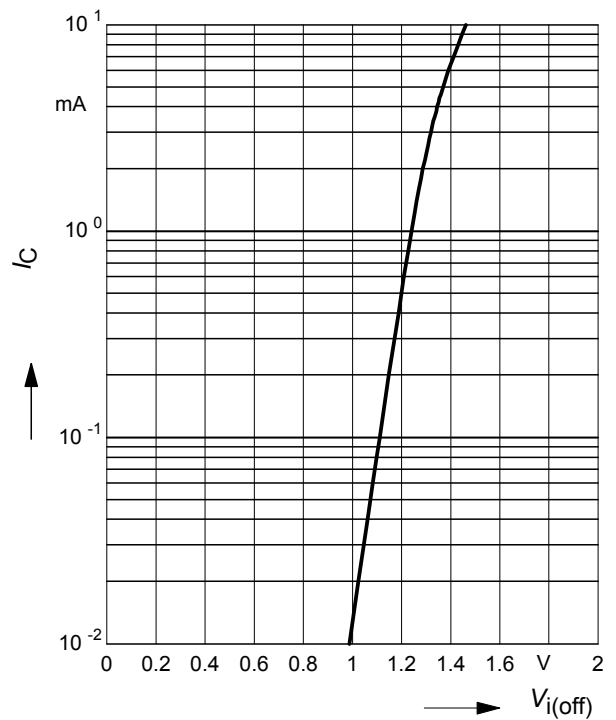
**Input on Voltage  $V_{i(on)} = f(I_C)$**

$V_{CE} = 0.3\text{ V}$  (common emitter configuration)



**Input off voltage  $V_{i(off)} = f(I_C)$**

$V_{CE} = 5\text{ V}$  (common emitter configuration)



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

BCR162



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

BCR162F



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

BCR162L3



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

BCR162T



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

BCR162



**Permissible Pulse Load**

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

BCR162



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

BCR162F



**Permissible Pulse Load**

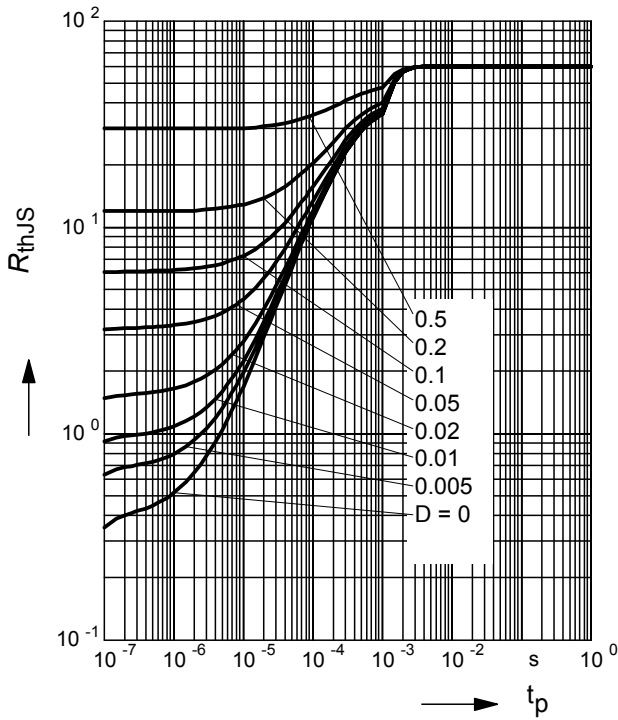
$P_{totmax}/P_{totDC} = f(t_p)$

BCR162F



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

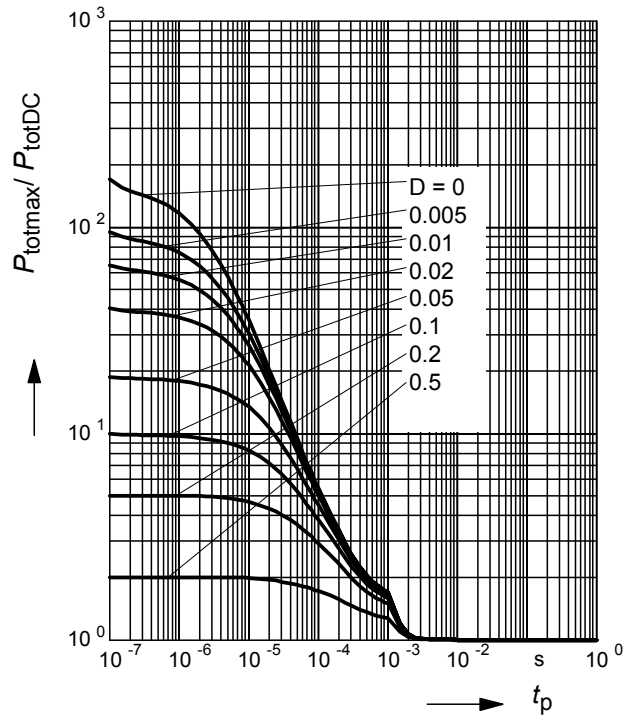
BCR162L3



**Permissible Pulse Load**

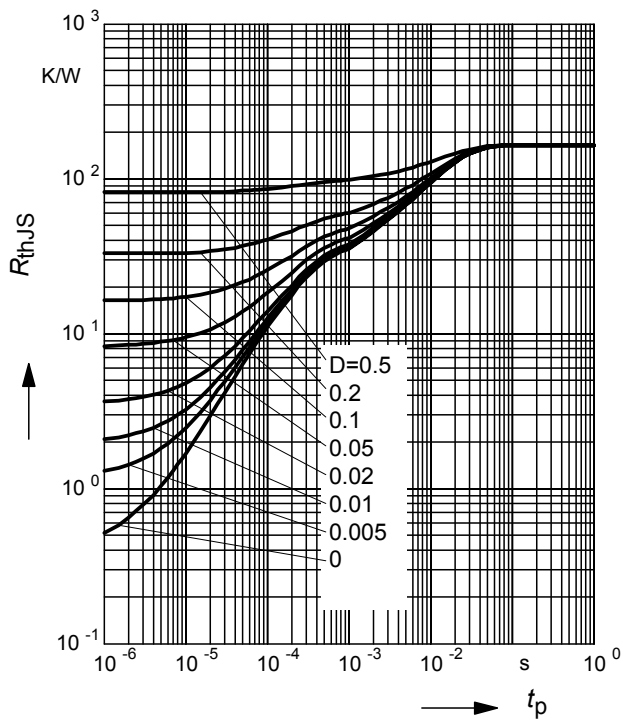
$P_{totmax}/P_{totDC} = f(t_p)$

BCR162L3



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

BCR162T



**Permissible Pulse Load**

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

BCR162T

