

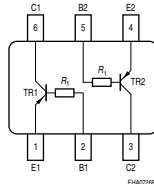
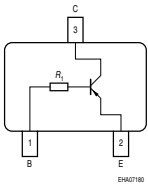
**PNP Silicon Digital Transistor**

- Switching circuit, inverter, interface circuit, driver circuit.
- Built in bias resistor ( $R_1 = 10k\Omega$ )
- For 6-PIN packages: two (galvanic) internal isolated transistors with good matching in one package



**BCR179F/L3  
BCR179T**

**SEMB4**



| Type     | Marking | Pin Configuration |      |      |      |      |      | Package  |
|----------|---------|-------------------|------|------|------|------|------|----------|
|          |         | 1=B               | 2=E  | 3=C  | -    | -    | -    |          |
| BCR179F  | WWs     | 1=B               | 2=E  | 3=C  | -    | -    | -    | TSFP-3   |
| BCR179L3 | WW      | 1=B               | 2=E  | 3=C  | -    | -    | -    | TSLP-3-4 |
| BCR179T  | WWs     | 1=B               | 2=E  | 3=C  | -    | -    | -    | SC75     |
| SEMB4    | WW      | 1=E1              | 2=B1 | 3=C2 | 4=E2 | 5=B2 | 6=C1 | SOT666   |

**Maximum Ratings**

| Parameter                              | Symbol      | Value       | Unit |
|--|-------------|-------------|------|
| Collector-emitter voltage              | $V_{CEO}$   | 50          | V    |
| Collector-base voltage                 | $V_{CBO}$   | 50          |      |
| Emitter-base voltage                   | $V_{EBO}$   | 5           |      |
| Input on voltage                       | $V_{i(on)}$ | 20          |      |
| Collector current                      | $I_C$       | 100         | mA   |
| Total power dissipation                | $P_{tot}$   |             | mW   |
| BCR179F, $T_S \leq 128^\circ\text{C}$  |             | 250         |      |
| BCR179L3, $T_S \leq 135^\circ\text{C}$ |             | 250         |      |
| BCR179T, $T_S \leq 109^\circ\text{C}$  |             | 250         |      |
| SEMB4, $T_S \leq 75^\circ\text{C}$     |             | 250         |      |
| Junction temperature                   | $T_j$       | 150         | °C   |
| Storage temperature                    | $T_{stg}$   | 150 ... -65 |      |

**Thermal Resistance**

| Parameter                                | Symbol     | Value      | Unit |
|--|------------|------------|------|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ |            | K/W  |
| BCR179F                                  |            | $\leq 90$  |      |
| BCR179L3                                 |            | $\leq 60$  |      |
| BCR179T                                  |            | $\leq 109$ |      |
| SEMB4                                    |            | $\leq 300$ |      |

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

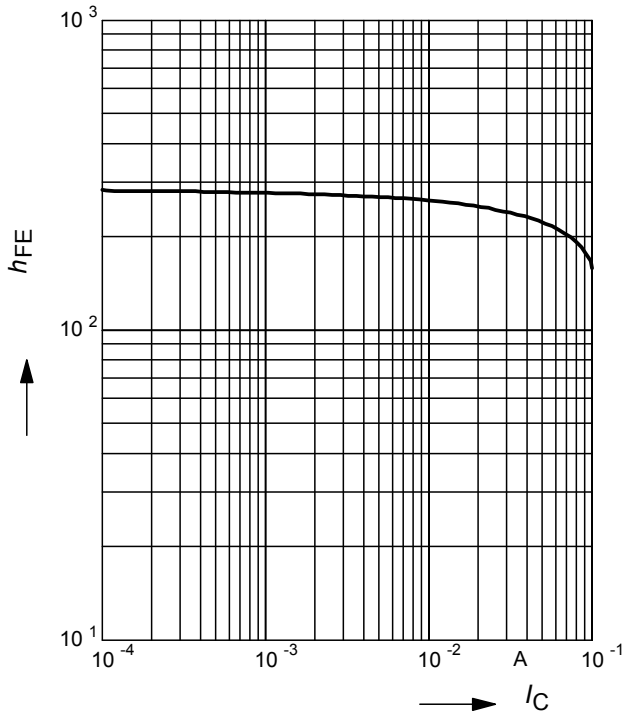
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

| 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     | -    | -    |            |
| Emitter-base breakdown voltage<br>$I_E = 10 \mu\text{A}, I_C = 0$                                 | $V_{(BR)EBO}$ | 5      | -    | -    |            |
| Collector-base cutoff current<br>$V_{CB} = 40 \text{ V}, I_E = 0$                                 | $I_{CBO}$     | -      | -    | 100  | nA         |
| DC current gain <sup>1)</sup><br>$I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$                       | $h_{FE}$      | 120    | -    | 630  | -          |
| 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>$I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$                                | $V_{i(off)}$  | 0,4    | -    | 1    |            |
| Input on voltage<br>$I_C = 2 \text{ mA}, V_{CE} = 0,3 \text{ V}$                                  | $V_{i(on)}$   | 0,5    | -    | 1,1  |            |
| Input resistor  | $R_1$         | 7      | 10   | 13   | k $\Omega$ |
| <b>AC Characteristics</b>   |               |        |      |      |            |
| Transition frequency<br>$I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$          | $f_T$         | -      | 150  | -    | MHz        |
| Collector-base capacitance<br>$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$                          | $C_{cb}$      | -      | 1,2  | -    | pF         |

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

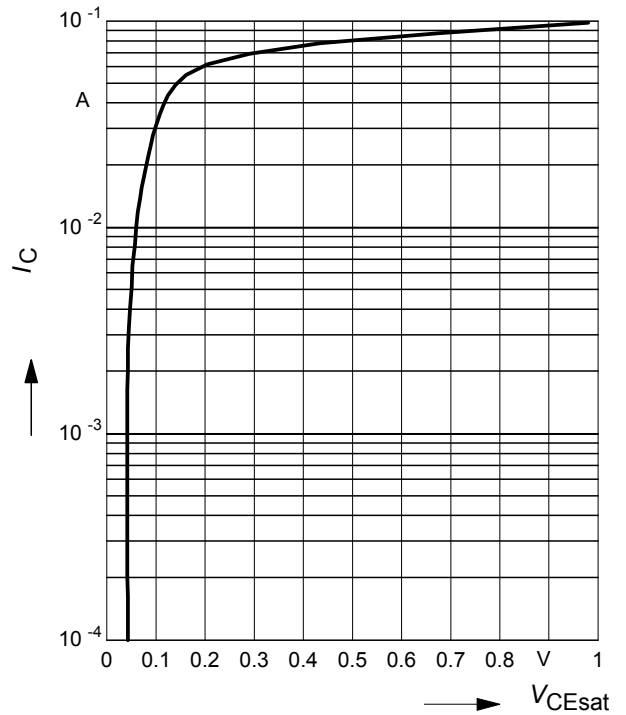
**DC current gain  $h_{FE} = f(I_C)$**

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



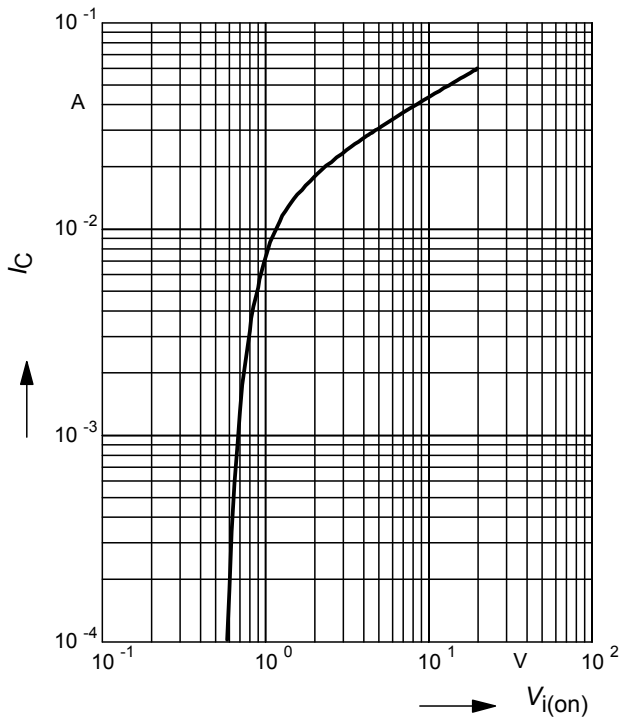
**Collector-emitter saturation voltage**

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



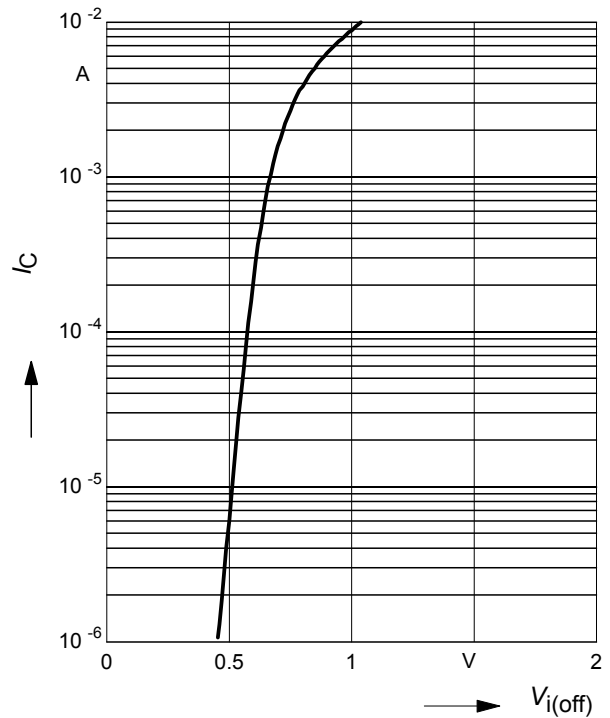
**Input on Voltage  $V_{i(on)} = f(I_C)$**

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



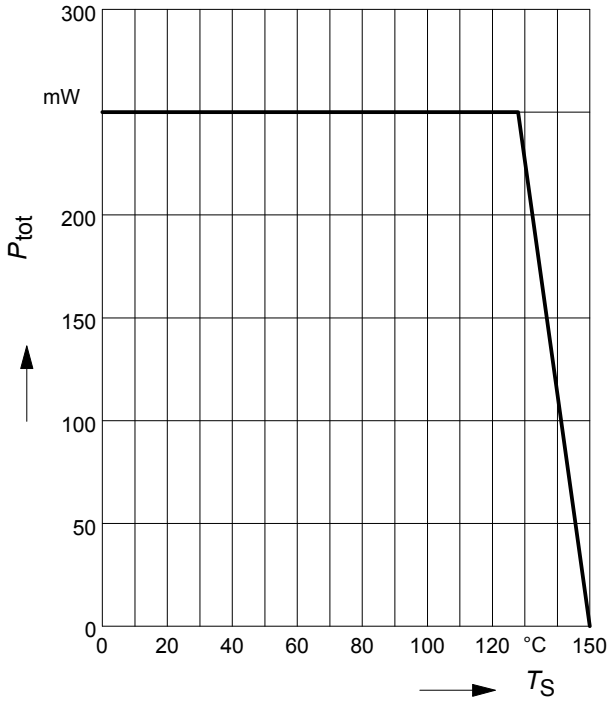
**Input off voltage  $V_{i(off)} = f(I_C)$**

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



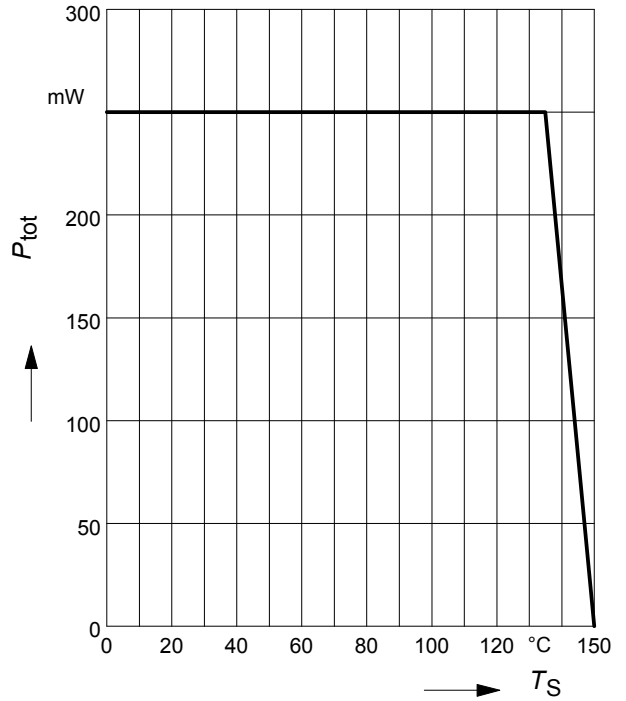
**Total power dissipation  $P_{tot} = f(T_S)$**

BCR179F



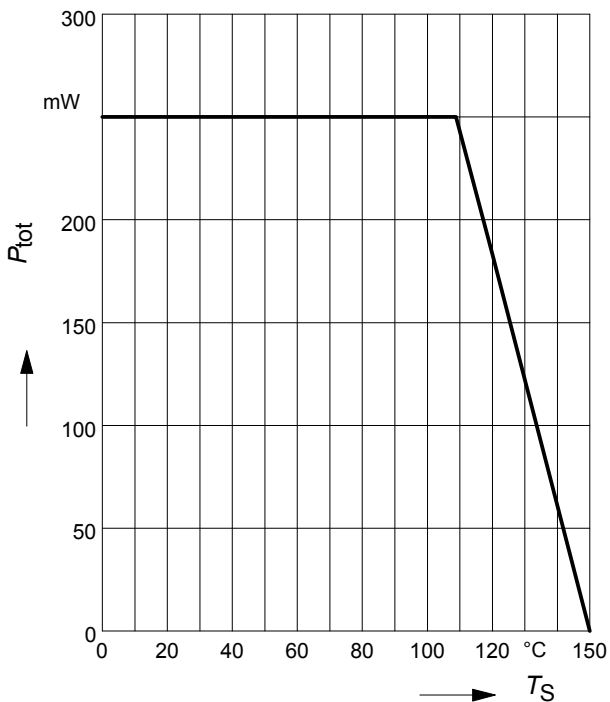
**Total power dissipation  $P_{tot} = f(T_S)$**

BCR179L3



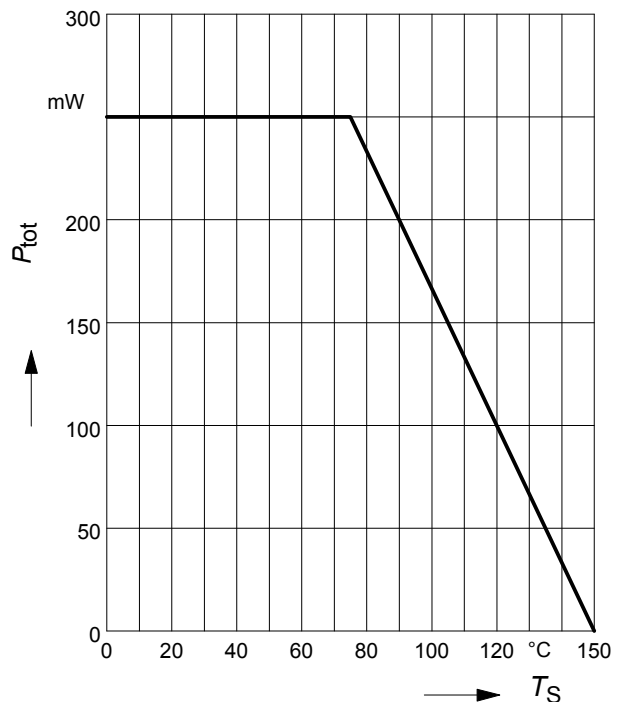
**Total power dissipation  $P_{tot} = f(T_S)$**

BCR179T



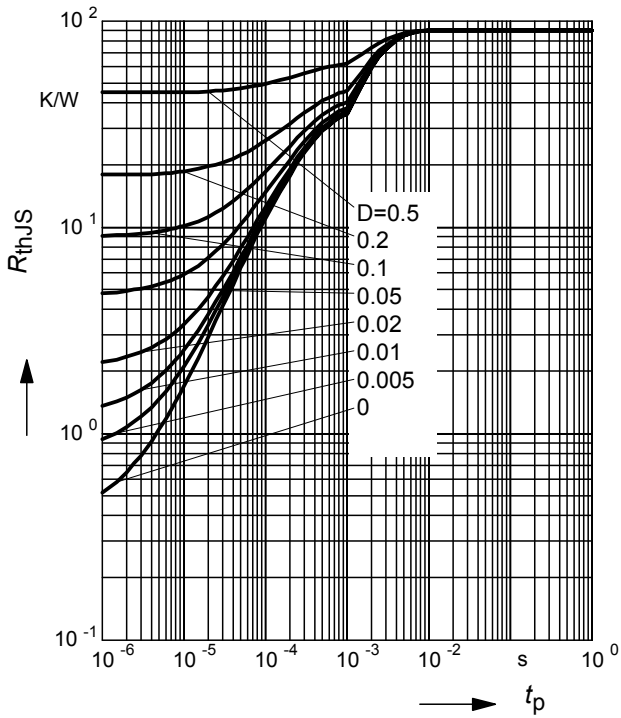
**Total power dissipation  $P_{tot} = f(T_S)$**

SEMB4



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

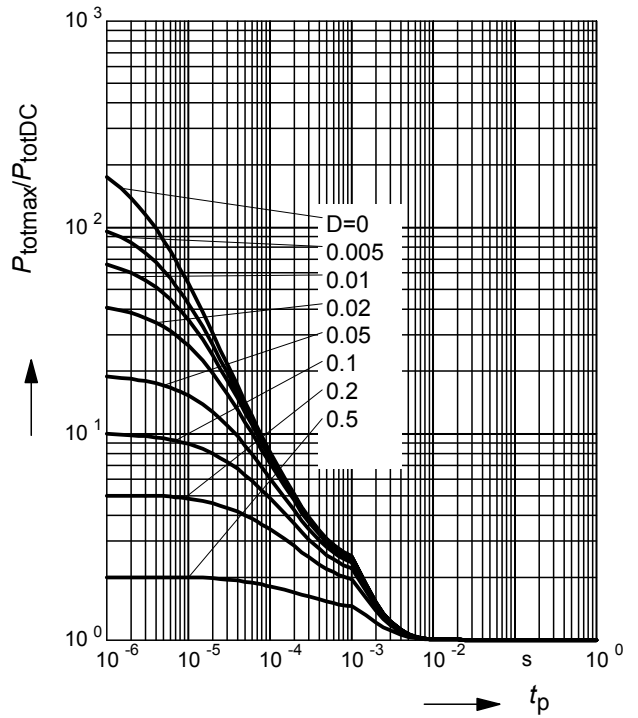
BCR179F



**Permissible Pulse Load**

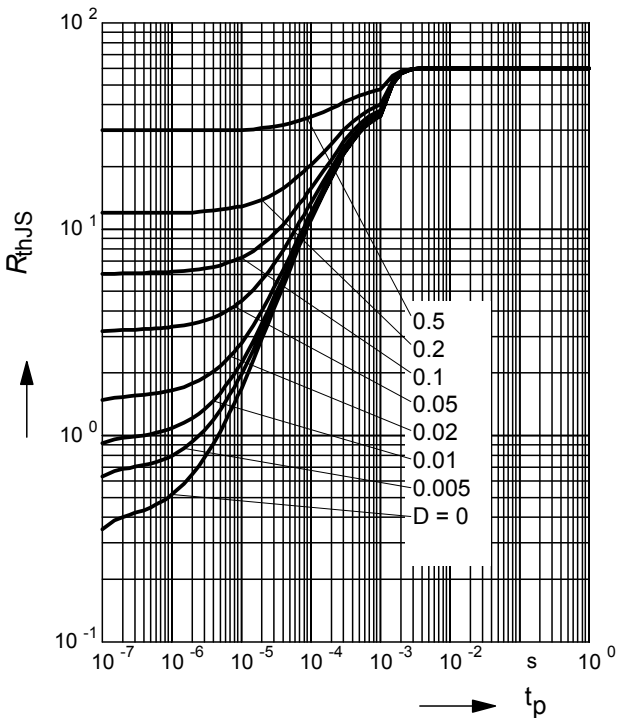
$P_{totmax}/P_{totDC} = f(t_p)$

BCR179F



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

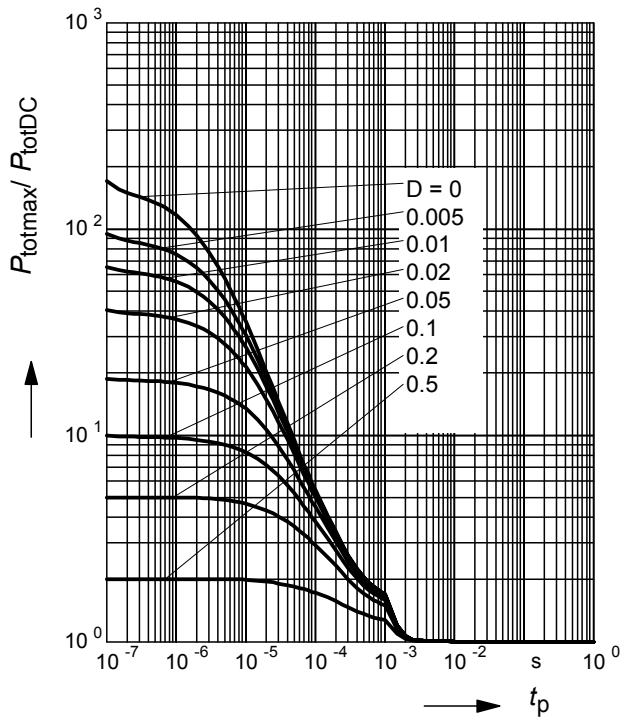
BCR179L3



**Permissible Pulse Load**

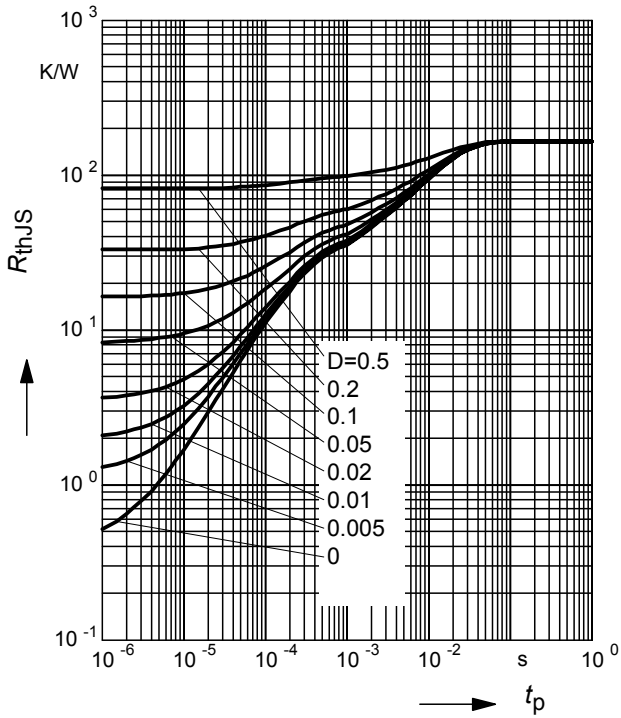
$P_{totmax}/P_{totDC} = f(t_p)$

BCR179L3



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

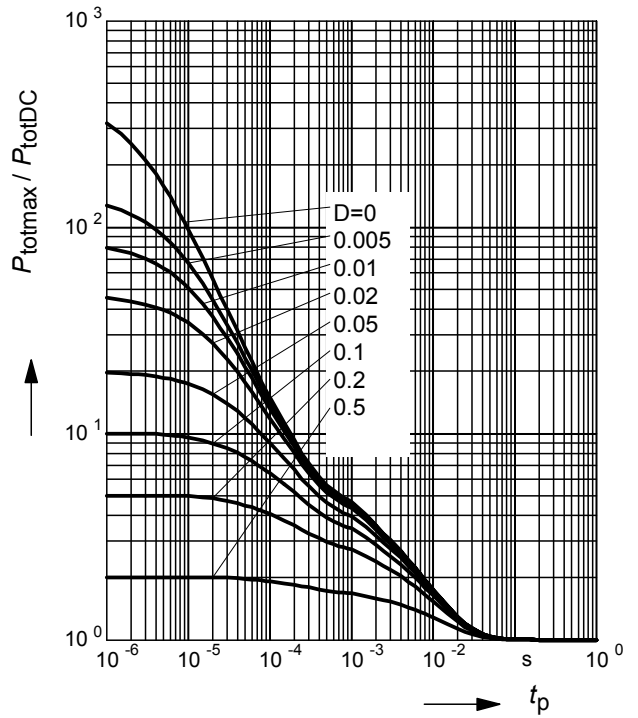
BCR179T



**Permissible Pulse Load**

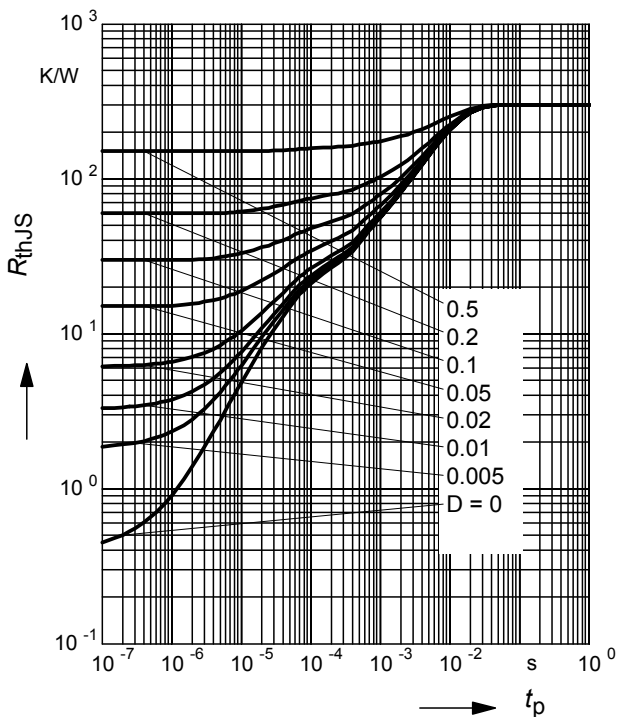
$P_{totmax}/P_{totDC} = f(t_p)$

BCR179T



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

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**Permissible Pulse Load**

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

SEMB4

