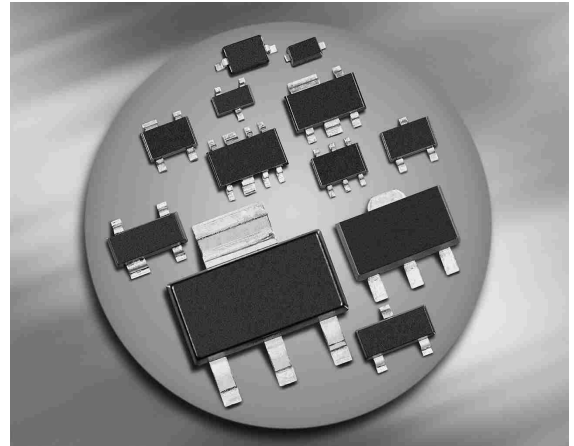
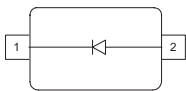


### Silicon Schottky Diode

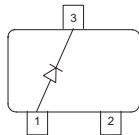
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing



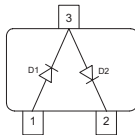
**BAS170W**  
**BAS70-02L**  
**BAS70-02W**



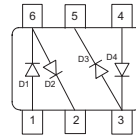
**BAS70**



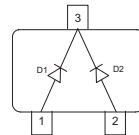
**BAS70-04**  
**BAS70-04T**  
**BAS70-04W**



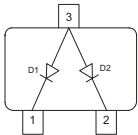
**BAS70-04S**



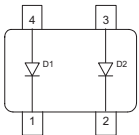
**BAS70-05**  
**BAS70-05W**



**BAS70-06**  
**BAS70-06W**



**BAS70-07**  
**BAS70-07W**



| Type       | Package  | Configuration    | $L_S$ (nH) | Marking |
|------------|----------|------------------|------------|---------|
| BAS170W    | SOD323   | single           | 1.8        | 7       |
| BAS70      | SOT23    | single           | 1.8        | 73s     |
| BAS70-02L* | TSLP-2-1 | single, leadless | 0.4        | F       |
| BAS70-02W  | SCD80    | single           | 0.6        | 73      |
| BAS70-04   | SOT23    | series           | 1.8        | 74s     |
| BAS70-04S  | SOT363   | dual series      | 1.6        | 74s     |
| BAS70-04T  | SC75     | series           | 1.6        | 74s     |
| BAS70-04W  | SOT323   | series           | 1.4        | 74s     |
| BAS70-05   | SOT23    | common cathode   | 1.8        | 75s     |
| BAS70-05W  | SOT323   | common cathode   | 1.4        | 75s     |
| BAS70-06   | SOT23    | common anode     | 1.8        | 76s     |
| BAS70-06W  | SOT323   | common anode     | 1.4        | 76s     |
| BAS70-07   | SOT143   | parallel pair    | 2          | 77s     |
| BAS70-07W  | SOT343   | parallel pair    | 1.8        | 77s     |

\* Preliminary

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

| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                          | Symbol    | Value                                                              | Unit             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------|------------------|
| Diode reverse voltage                                                                                                                                                                                                                                                                                                                                                                                                                              | $V_R$     | 70                                                                 | V                |
| Forward current                                                                                                                                                                                                                                                                                                                                                                                                                                    | $I_F$     | 70                                                                 | mA               |
| Surge forward current<br>$t \leq 10\text{ms}$                                                                                                                                                                                                                                                                                                                                                                                                      | $I_{FSM}$ | 100                                                                |                  |
| Total power dissipation<br>BAS70, BAS70-07, $T_S \leq 72^\circ\text{C}$<br>BAS70-02L, $T_S \leq 117^\circ\text{C}$<br>BAS70-02W, $T_S \leq 107^\circ\text{C}$<br>BAS70-04, BAS70-06, $T_S \leq 48^\circ\text{C}$<br>BAS70-04S/W/-06W, BAS170W, $T_S \leq 97^\circ\text{C}$<br>BAS70-04T, $T_S \leq 91^\circ\text{C}$<br>BAS70-05, $T_S \leq 22^\circ\text{C}$<br>BAS70-05W, $T_S \leq 90^\circ\text{C}$<br>BAS70-07W, $T_S \leq 114^\circ\text{C}$ | $P_{tot}$ | 250<br>250<br>250<br>250<br>250<br>250<br>250<br>250<br>250<br>250 | mW               |
| Junction temperature                                                                                                                                                                                                                                                                                                                                                                                                                               | $T_j$     | 150                                                                |                  |
| Operating temperature range                                                                                                                                                                                                                                                                                                                                                                                                                        | $T_{op}$  | -55 ... 125                                                        | $^\circ\text{C}$ |
| Storage temperature                                                                                                                                                                                                                                                                                                                                                                                                                                | $T_{stg}$ | -55 ... 150                                                        |                  |

#### Thermal Resistance

| Parameter                                                                                                                                                                                           | Symbol     | Value                                                                                                                                    | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------|------|
| Junction - soldering point <sup>1)</sup><br>BAS70, BAS70-07<br>BAS70-02L<br>BAS70-02W<br>BAS70-04, BAS70-06<br>BAS70-04S/W, BAS70-06W<br>BAS70-04T<br>BAS70-05<br>BAS70-05W<br>BAS70-07W<br>BAS170W | $R_{thJS}$ | $\leq 310$<br>$\leq 130$<br>$\leq 170$<br>$\leq 410$<br>$\leq 210$<br>$\leq 235$<br>$\leq 510$<br>$\leq 240$<br>$\leq 145$<br>$\leq 190$ | K/W  |

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

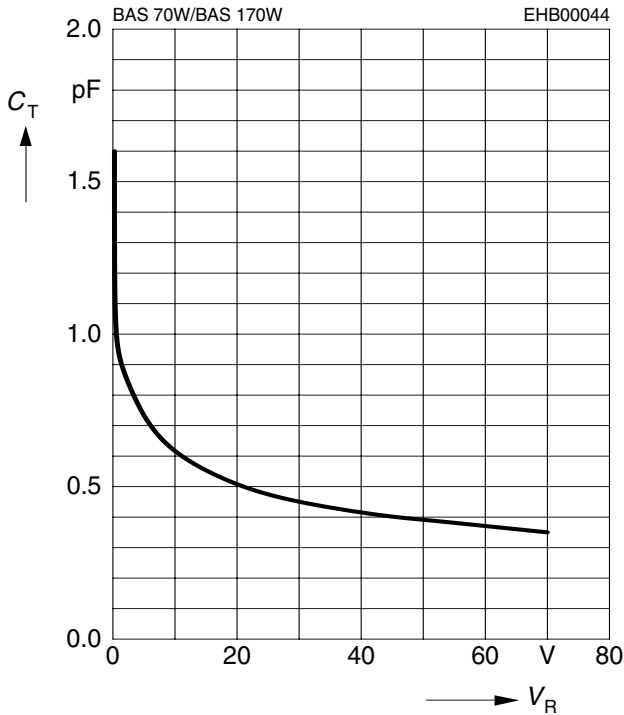
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                                                 | Symbol       | Values            |                   |                    | Unit          |
|-------------------------------------------------------------------------------------------|--------------|-------------------|-------------------|--------------------|---------------|
|                                                                                           |              | min.              | typ.              | max.               |               |
| DC Characteristics                                                                        |              |                   |                   |                    |               |
| Breakdown voltage<br>$I_{(BR)} = 10\ \mu\text{A}$                                         | $V_{(BR)}$   | 70                | -                 | -                  | V             |
| Reverse current<br>$V_R = 50\ \text{V}$                                                   | $I_R$        | -                 | -                 | 0.1                | $\mu\text{A}$ |
| Forward voltage<br>$I_F = 1\ \text{mA}$<br>$I_F = 10\ \text{mA}$<br>$I_F = 15\ \text{mA}$ | $V_F$        | 300<br>600<br>750 | 375<br>705<br>880 | 410<br>750<br>1000 | mV            |
| Forward voltage matching <sup>1)</sup><br>$I_F = 10\ \text{mA}$                           | $\Delta V_F$ | -                 | -                 | 20                 |               |
| AC Characteristics                                                                        |              |                   |                   |                    |               |
| Diode capacitance<br>$V_R = 0$ , $f = 1\ \text{MHz}$                                      | $C_T$        | -                 | 1.5               | 2                  | pF            |
| Forward resistance<br>$I_F = 10\ \text{mA}$ , $f = 10\ \text{kHz}$                        | $r_f$        | -                 | 34                | -                  | $\Omega$      |
| Charge carrier life time<br>$I_F = 25\ \text{mA}$                                         | $\tau_{rr}$  | -                 | -                 | 100                | ps            |

<sup>1)</sup> $\Delta V_F$  is the difference between lowest and highest  $V_F$  in a multiple diode component.

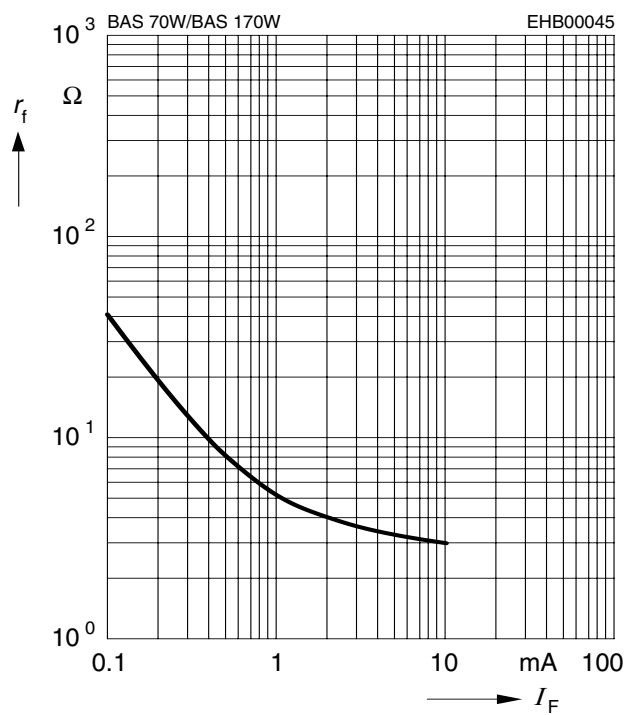
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



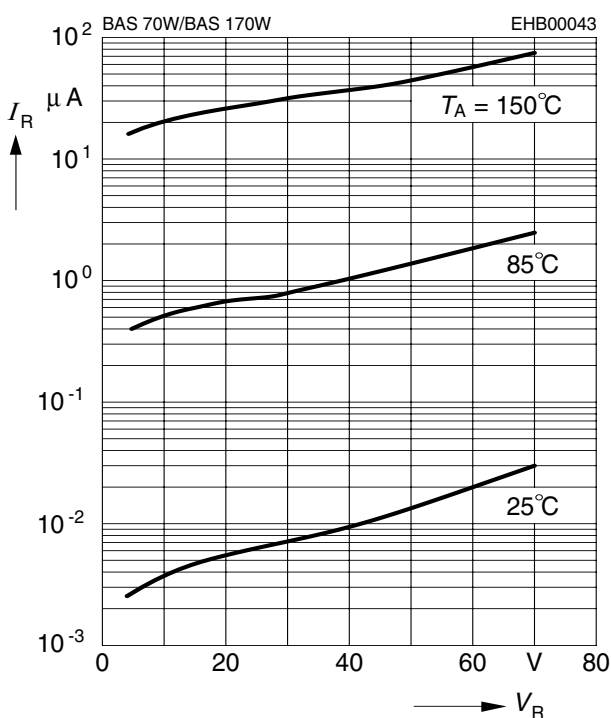
**Forward resistance  $r_f = f(I_F)$**

$f = 10\text{ kHz}$



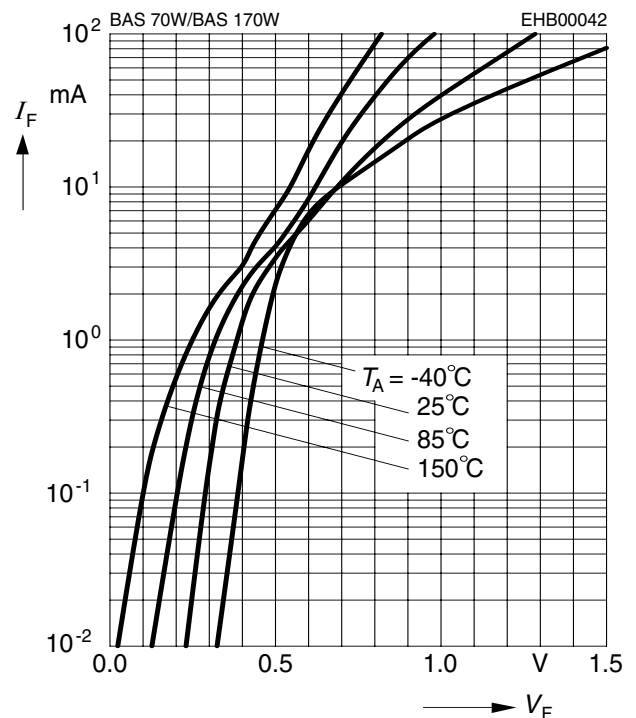
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



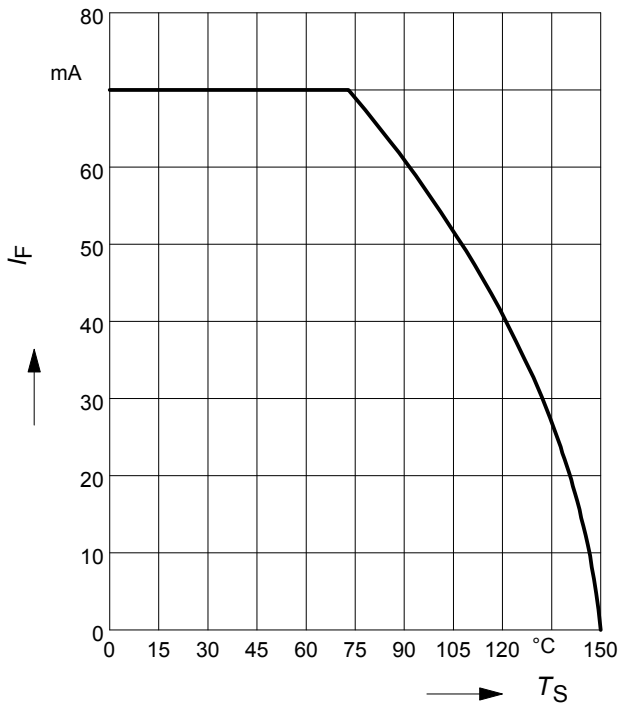
**Forward current  $I_F = f(V_F)$**

$T_A = \text{Parameter}$



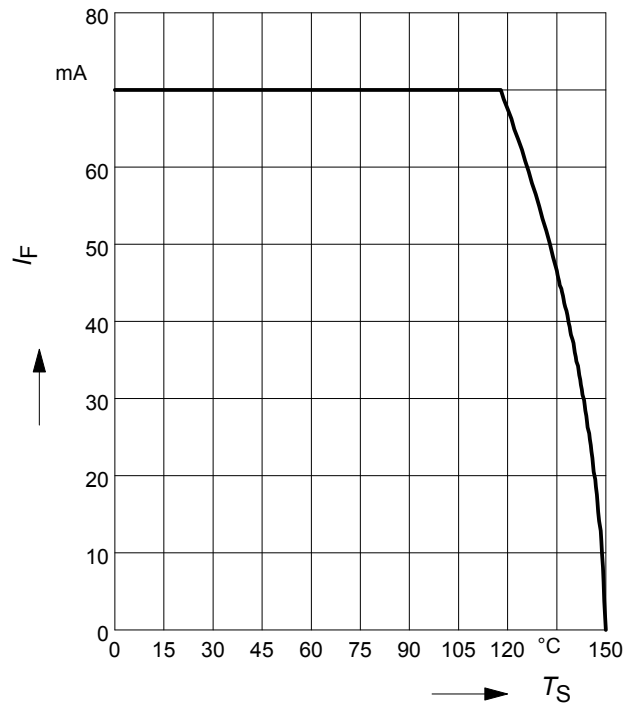
**Forward current  $I_F = f(T_S)$**

BAS70, BAS70-07



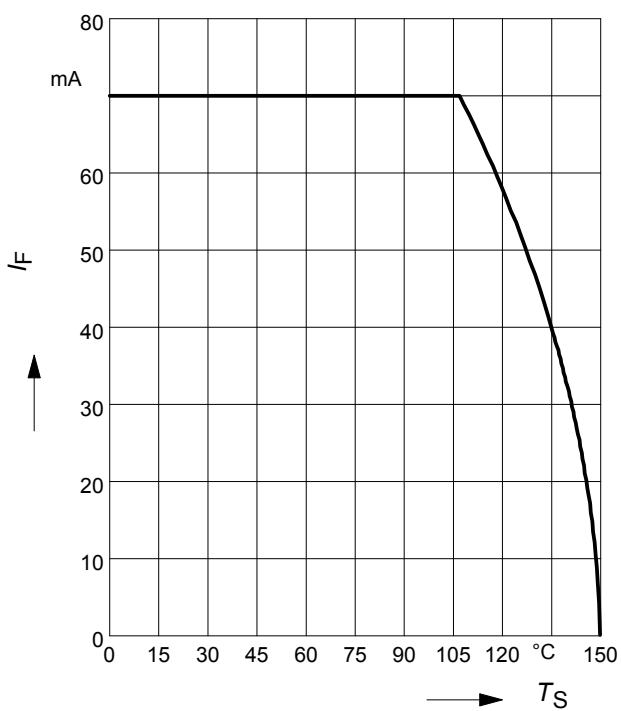
**Forward current  $I_F = f(T_S)$**

BAS70-02L



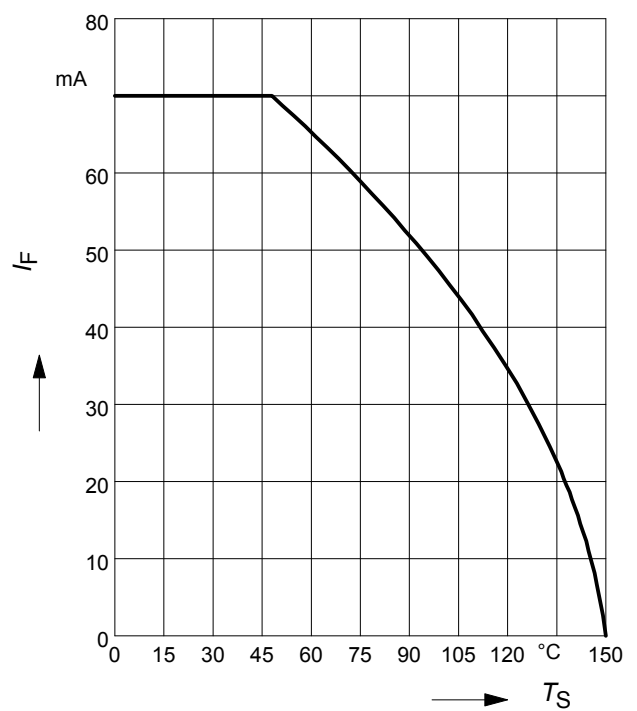
**Forward current  $I_F = f(T_S)$**

BAS70-02W



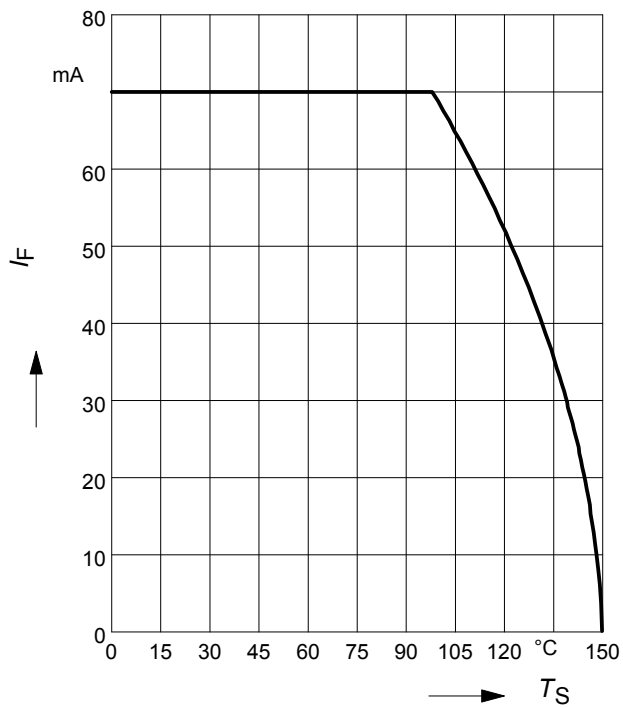
**Forward current  $I_F = f(T_S)$**

BAS70-04, BAS70-06



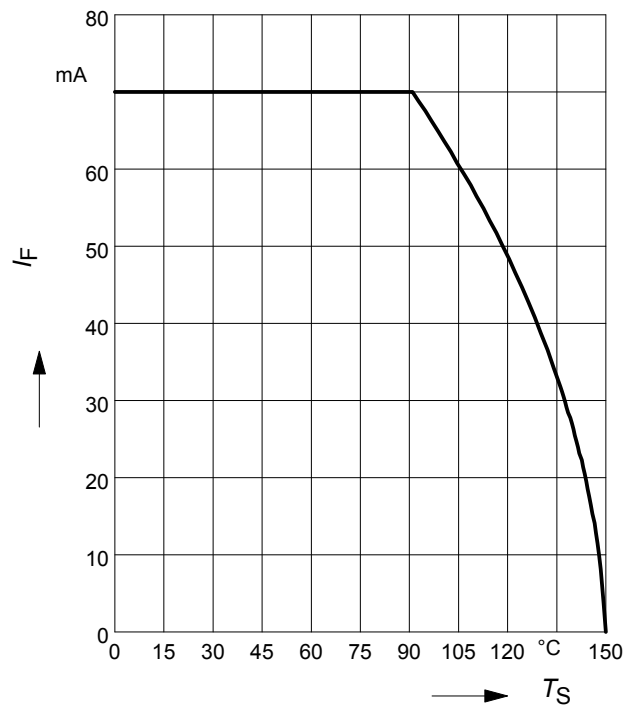
**Forward current  $I_F = f(T_S)$**

BAS70-04S/W, BAS70-06W, BAS170W



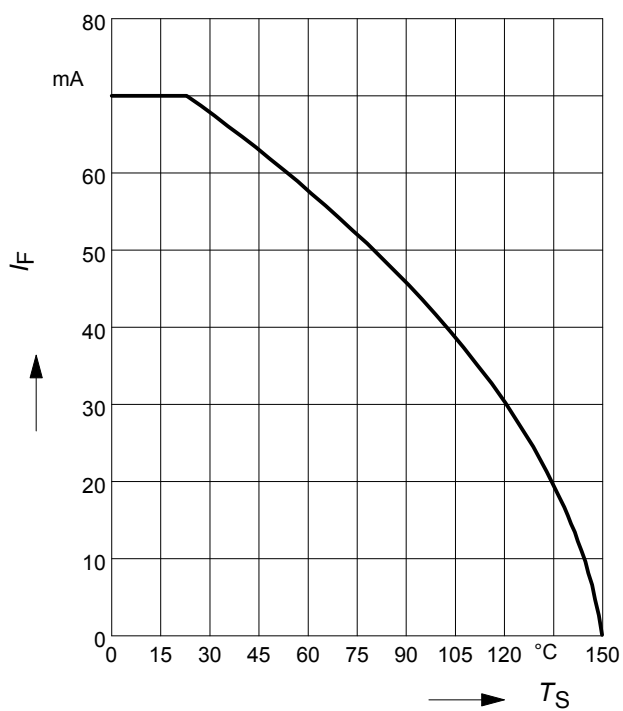
**Forward current  $I_F = f(T_S)$**

BAS70-04T



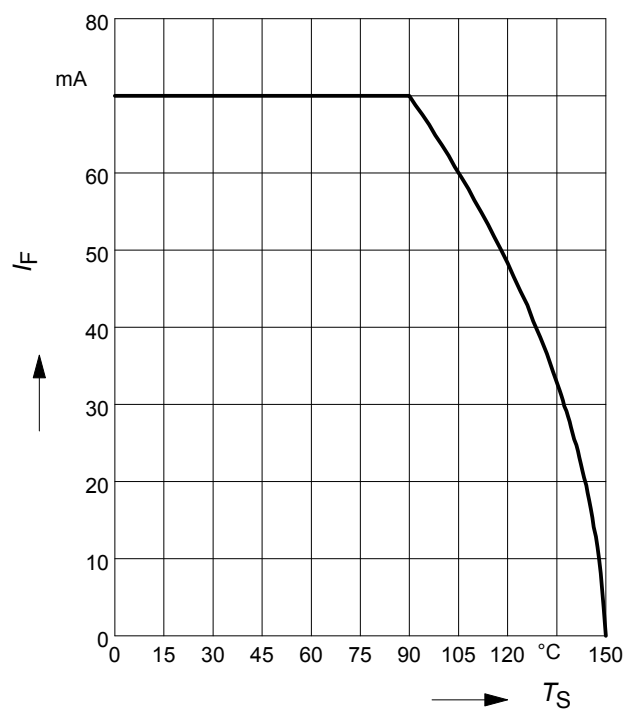
**Forward current  $I_F = f(T_S)$**

BAS70-05



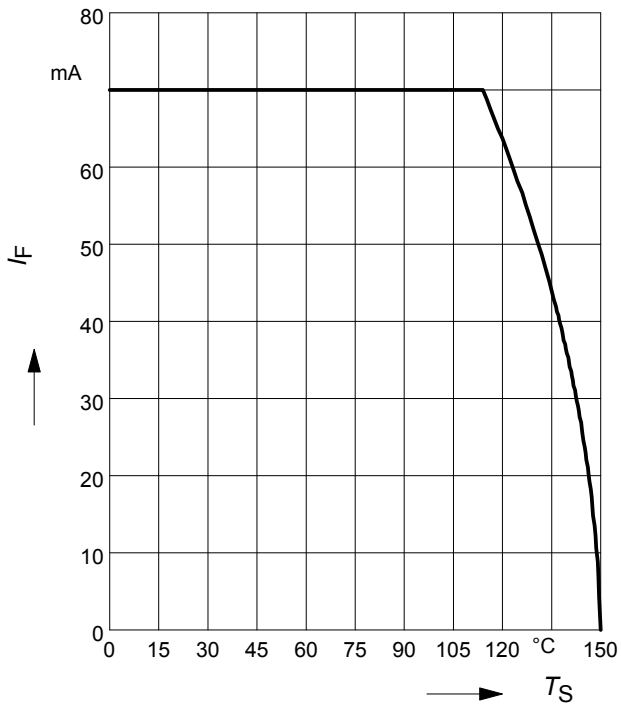
**Forward current  $I_F = f(T_S)$**

BAS70-05W



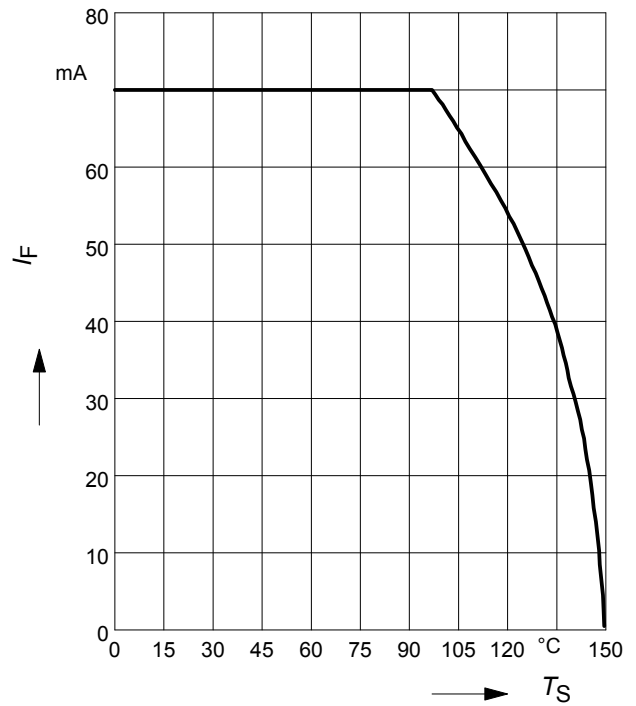
**Forward current  $I_F = f(T_S)$**

BAS70-07W



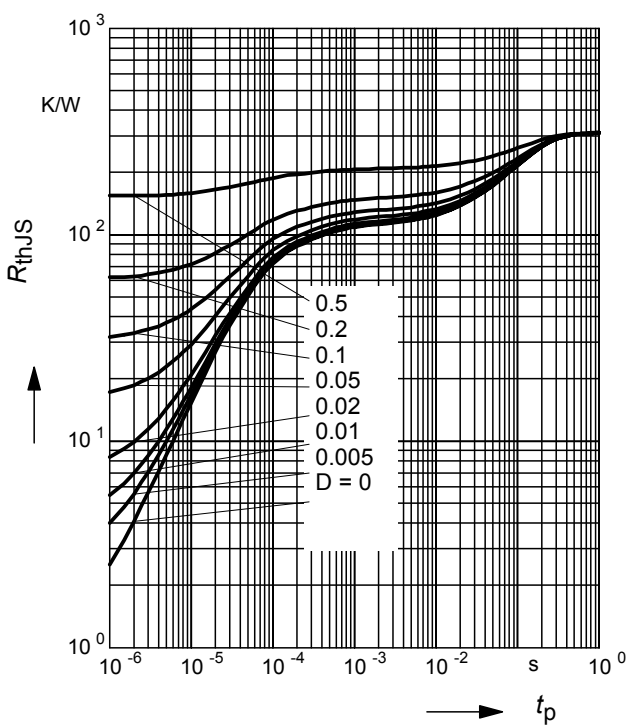
**Forward current  $I_F = f(T_S)$**

BAS170W



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

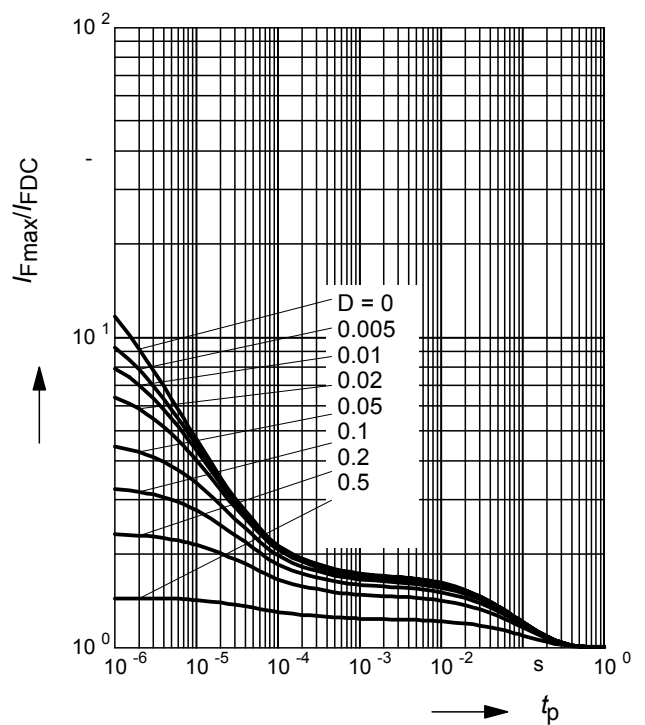
BAS70



**Permissible Pulse Load**

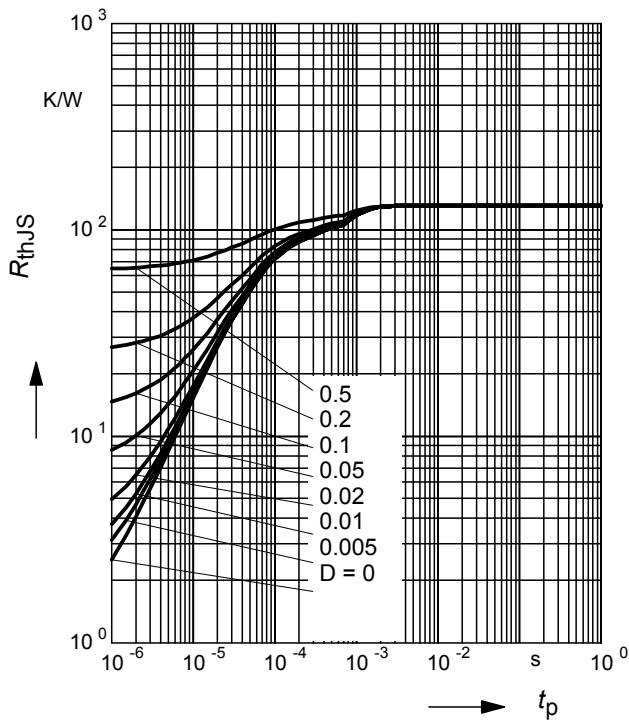
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70



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

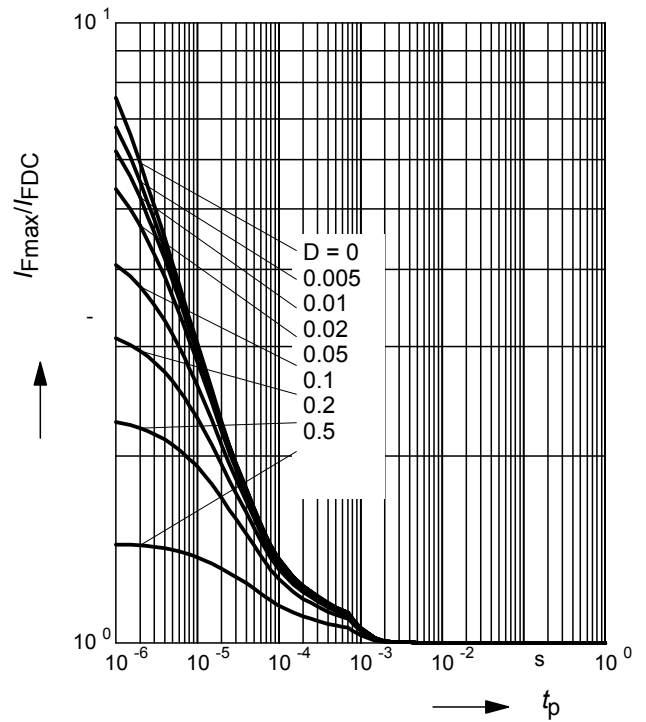
BAS70-02L



**Permissible Pulse Load**

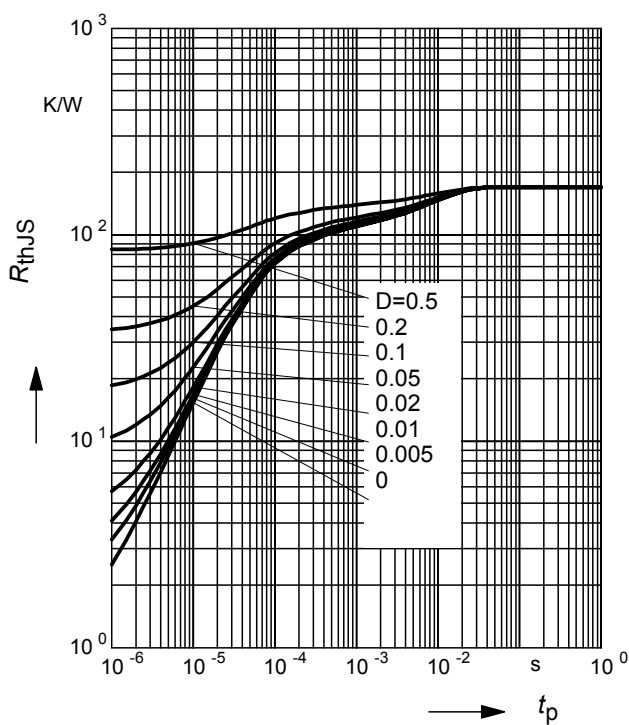
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-02L



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

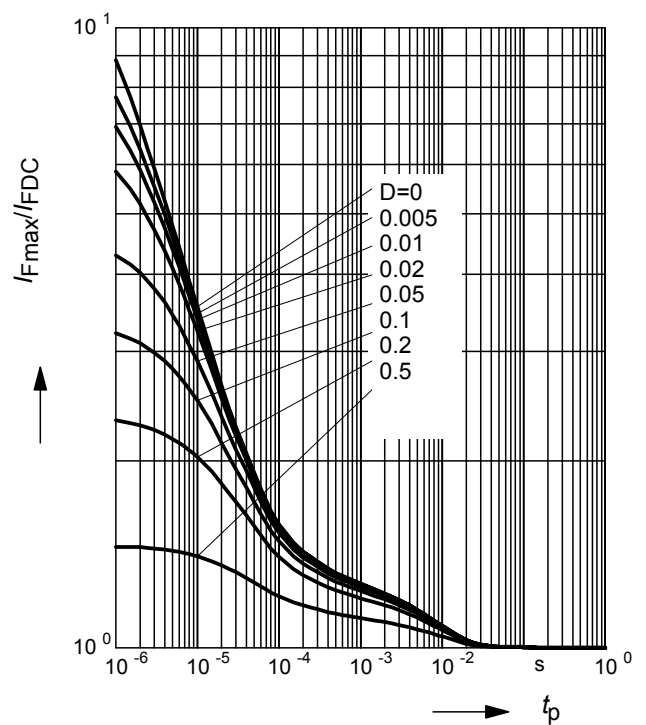
BAS70-02W



**Permissible Pulse Load**

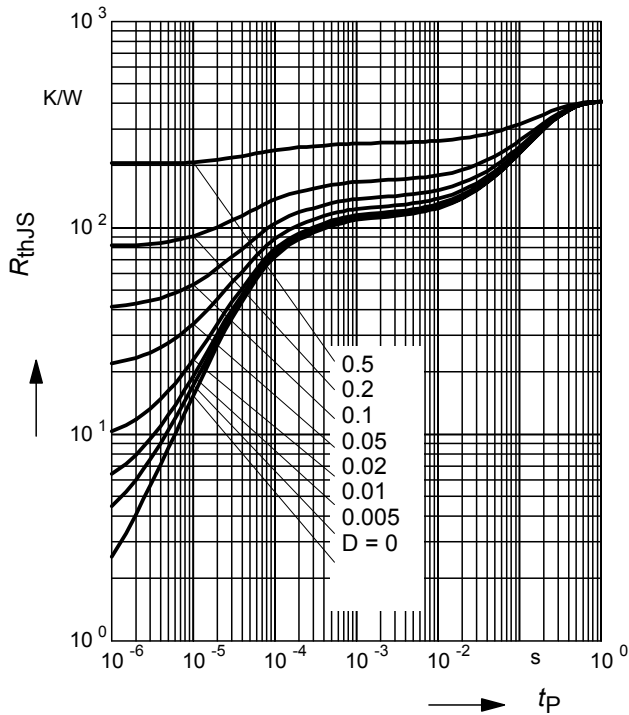
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-02W



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

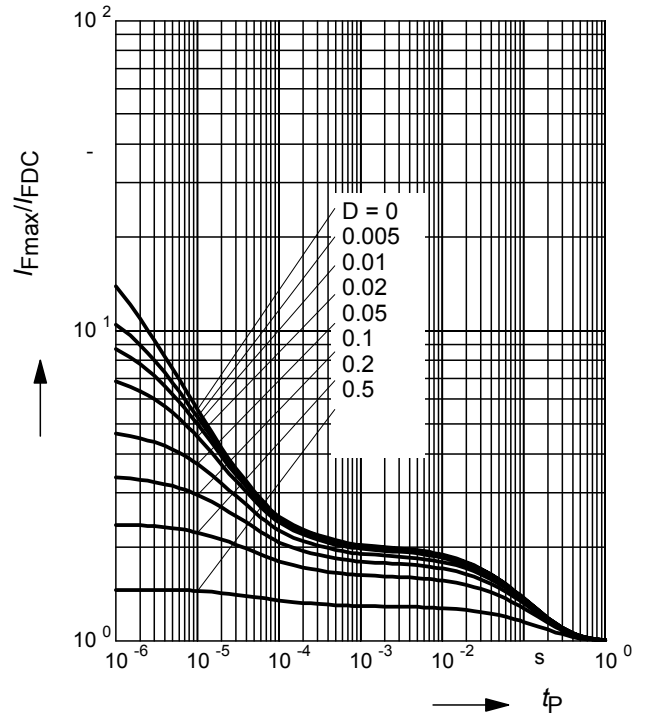
BAS70-04, BAS70-06



**Permissible Pulse Load**

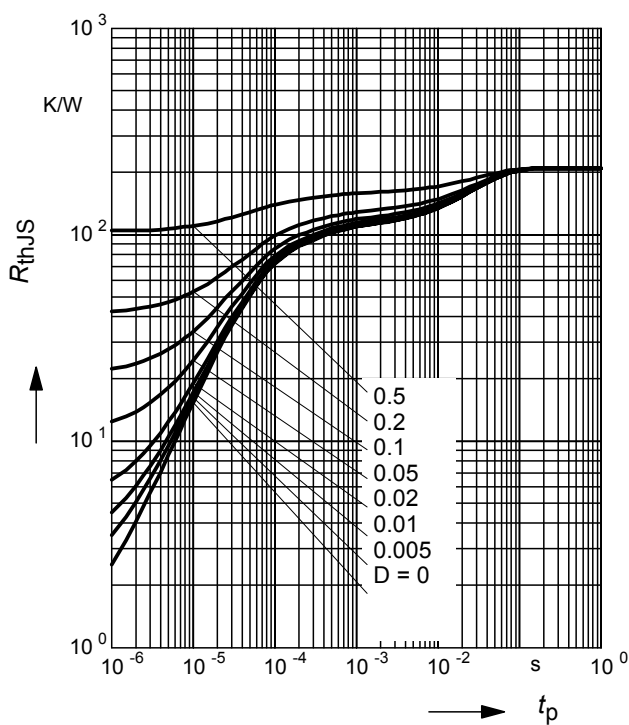
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-04, BAS70-06



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

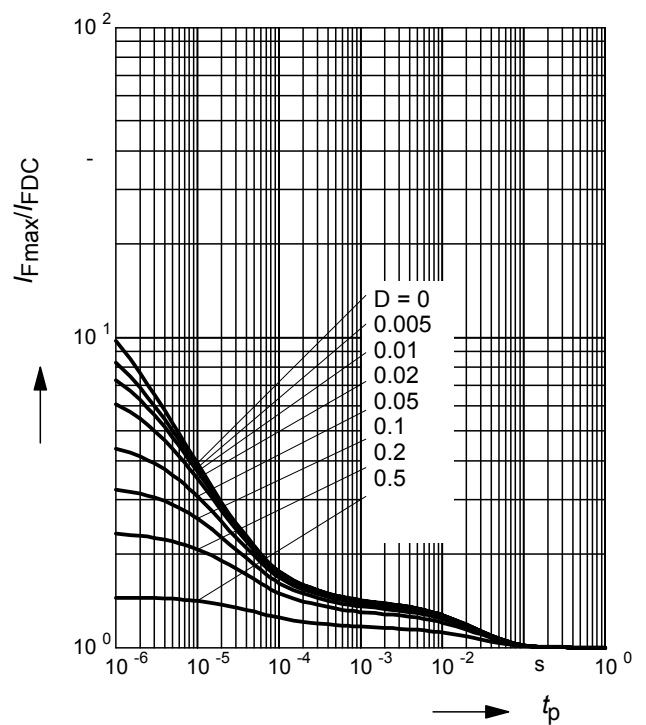
BAS70-04S



**Permissible Pulse Load**

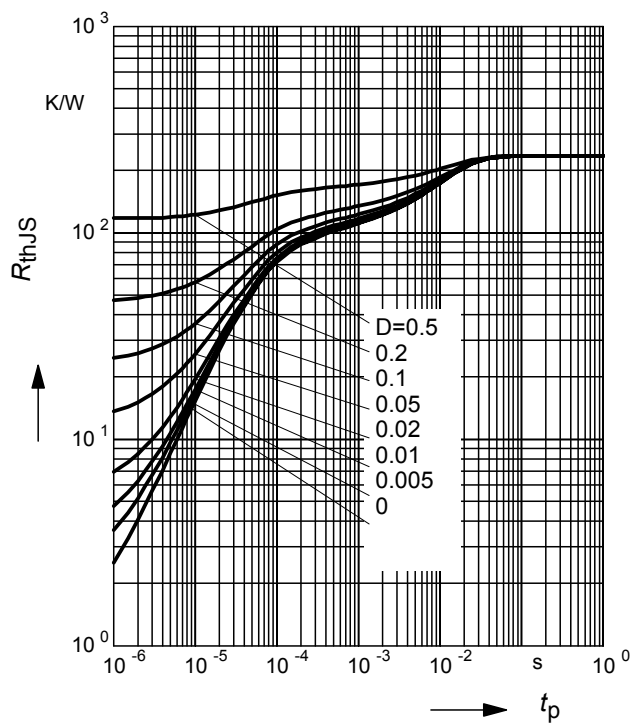
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-04S



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

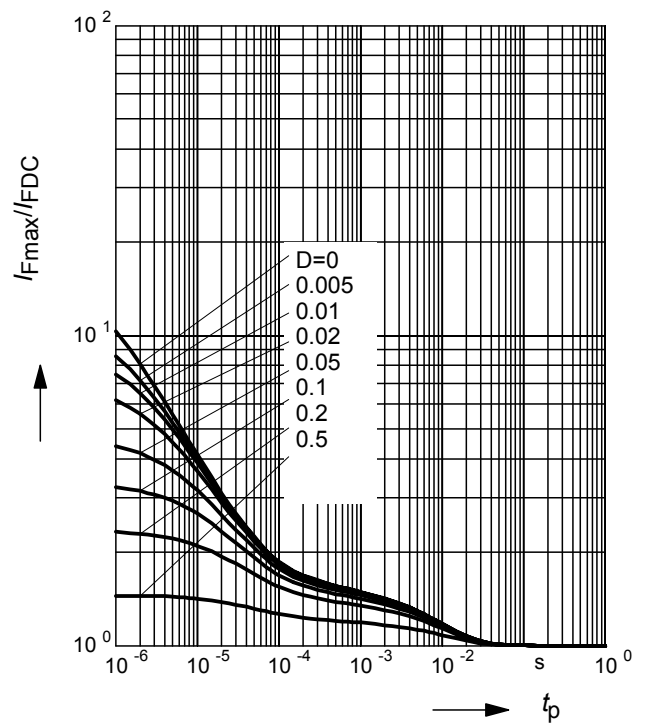
BAS70-04T



**Permissible Pulse Load**

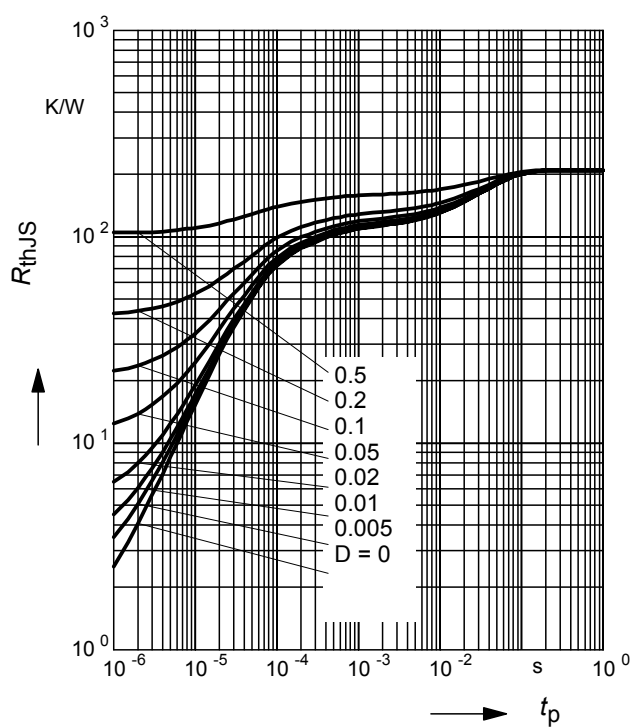
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-04T



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

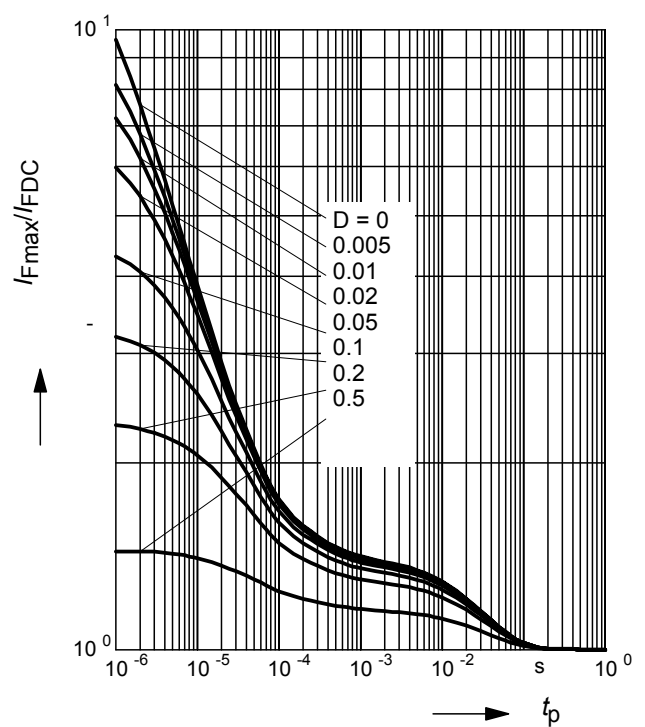
BAS70-04W, BAS70-06W



**Permissible Pulse Load**

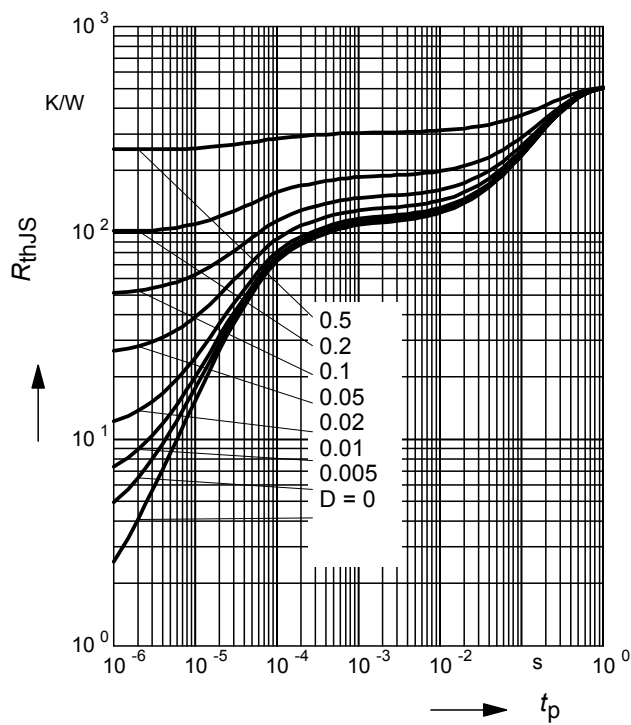
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAS70-04W, BAS70-06W



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

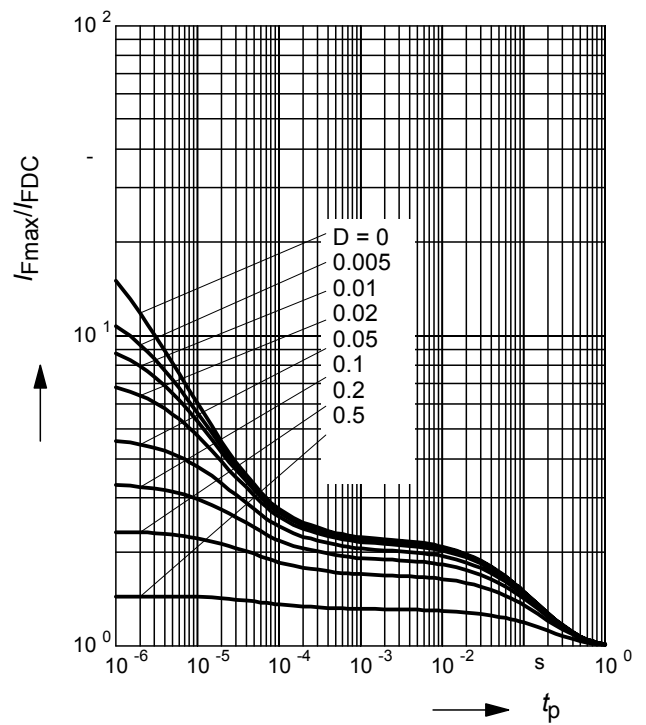
BAS70-05



**Permissible Pulse Load**

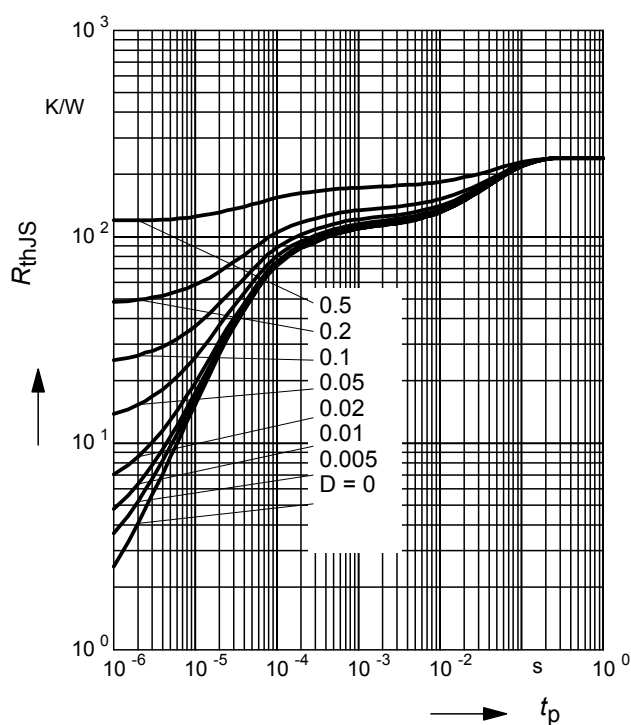
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-05



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

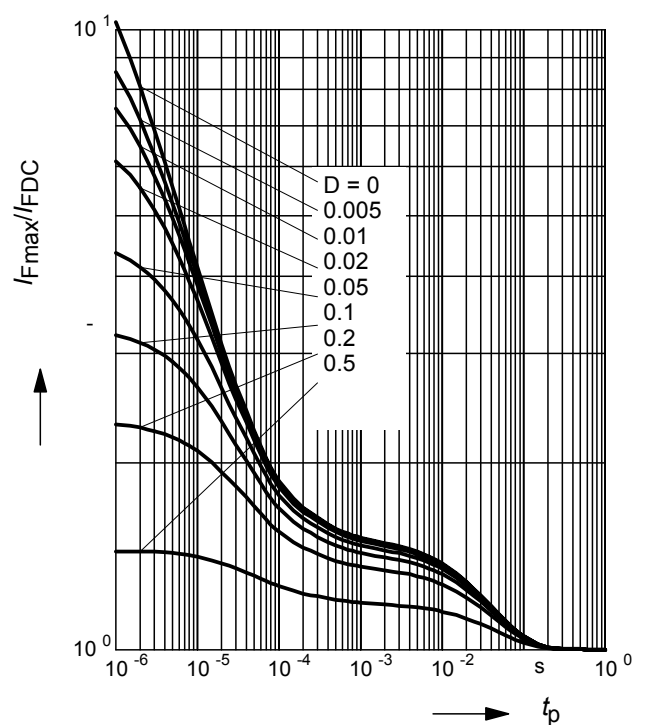
BAS70-05W



**Permissible Pulse Load**

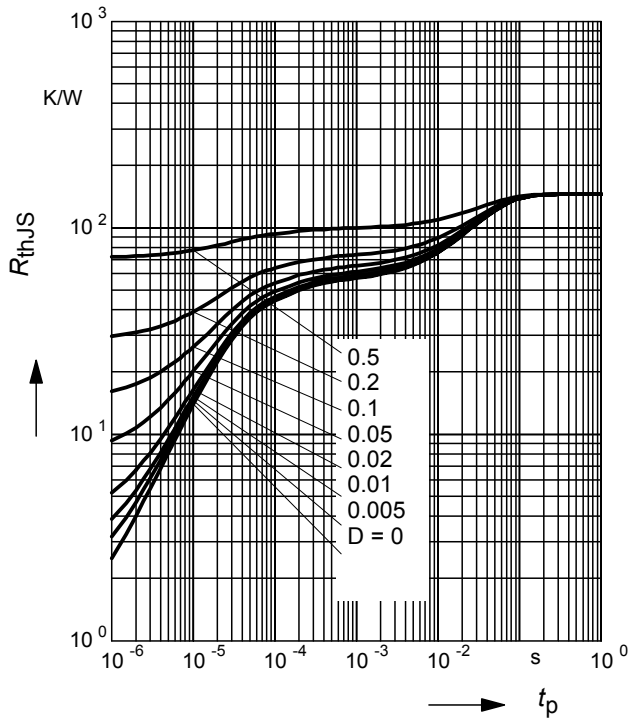
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-05W



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

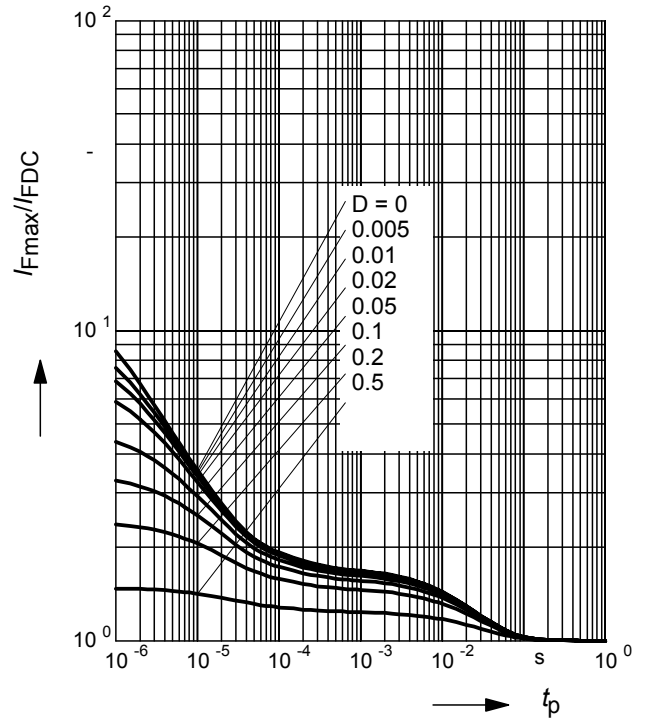
BAS70-07W



**Permissible Pulse Load**

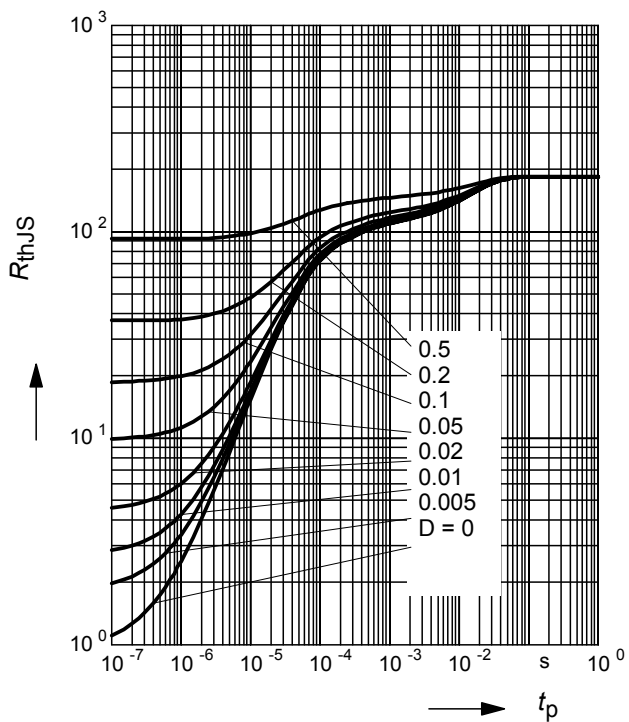
$I_{Fmax}/I_{FDC} = f(t_p)$

BAS70-07W



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

BAS170W



**Permissible Pulse Load**

$I_{Fmax}/I_{FDC} = f(t_p)$

BAS170W

