

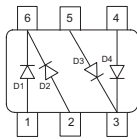
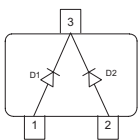
Silicon Switching Diode

- For high-speed switching applications
- Common cathode configuration



BAV70
BAV70F
BAV70L3
BAV70T
BAV70W

BAV70S
BAV70U



Type	Package	Configuration	Marking
BAV70	SOT23	common cathode	A4s
BAV70F*	TSFP-3	common cathode	A4s
BAV70L3 **	TSLP-3-1	common cathode, leadless	A4
BAV70S	SOT363	double common cathode	A4s
BAV70T	SC75	common cathode	A4s
BAV70U	SC74	double common cathode	A4s
BAV70W	SOT323	common cathode	A4s

* Preliminary Data

** Target Data

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	80	V
Peak reverse voltage	V_{RM}	85	
Forward current	I_F	200	mA
Non-repetitive peak surge forward current	I_{FSM}		A
$t = 1 \mu\text{s}$		4.5	
$t = 1 \text{ ms}$		1	
$t = 1 \text{ s single}$		0.5	
$t = 1 \text{ s double}$		0.75	
Total power dissipation	P_{tot}		mW
BAV70, $T_S \leq 33^\circ\text{C}$		250	
BAV70F, $T_S \leq \text{tbd}$		250	
BAV70L3, $T_S \leq \text{tbd}$		250	
BAV70S, $T_S \leq 85^\circ\text{C}$		250	
BAV70T, $T_S \leq 73^\circ\text{C}$		250	
BAV70U, $T_S \leq 90^\circ\text{C}$		250	
BAV70W, $T_S \leq 103^\circ\text{C}$		250	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BAV70		≤ 460	
BAV70F		$\leq \text{tbd}$	
BAV70L3		$\leq \text{tbd}$	
BAV70S		≤ 260	
BAV70T		≤ 310	
BAV70U		≤ 240	
BAV70W		≤ 190	

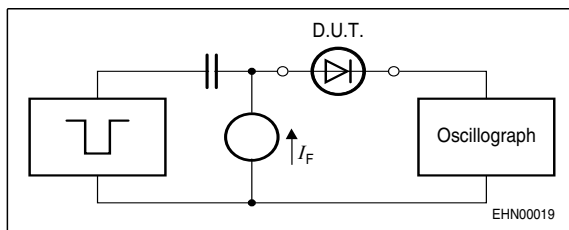
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100 \mu A$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 70 V$ $V_R = 25 V, T_A = 150 ^\circ C$ $V_R = 70 V, T_A = 150 ^\circ C$	I_R	- - -	- - -	0.15 30 50	μA
Forward voltage $I_F = 1 mA$ $I_F = 10 mA$ $I_F = 50 mA$ $I_F = 100 mA$ $I_F = 150 mA$	V_F	- - - - -	- - - - -	715 855 1000 1200 1250	mV

AC Characteristics

Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$	C_T	-	-	1.5	pF
Reverse recovery time $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}$, measured at $I_R = 1 \text{ mA}$, $R_L = 100 \Omega$	t_{rr}	-	-	4	ns

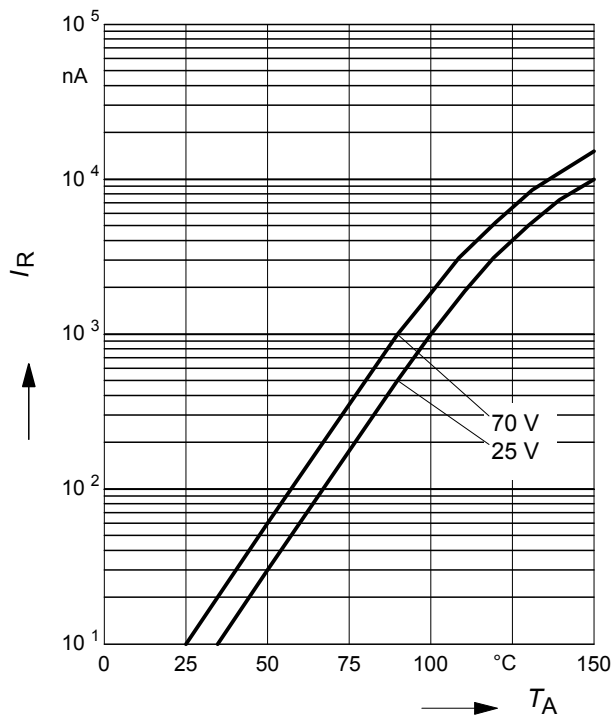
Test circuit for reverse recovery time


Pulse generator: $t_p = 100\text{ns}$, $D = 0.05$, $t_r = 0.6\text{ns}$,
 $R_i = 50\Omega$

Oscilloscope: $R = 50\Omega$, $t_r = 0.35\text{ns}$, $C = 0.05\text{pF}$

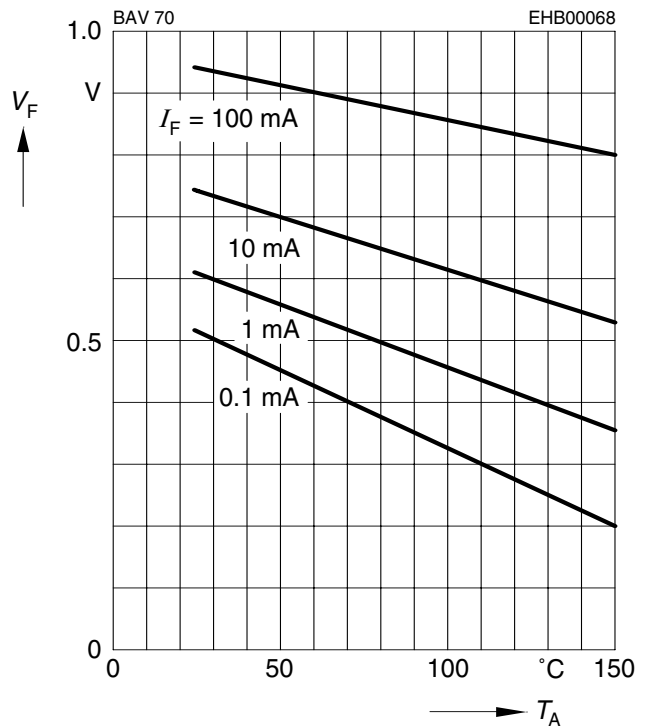
Reverse current $I_R = f(T_A)$

V_R = Parameter



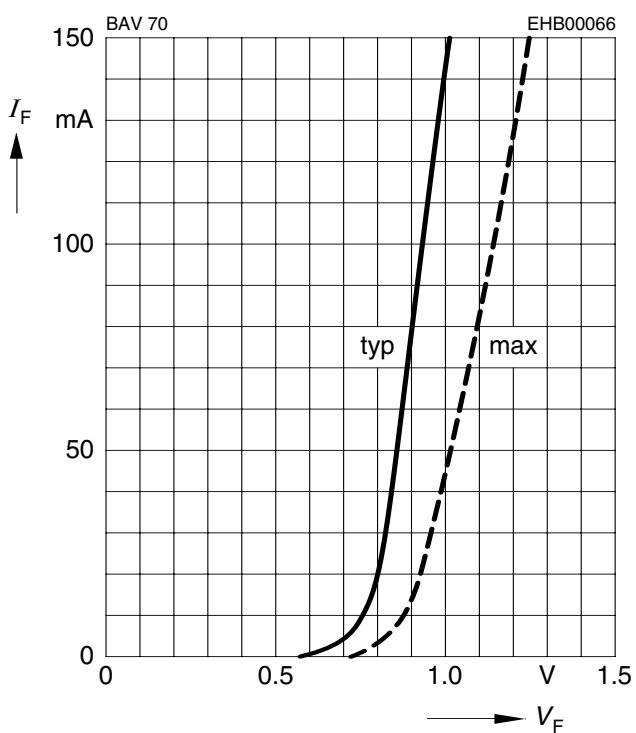
Forward Voltage $V_F = f(T_A)$

I_F = Parameter



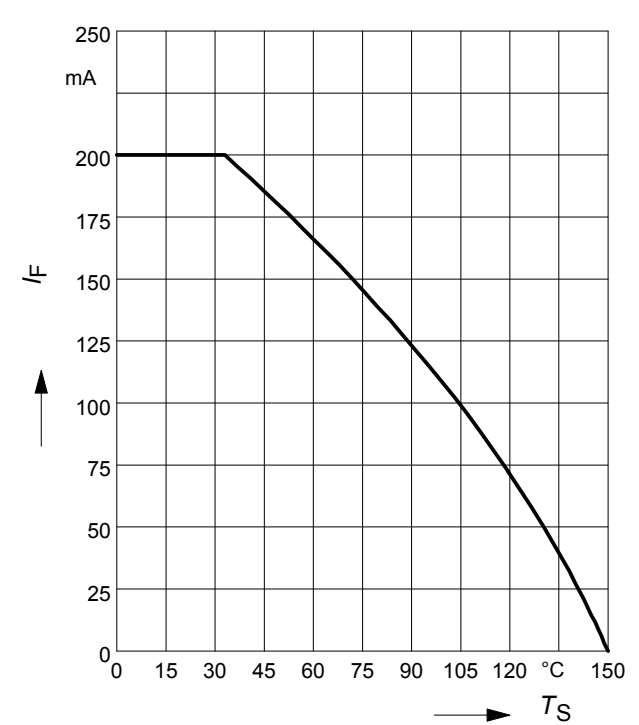
Forward current $I_F = f(V_F)$

$T_A = 25^\circ\text{C}$



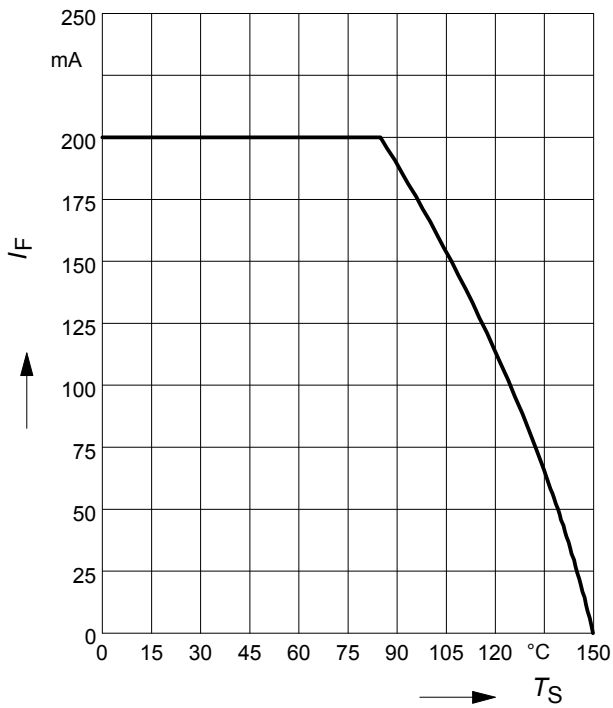
Forward current $I_F = f(T_S)$

BAV70



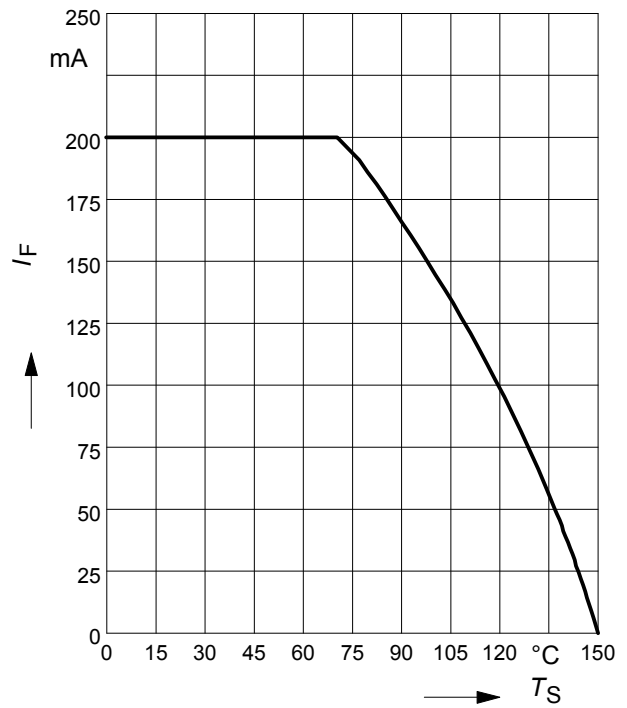
Forward current $I_F = f(T_S)$

BAV70S



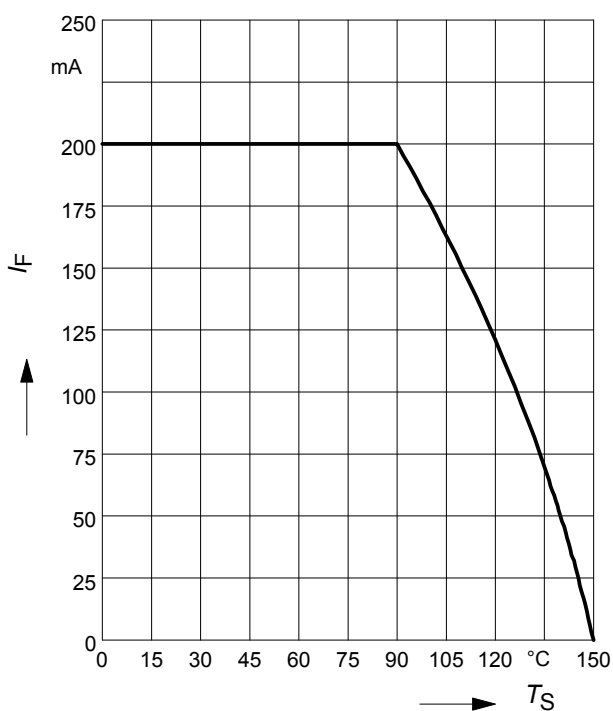
Forward current $I_F = f(T_S)$

BAV70T



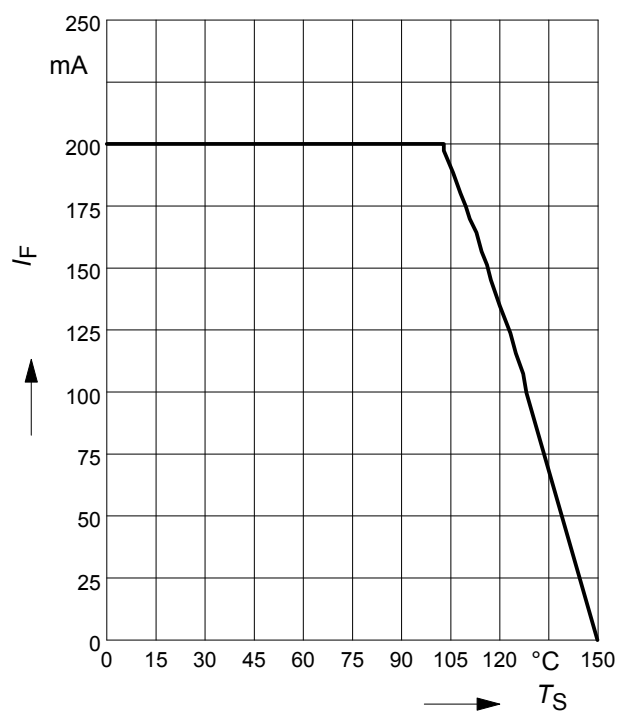
Forward current $I_F = f(T_S)$

BAV70U



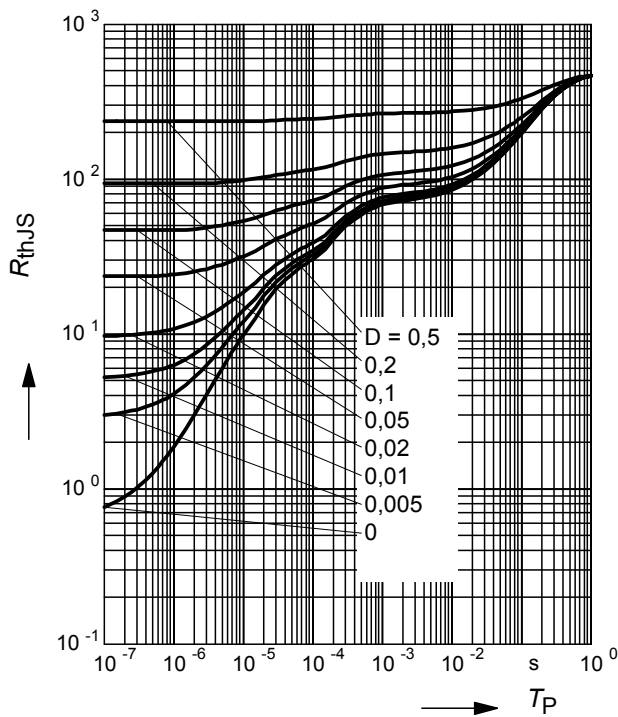
Forward current $I_F = f(T_S)$

BAV70W



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

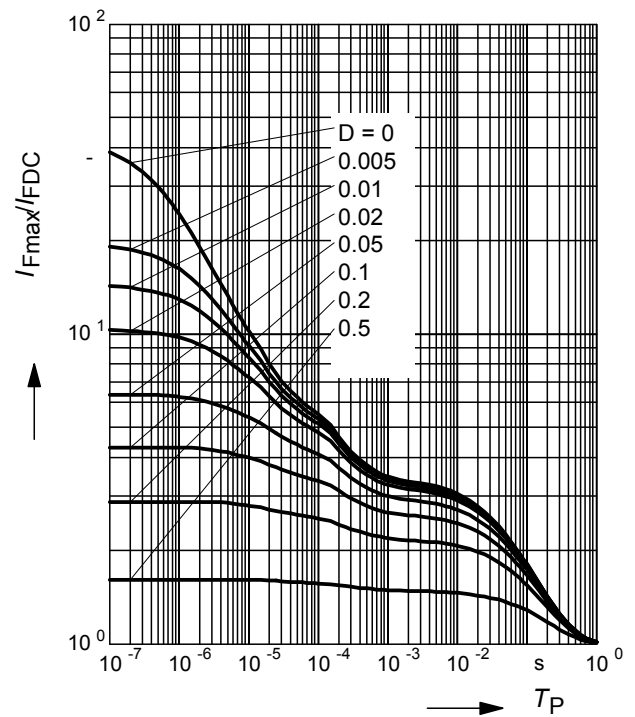
BAV70



Permissible Pulse Load

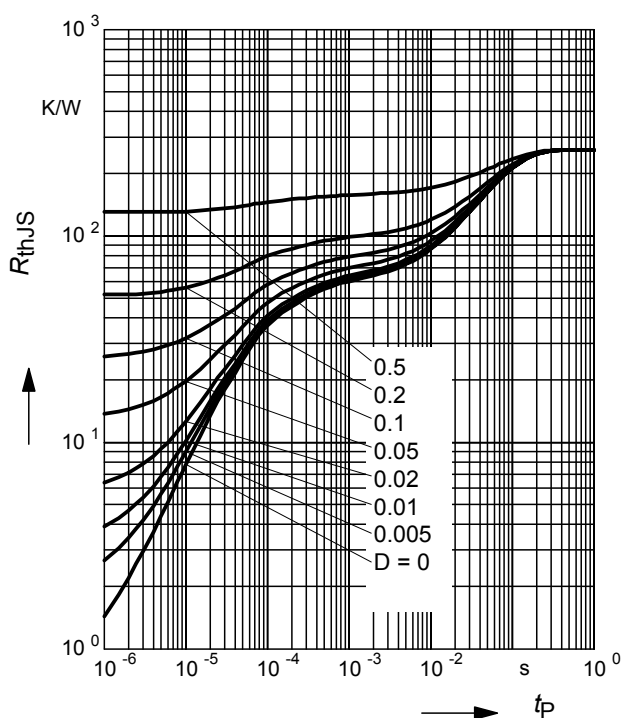
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV70



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

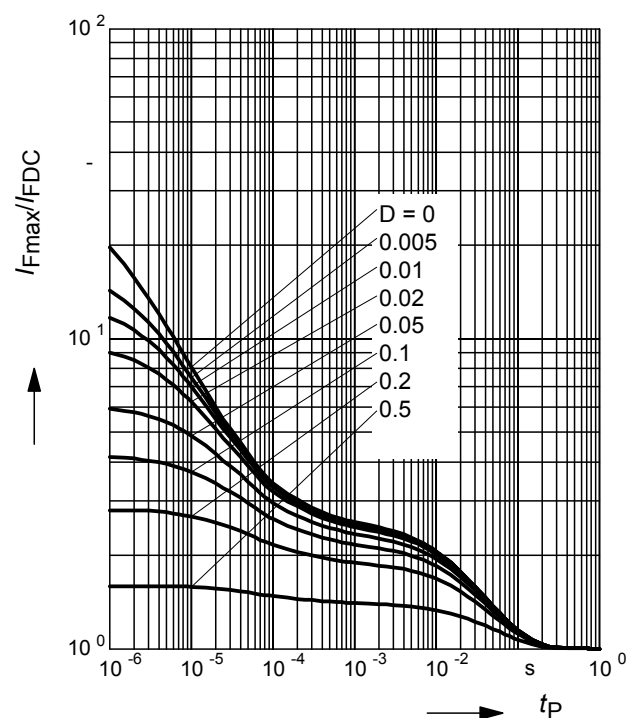
BAV70S



Permissible Pulse Load

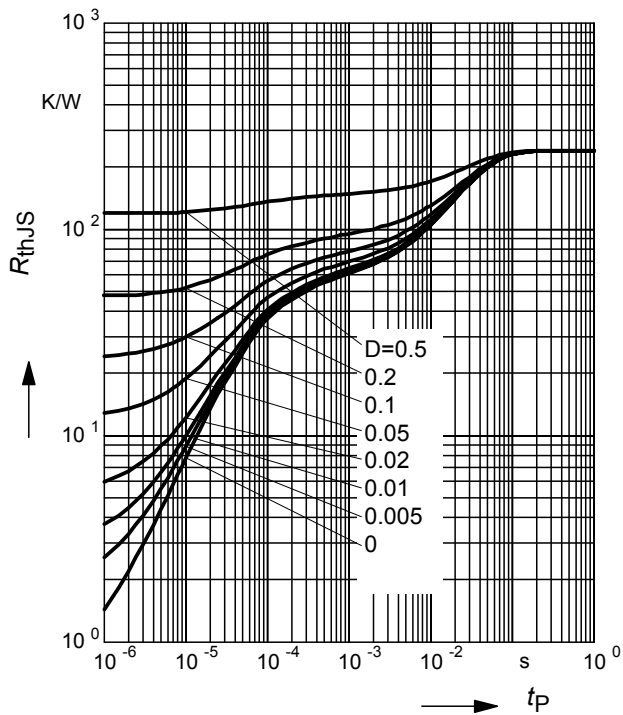
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV70S



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

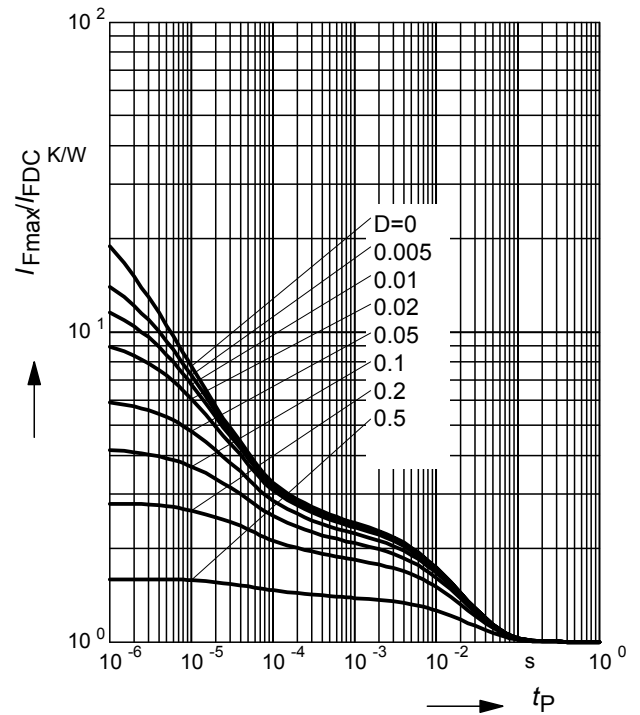
BAV70U



Permissible Pulse Load

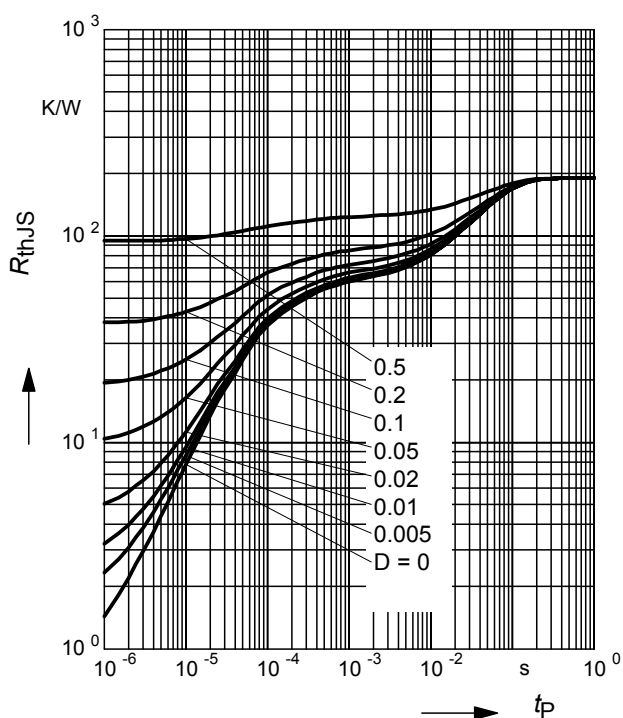
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV70U



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

BAV70W



Permissible Pulse Load

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

BAV70W

