

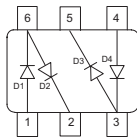
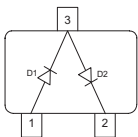
Silicon Switching Diode

- For high-speed switching applications
- Series pair configuration



BAV99
BAV99F
BAV99T
BAV99W

BAV99S
BAV99U



Type	Package	Configuration	Marking
BAV99	SOT23	series	A7s
BAV99F*	TSFP-3	series	A7s
BAV99S	SOT363	dual series	A7s
BAV99T	SC75	series	A7s
BAV99U	SC74	dual series	A7s
BAV99W	SOT323	series	A7s

* Preliminary

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
BAV99, $T_S \leq 28^\circ\text{C}$		330	
BAV99F, $T_S \leq \text{tdb}$		250	
BAV99S, $T_S \leq 85^\circ\text{C}$		250	
BAV99T, $T_S \leq 104^\circ\text{C}$		250	
BAV99U, $T_S \leq 113^\circ\text{C}$		250	
BAV99W, $T_S \leq 110^\circ\text{C}$		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
BAV99		≤ 360	
BAV99F		$\leq \text{tdb}$	
BAV99S		≤ 260	
BAV99T		≤ 185	
BAV99U		≤ 150	
BAV99W		≤ 160	

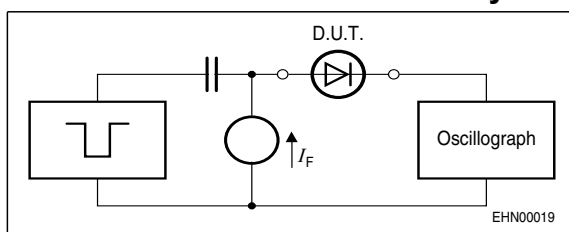
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

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

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
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

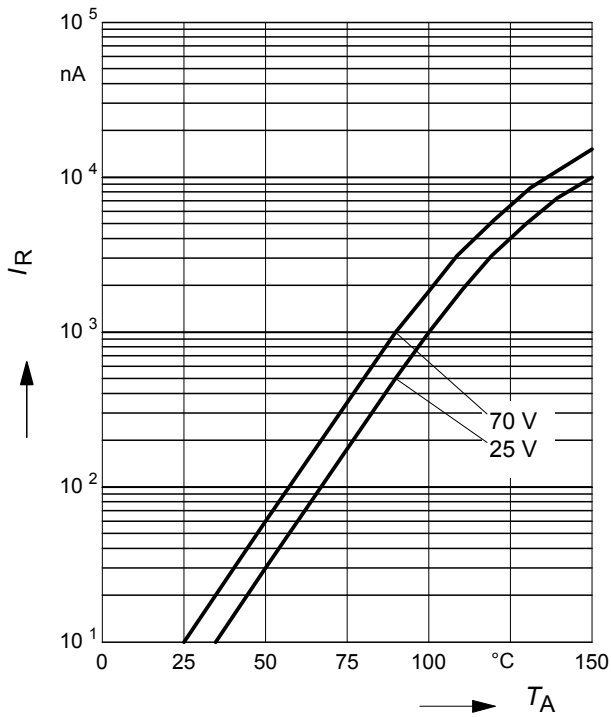
Test circuit for reverse recovery time


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

Oscilloscope: $R = 50$, $t_r = 0.35\text{ns}$
 $C \leq 1\text{pF}$

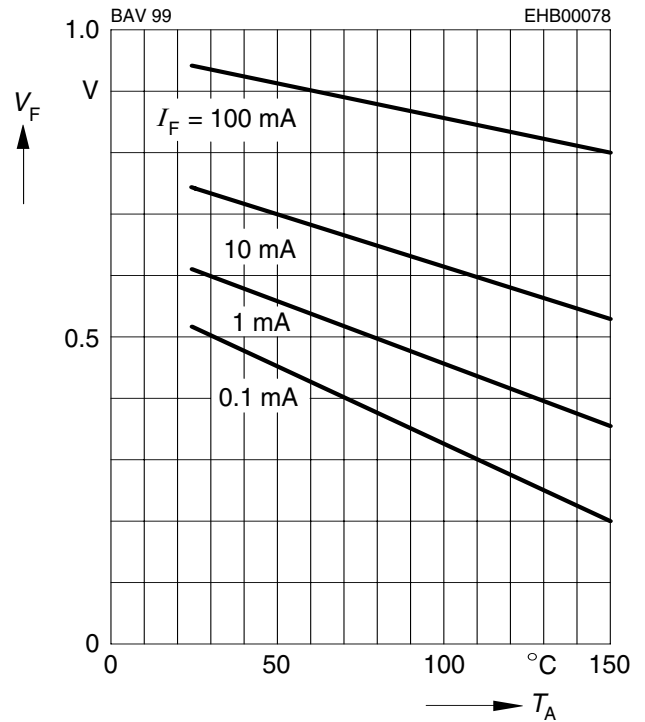
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



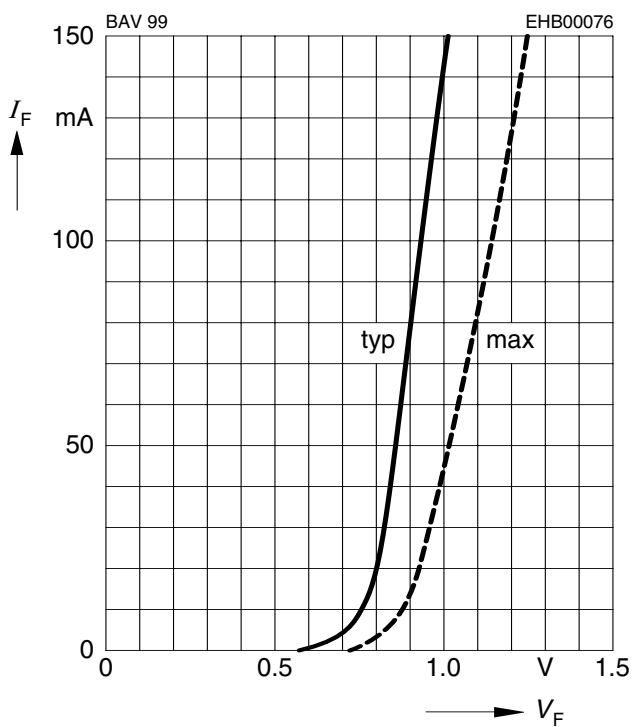
Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$



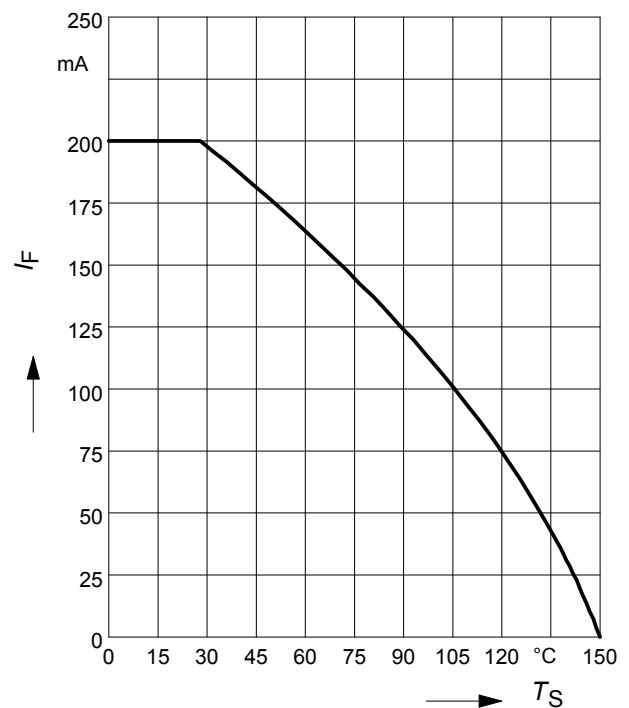
Forward current $I_F = f(V_F)$

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



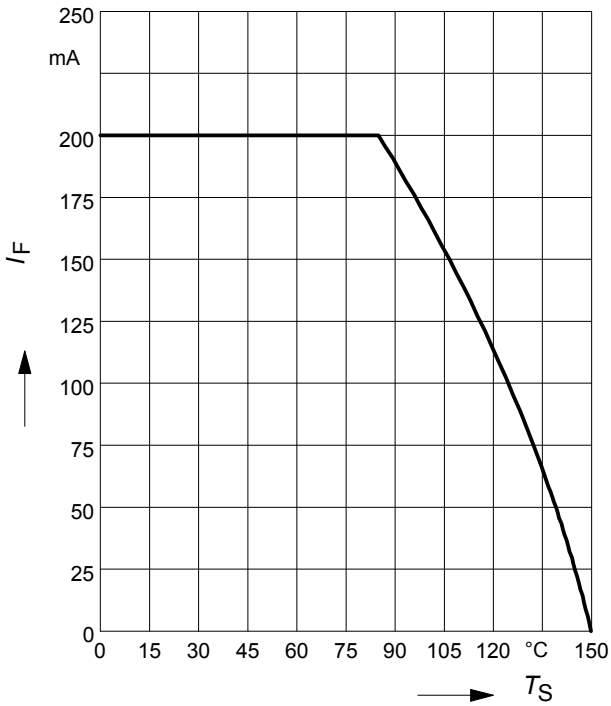
Forward current $I_F = f(T_S)$

BAV99



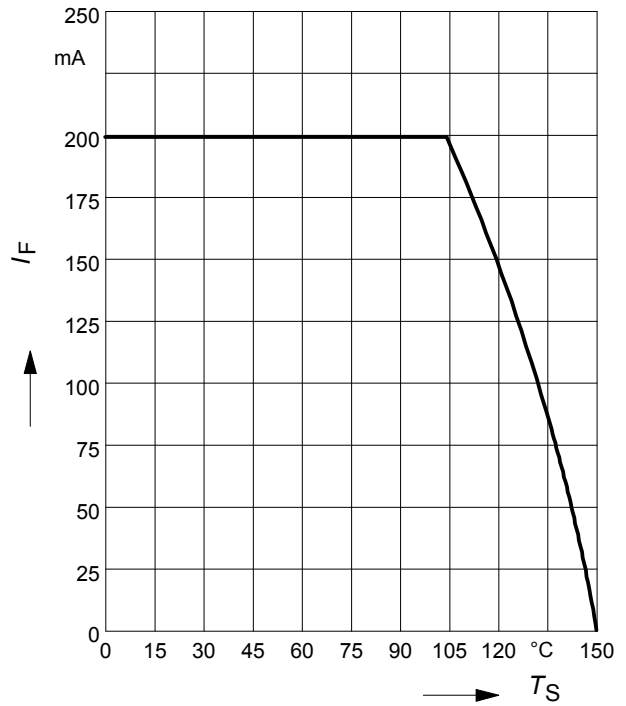
Forward current $I_F = f(T_S)$

BAV99S



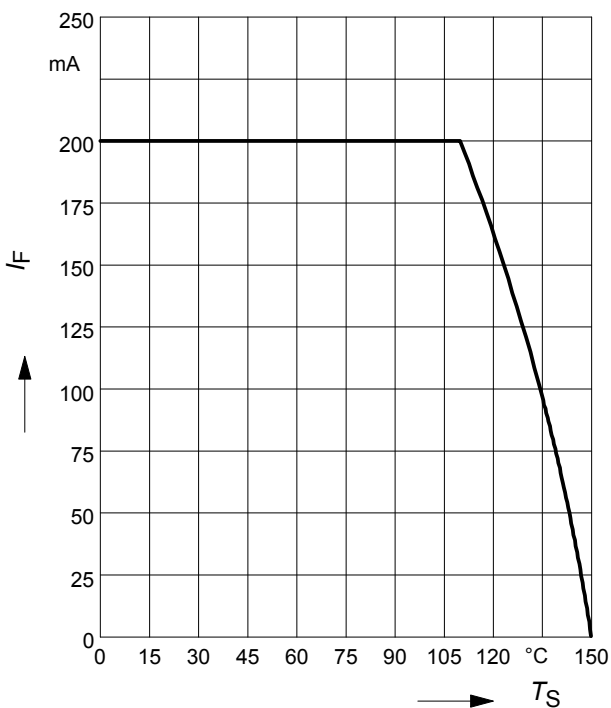
Forward current $I_F = f(T_S)$

BAV99T



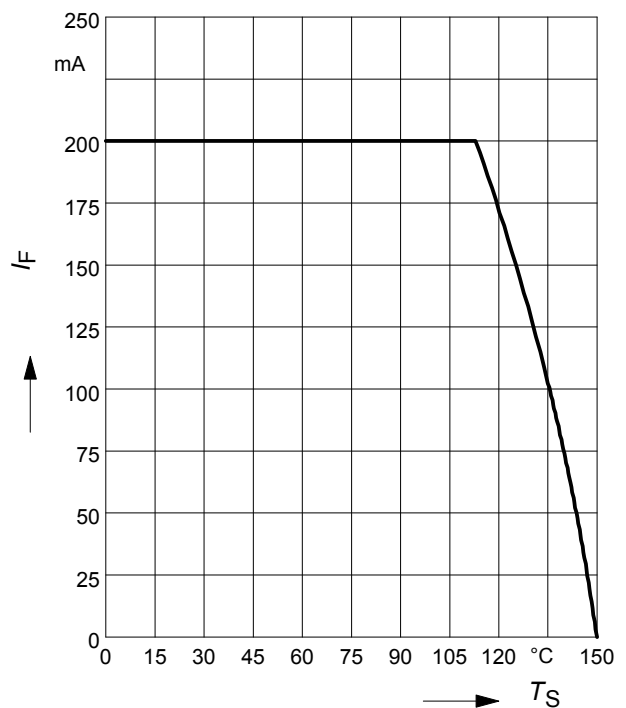
Forward current $I_F = f(T_S)$

BAV99U



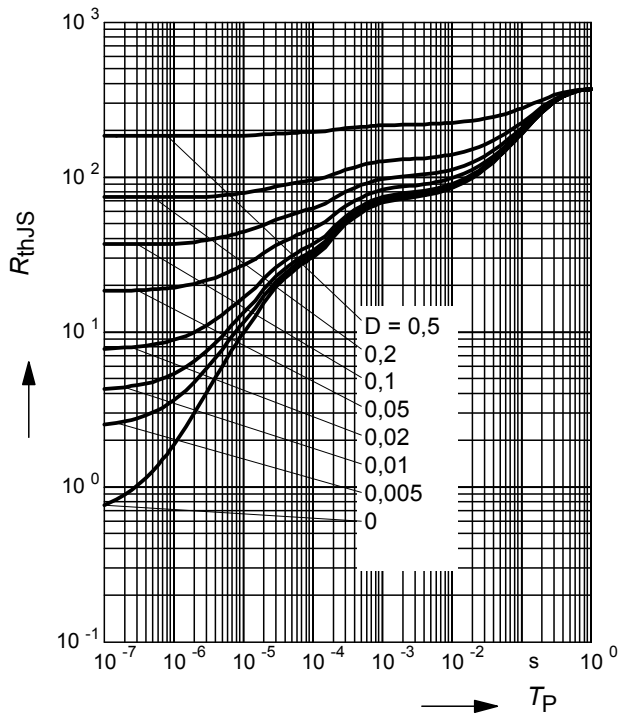
Forward current $I_F = f(T_S)$

BAV99W



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

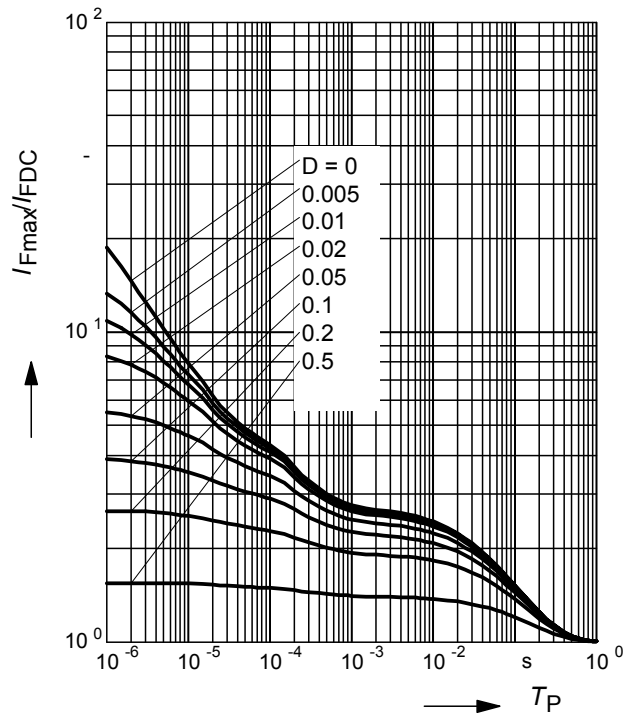
BAV99



Permissible Pulse Load

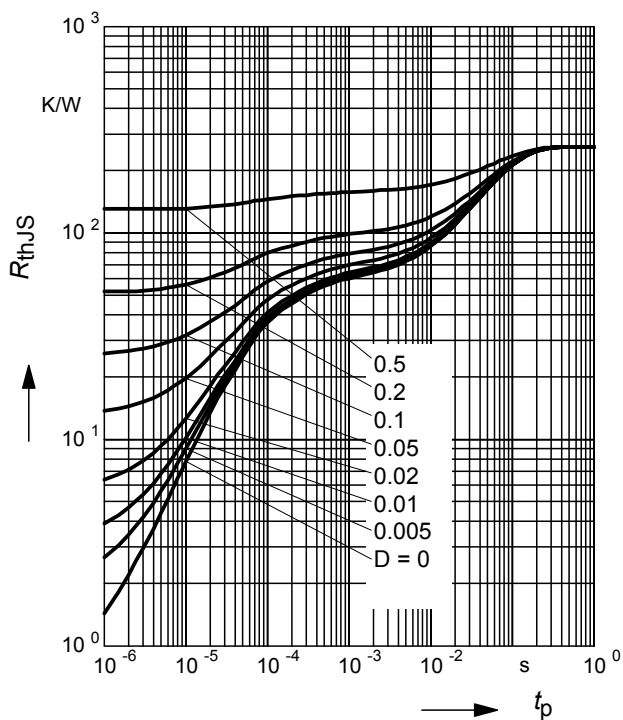
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99



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

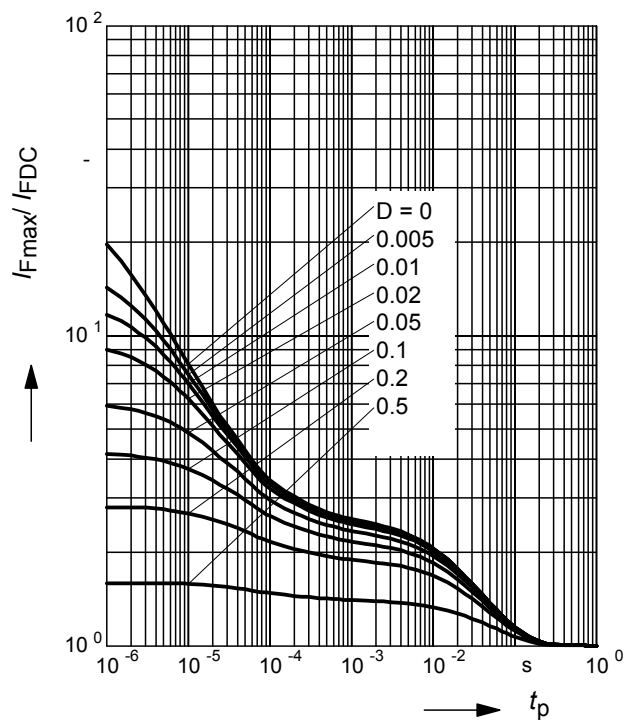
BAV99S



Permissible Pulse Load

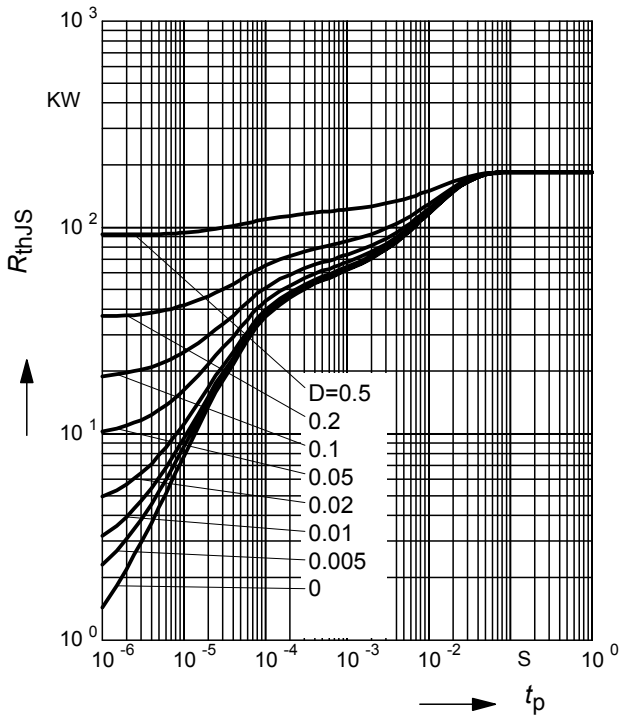
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99S



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

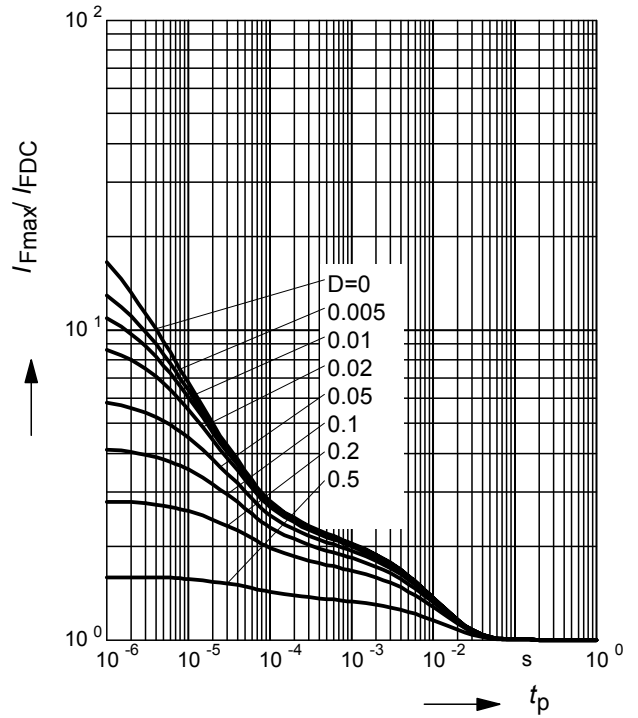
BAV99T



Permissible Pulse Load

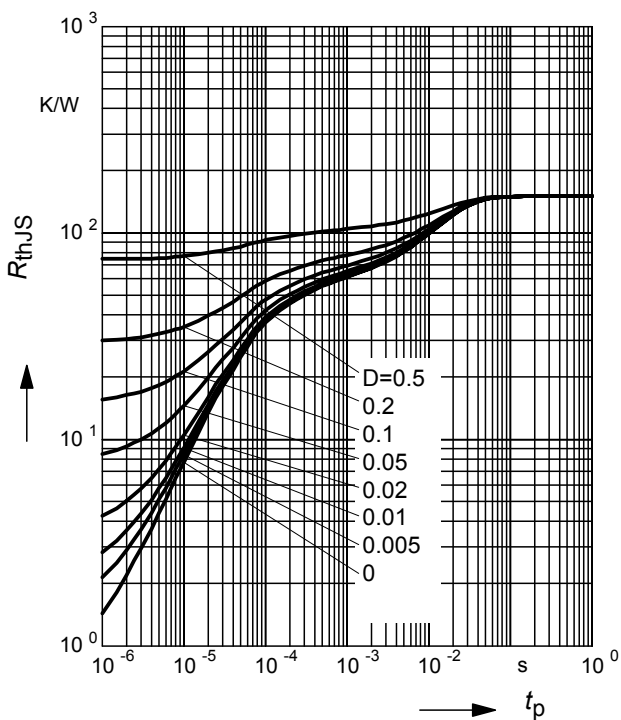
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99T



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

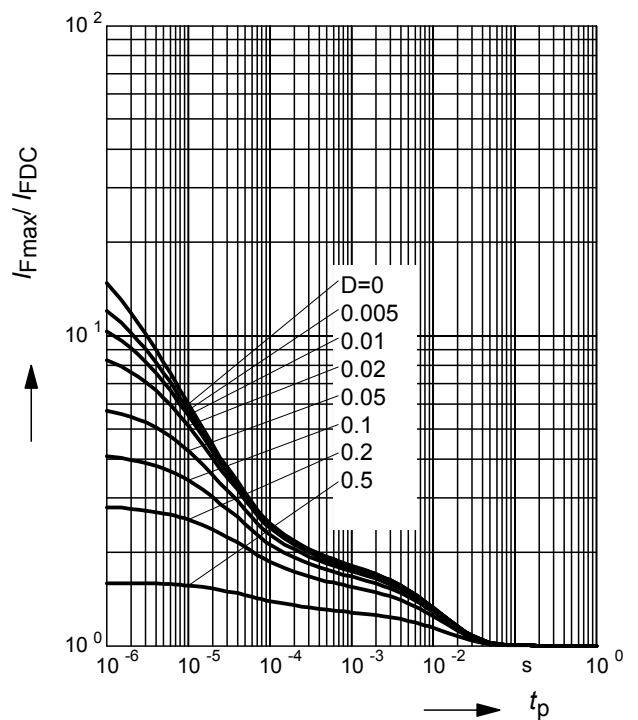
BAV99U



Permissible Pulse Load

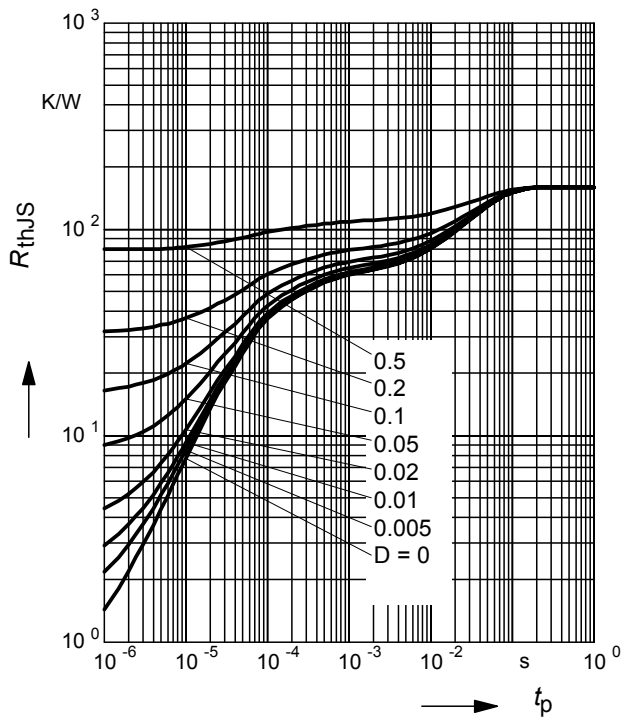
$I_{Fmax} / I_{FDC} = f(t_p)$

BAV99U



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

BAV99W



Permissible Pulse Load

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

BAV99W

