

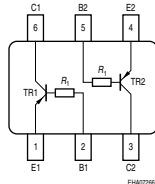
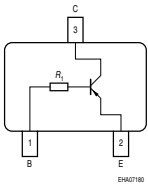
PNP Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1 = 4.7k \Omega$)
- For 6-PIN packages: two (galvanic) internal isolated transistors with good matching in one package



**BCR169/F/L3
BCR169T/W**

**BCR169S/U
SEMB3**



Type	Marking	Pin Configuration						Package
		1=B	2=E	3=C	-	-	-	
BCR169	WSs	1=B	2=E	3=C	-	-	-	SOT23
BCR169F	WSs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR169L3	WS	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR169S	WSs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT323
BCR169T	WSs	1=B	2=E	3=C	-	-	-	SC75
BCR169U	WSs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SC74
BCR169W	WSs	1=B	2=E	3=C	-	-	-	SOT323
SEMB3	WS	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	$V_{i(on)}$	15	
Collector current	I_C	100	mA
Total power dissipation- BCR169, $T_S \leq 102^\circ\text{C}$ BCR169F, $T_S \leq 128^\circ\text{C}$ BCR169L3, $T_S \leq 135^\circ\text{C}$ BCR169S, $T_S \leq 115^\circ\text{C}$ BCR169T, $T_S \leq 109^\circ\text{C}$ BCR169U, $T_S \leq 118^\circ\text{C}$ BCR169W, $T_S \leq 124^\circ\text{C}$ SEMB3, $T_S \leq 75^\circ\text{C}$	P_{tot}	200 250 250 250 250 250 250 250	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BCR169		≤ 240	
BCR169F		≤ 90	
BCR169L3		≤ 60	
BCR169S		≤ 140	
BCR169T		≤ 165	
BCR169U		≤ 133	
BCR169W		≤ 105	
SEMB3		≤ 300	

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

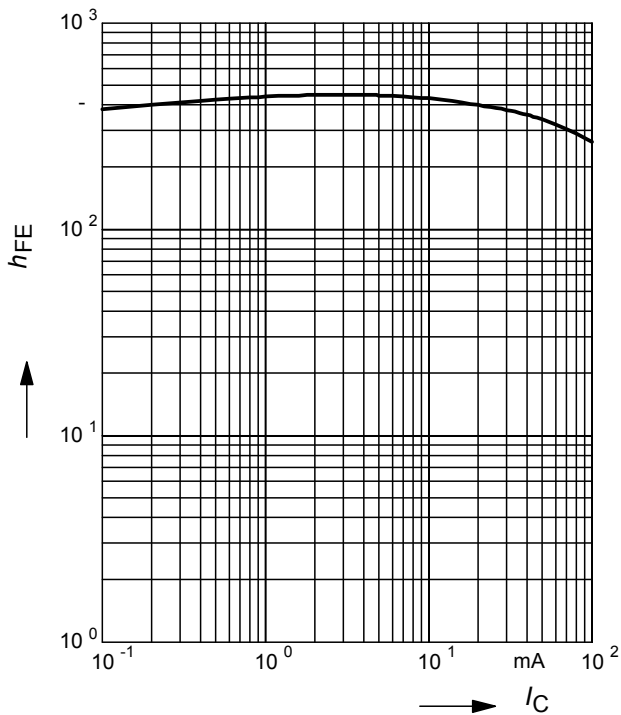
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Emitter-base breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
DC current gain ¹⁾ $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	h_{FE}	120	-	630	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(off)}$	0.4	-	0.8	
Input on voltage $I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(on)}$	0.5	-	1.1	
Input resistor	R_1	3.2	4.7	6.2	k Ω
AC Characteristics					
Transition frequency $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	f_T	-	200	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	3	-	pF

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

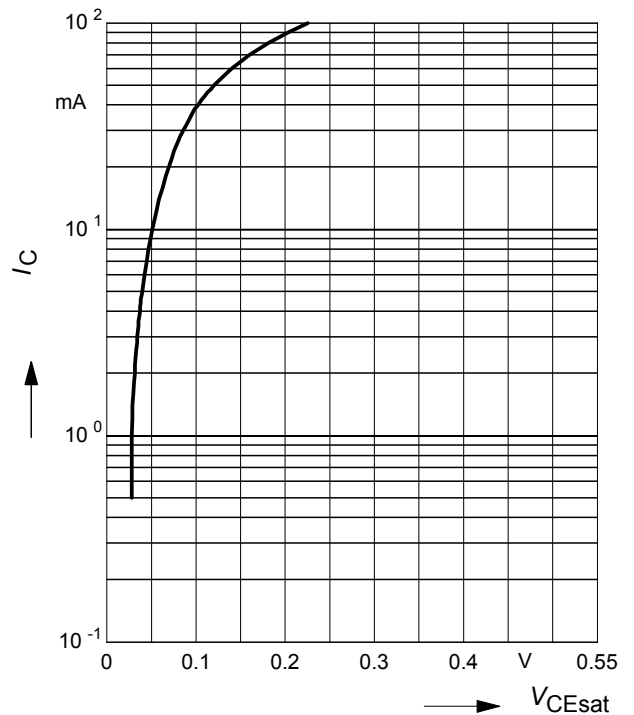
DC current gain $h_{FE} = f(I_C)$

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



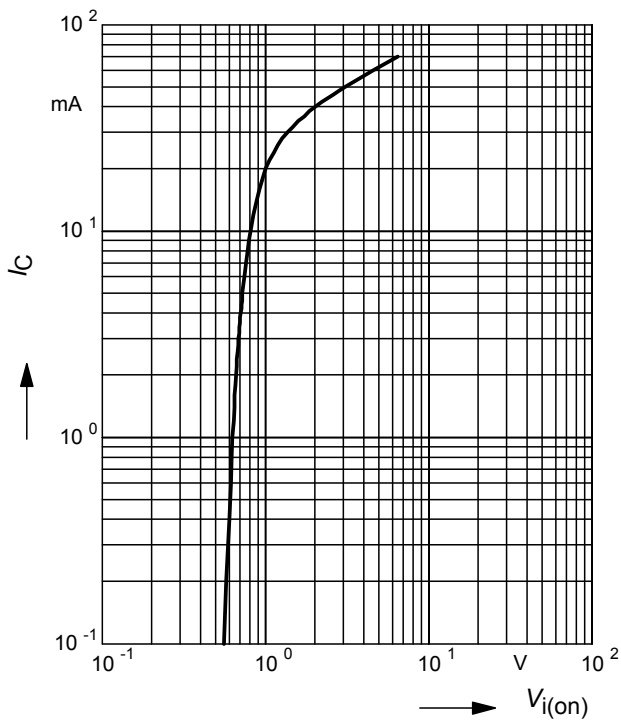
Collector-emitter saturation voltage

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



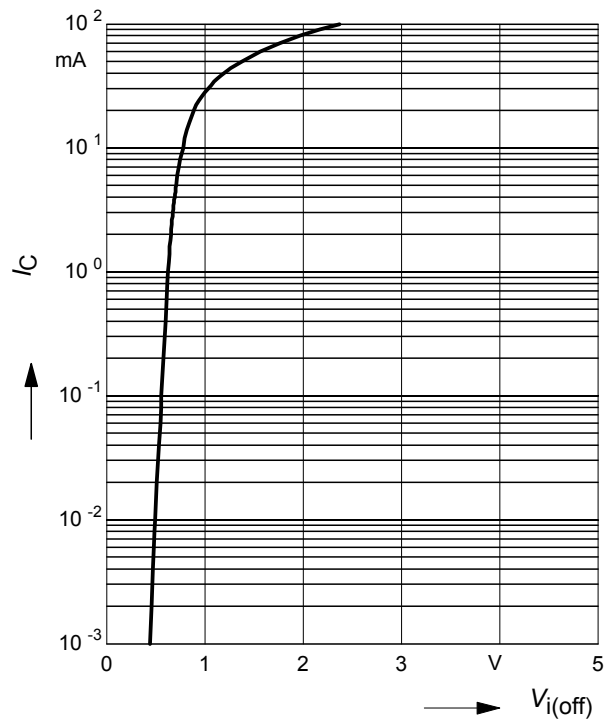
Input on Voltage $V_{i(on)} = f(I_C)$

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



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

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



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

BCR169



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

BCR169F



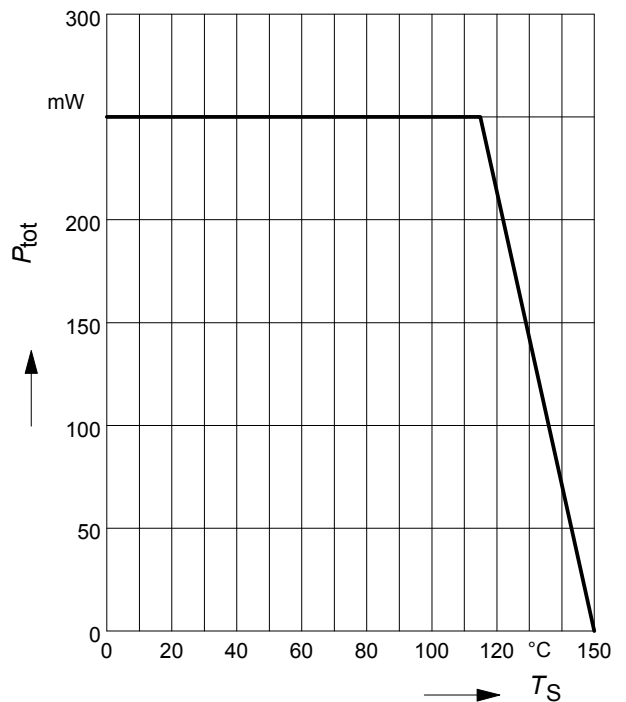
Total power dissipation $P_{tot} = f(T_S)$

BCR169L3



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

BCR169S



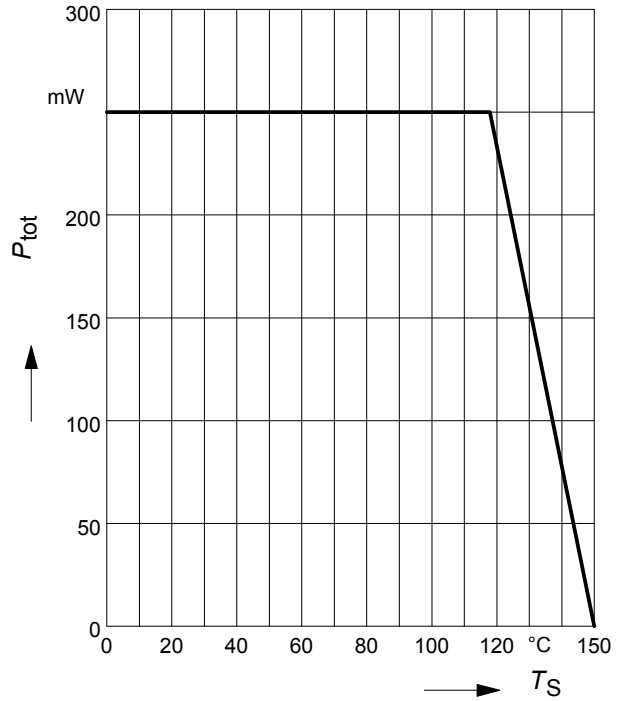
Total power dissipation $P_{tot} = f(T_S)$

BCR169T



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

BCR169U



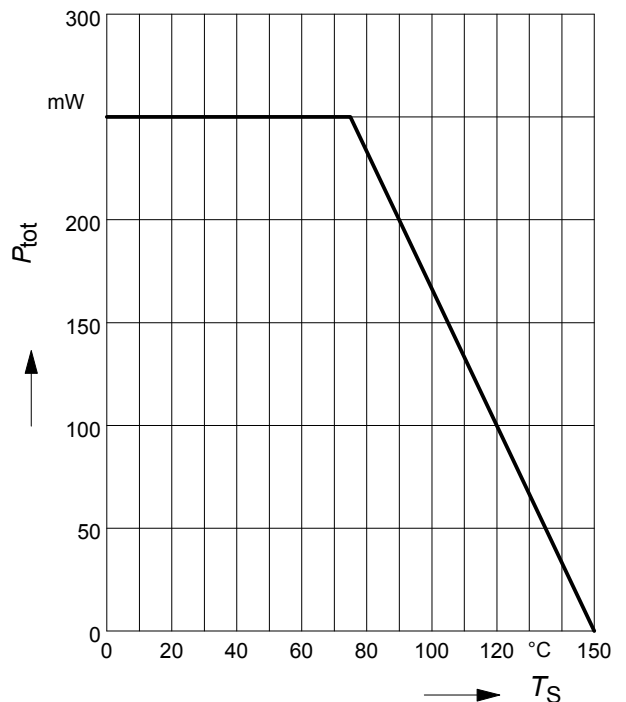
Total power dissipation $P_{tot} = f(T_S)$

BCR169W



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

SEMB3



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

BCR169



Permissible Pulse Load

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

BCR169



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

BCR169F



Permissible Pulse Load

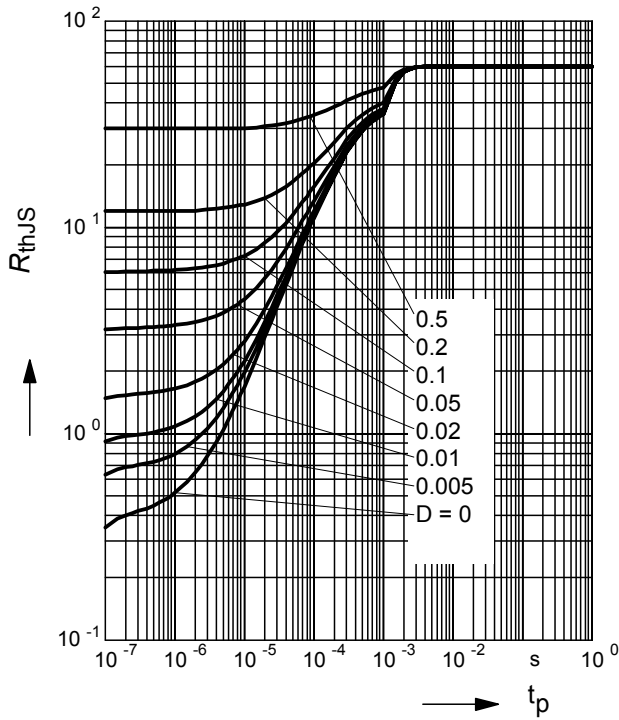
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169F



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

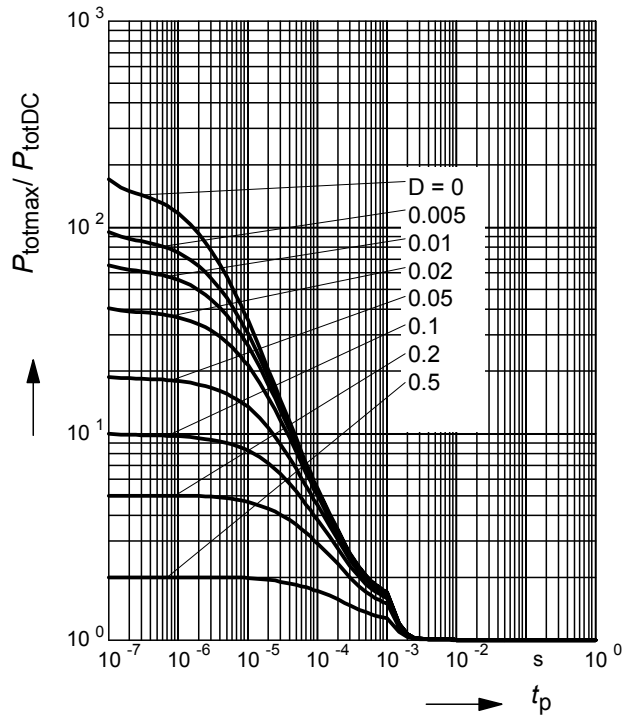
BCR169L3



Permissible Pulse Load

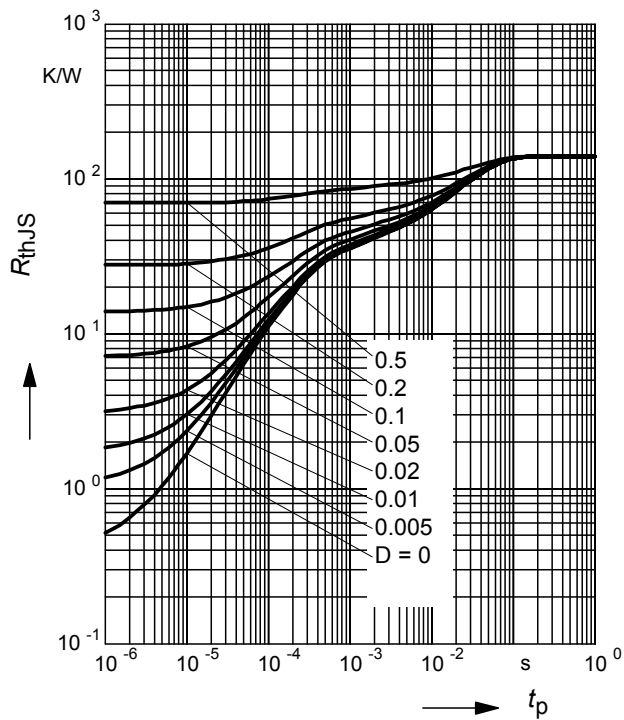
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169L3



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

BCR169S



Permissible Pulse Load

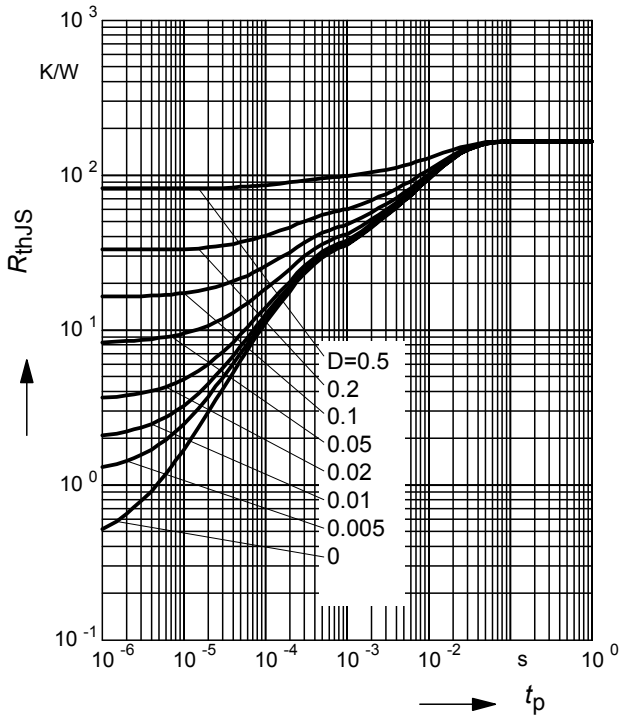
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169S



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

BCR169T



Permissible Pulse Load

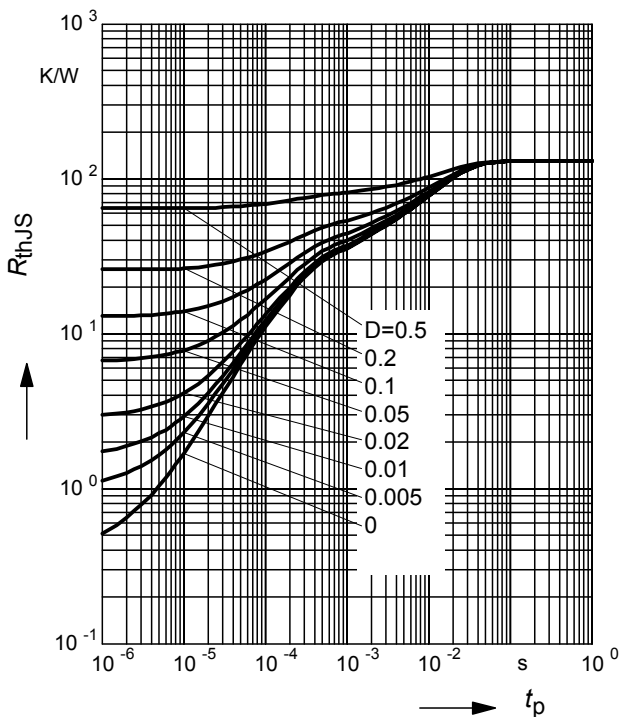
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169T



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

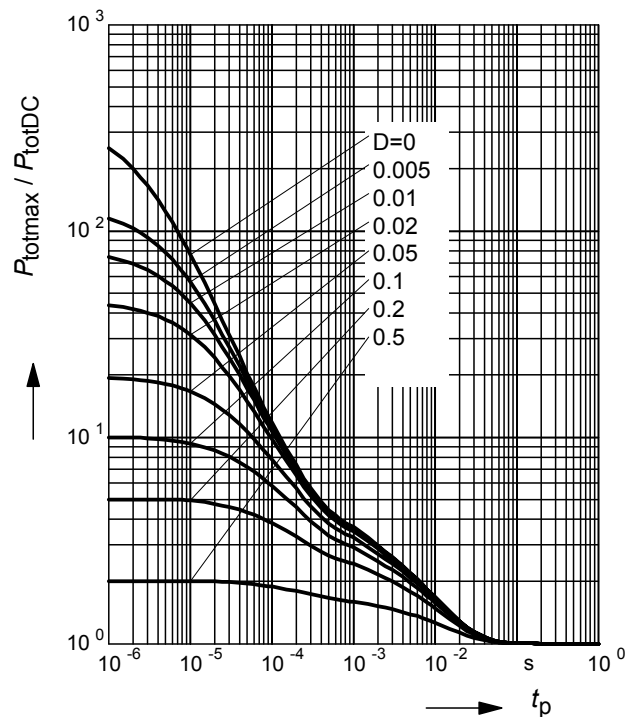
BCR169U



Permissible Pulse Load

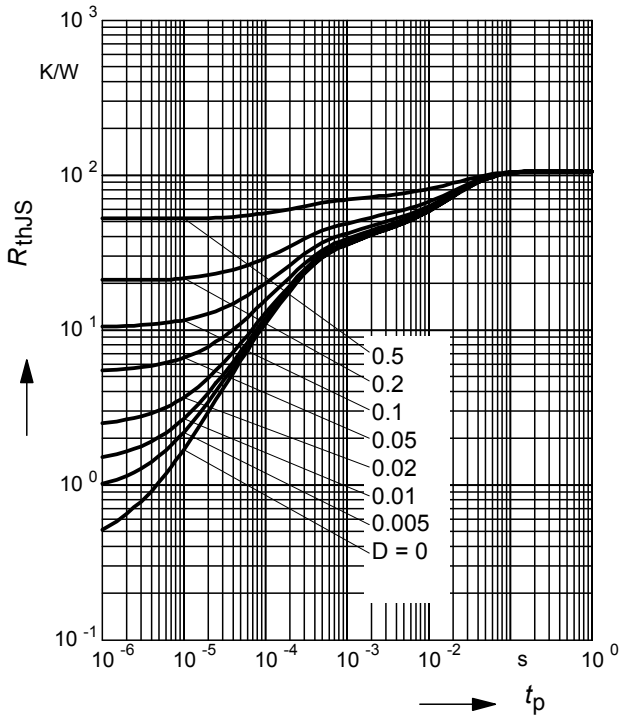
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169U



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

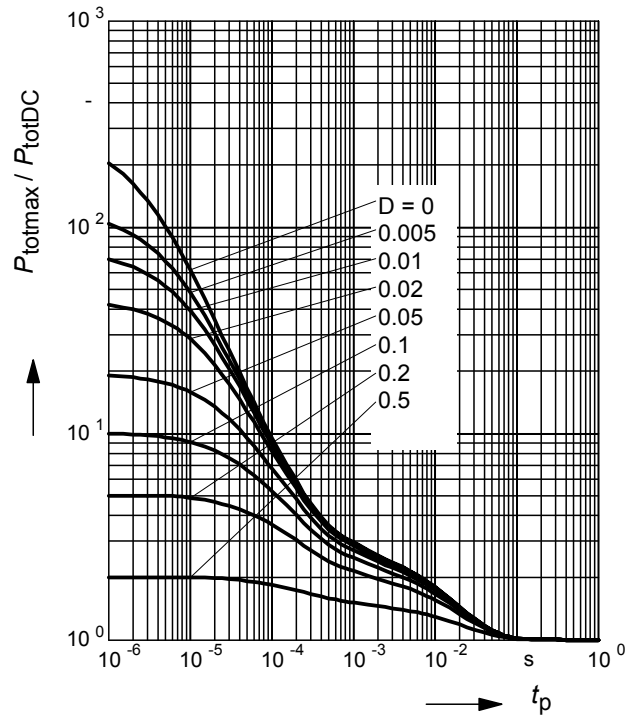
BCR169W



Permissible Pulse Load

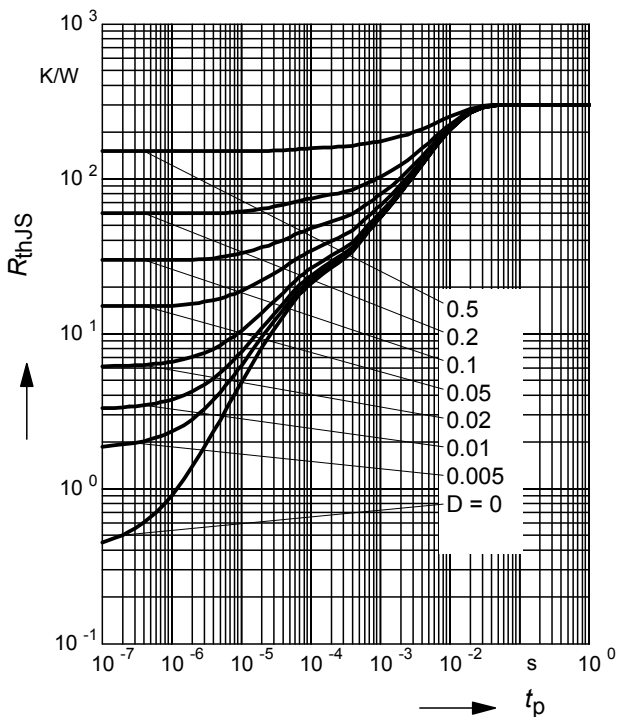
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169W



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

SEMB3



Permissible Pulse Load

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

SEMB3

