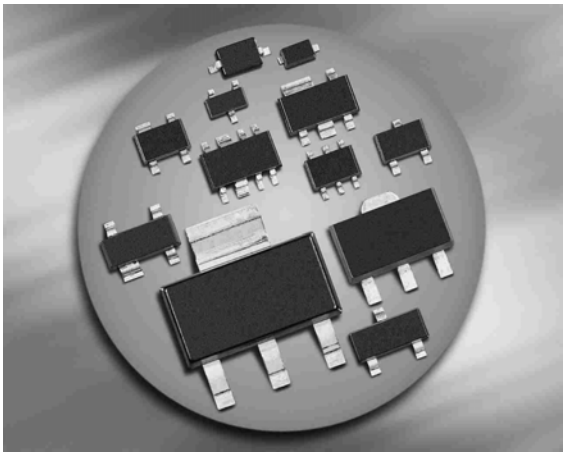
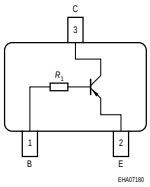
PNP Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor (R_1 = 22kΩ)



BCR189/F/L3
BCR189T



Type	Marking	Pin Configuration						Package
BCR189	W2s	1=B	2=E	3=C	-	-	-	SOT23
BCR189F	W2s	1=B	2=E	3=C	-	-	-	TSLP-3
BCR189L3	W2	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR189T	W2s	1=B	2=E	3=C	-	-	-	SC75

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	$V_{i(on)}$	30	
Collector current	I_C	100	mA
Total power dissipation-	P_{tot}		mW
BCR189, $T_S \leq 102°C$		200	
BCR189F, $T_S \leq 128°C$		250	
BCR189L3, $T_S \leq 135°C$		250	
BCR189T, $T_S \leq 109°C$		250	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	150 ... -65	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1)]	R_{thJS}		K/W
BCR189		≤ 240	
BCR189F		≤ 90	
BCR189L3		≤ 60	
BCR189T		≤ 165	

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

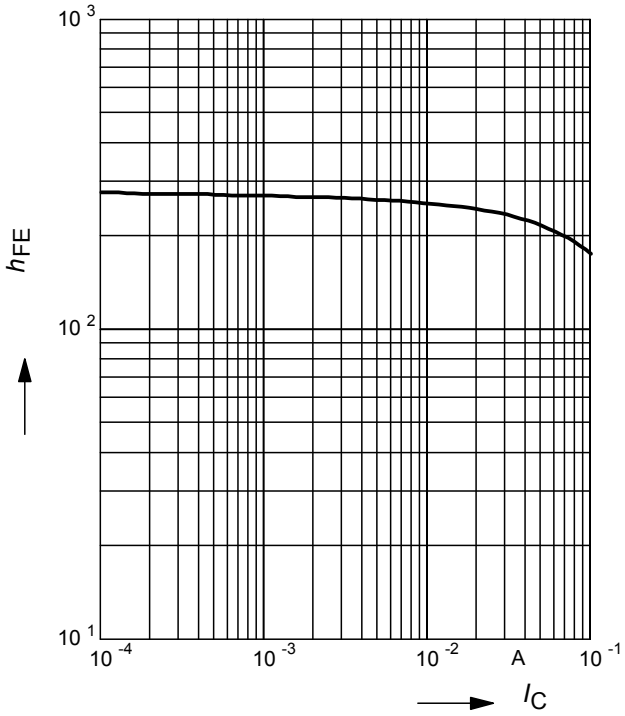
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 100 µA, I_B = 0	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage I_C = 10 µA, I_E = 0	$V_{(BR)CBO}$	50	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current V_{CB} = 40 V, I_E = 0	I_{CBO}	-	-	100	nA
DC current gain[1)] I_C = 5 mA, V_{CE} = 5 V	h_{FE}	120	-	630	-
Collector-emitter saturation voltage[1)] I_C = 10 mA, I_B = 0,5 mA	V_{CEsat}	-	-	0,3	V
Input off voltage I_C = 100 µA, V_{CE} = 5 V	$V_{i(off)}$	0,4	-	0,8	
Input on voltage I_C = 2 mA, V_{CE} = 0,3 V	$V_{i(on)}$	0,5	-	1,1	
Input resistor	R_1	15	22	29	kΩ
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	200	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	3	-	pF

[1]Pulse test: t < 300µs; D < 2%

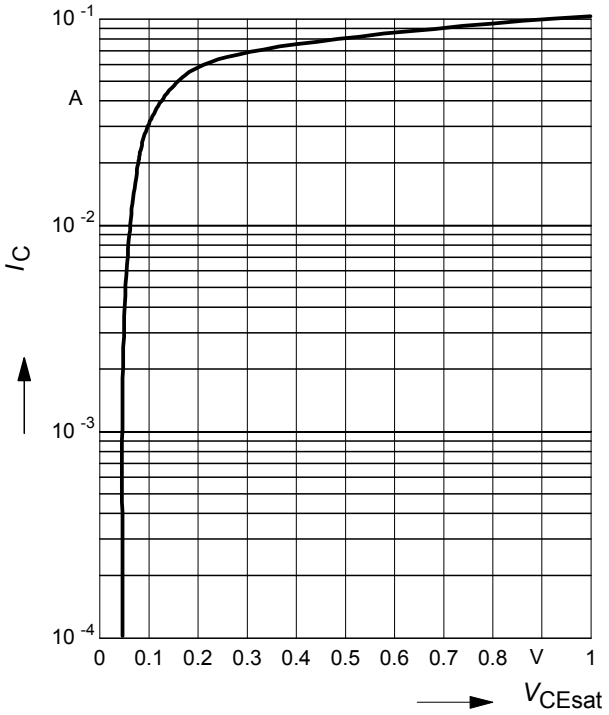
DC current gain $h_{FE} = f(I_C)$

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



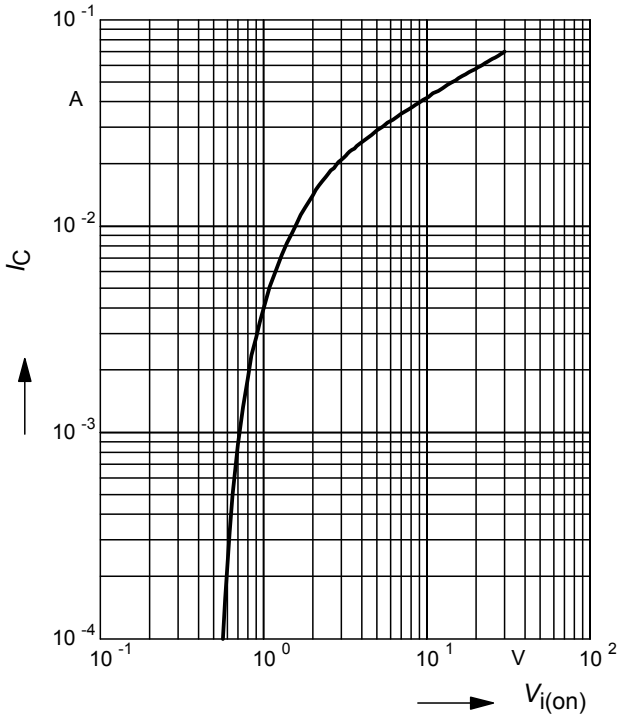
Collector-emitter saturation voltage

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



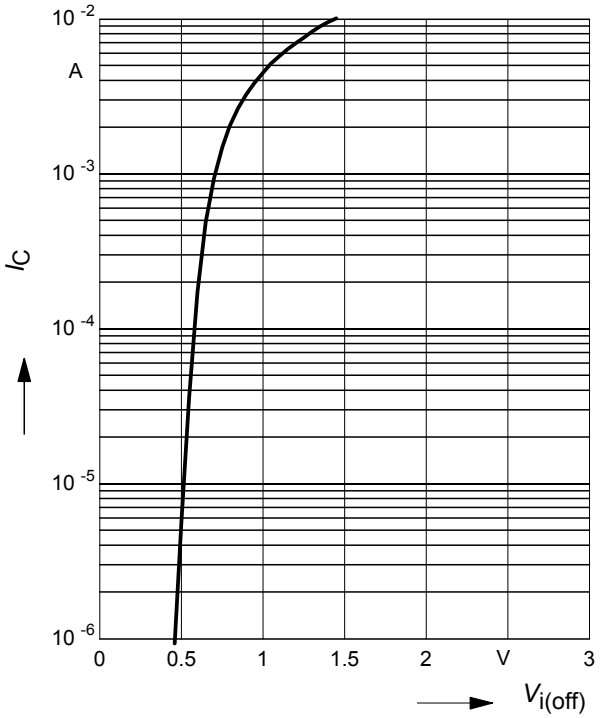
Input on Voltage $V_{i(on)} = f(I_C)$

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

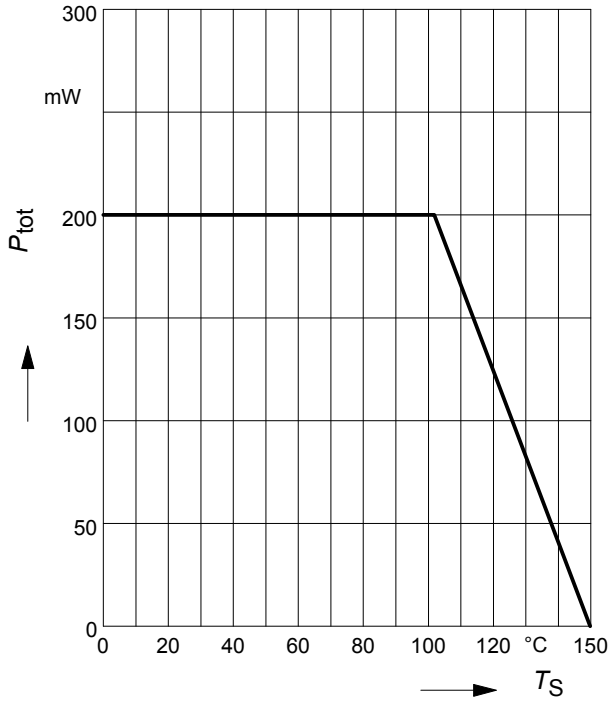


Input off voltage $V_{i(off)} = f(I_C)$

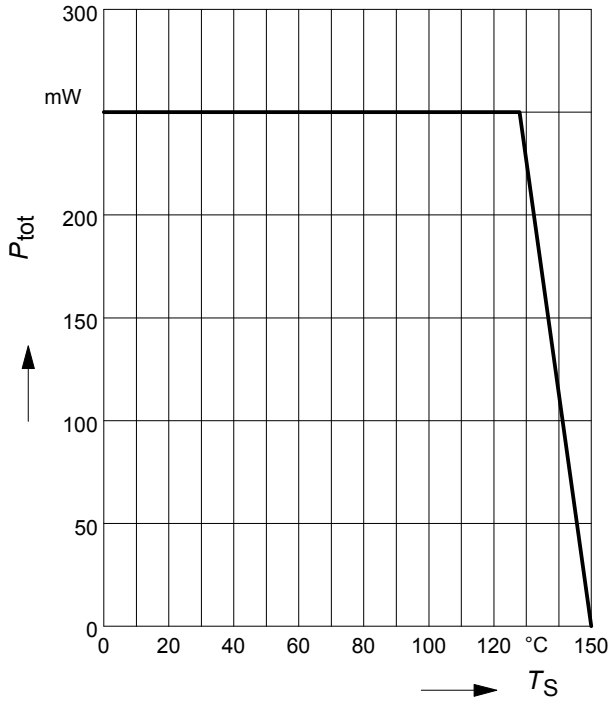
V_{CE} = 5V (common emitter configuration)



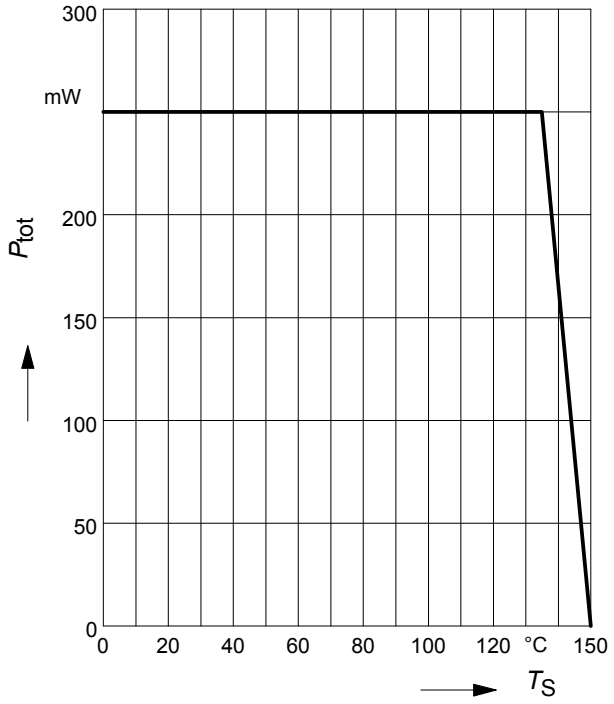
Total power dissipation $P_{tot} = f(T_S)$
BCR189



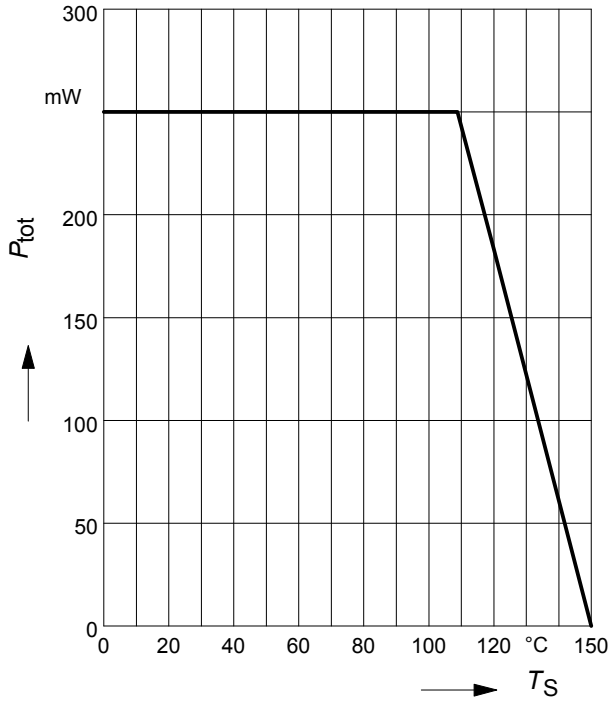
Total power dissipation $P_{tot} = f(T_S)$
BCR189F



Total power dissipation $P_{tot} = f(T_S)$
BCR189L3

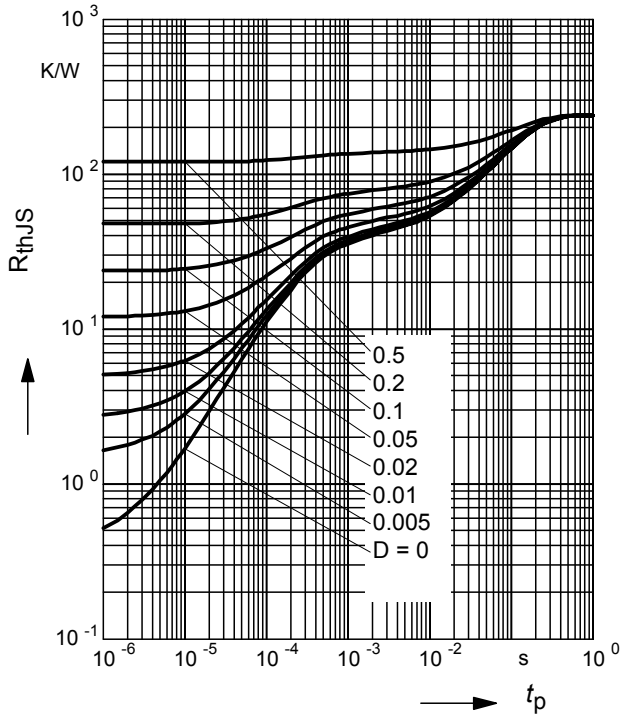


Total power dissipation $P_{tot} = f(T_S)$
BCR189T



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

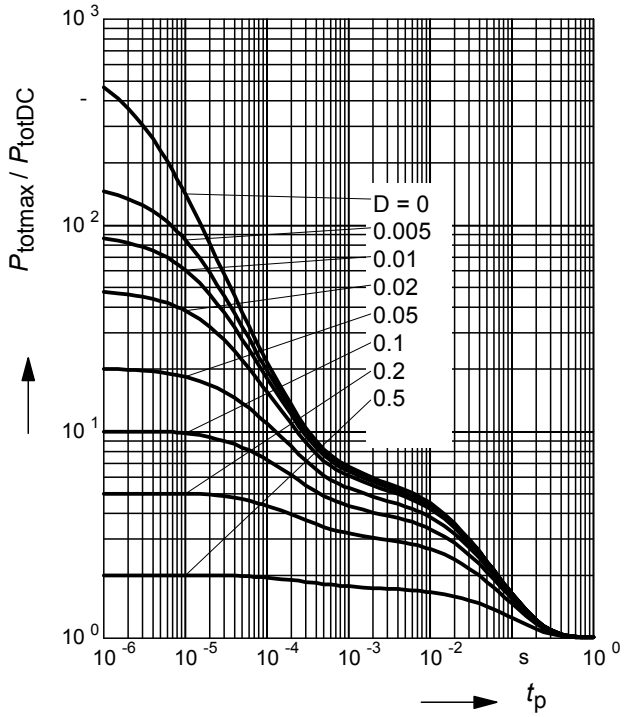
BCR189



Permissible Pulse Load

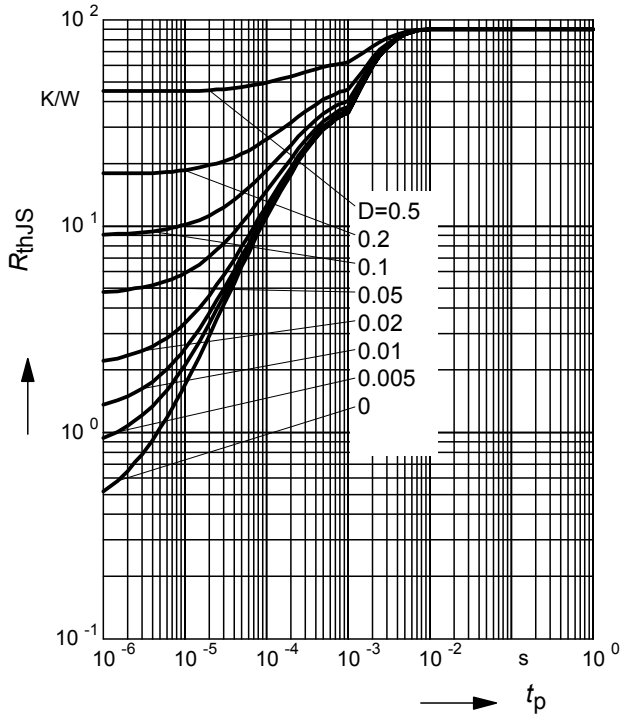
$P_{totmax}/P_{totDC} = f(t_p)$

BCR189



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

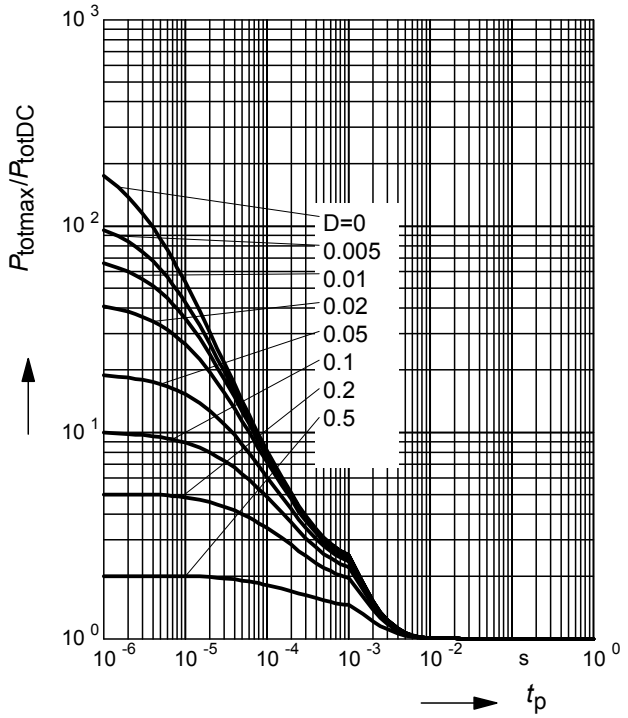
BCR189F



Permissible Pulse Load

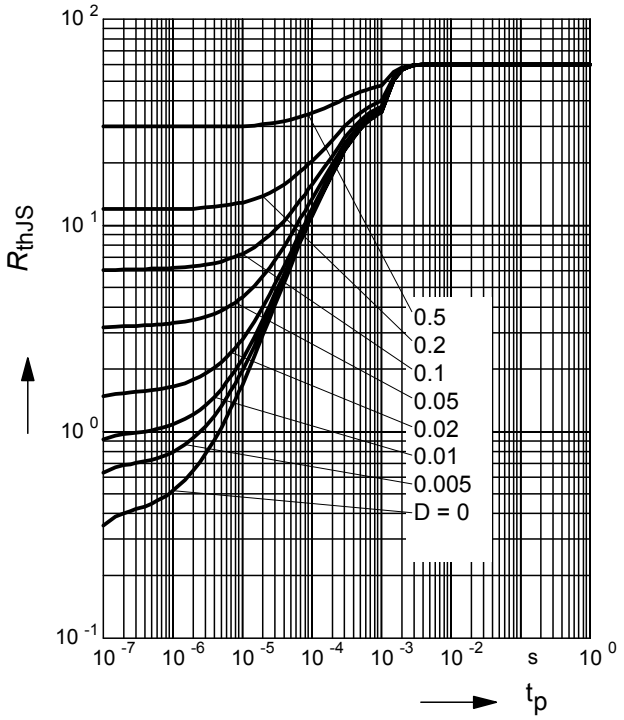
$P_{totmax}/P_{totDC} = f(t_p)$

BCR189F



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

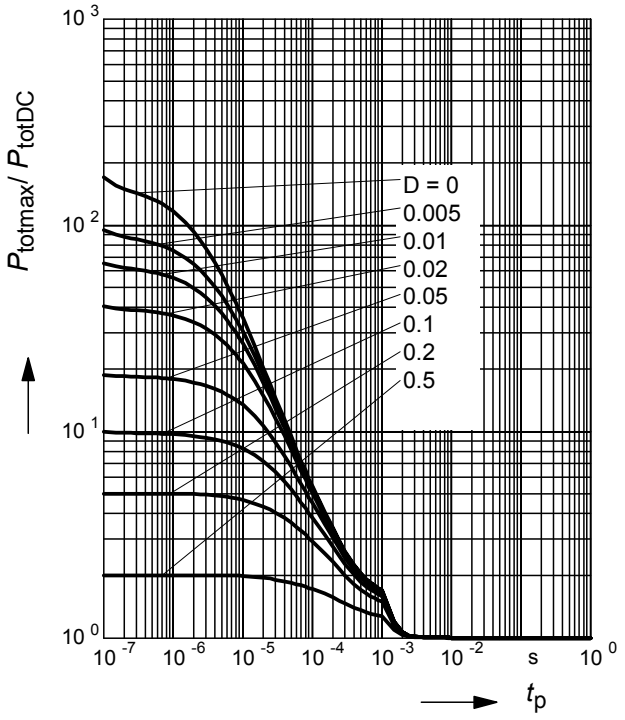
BCR189L3



Permissible Pulse Load

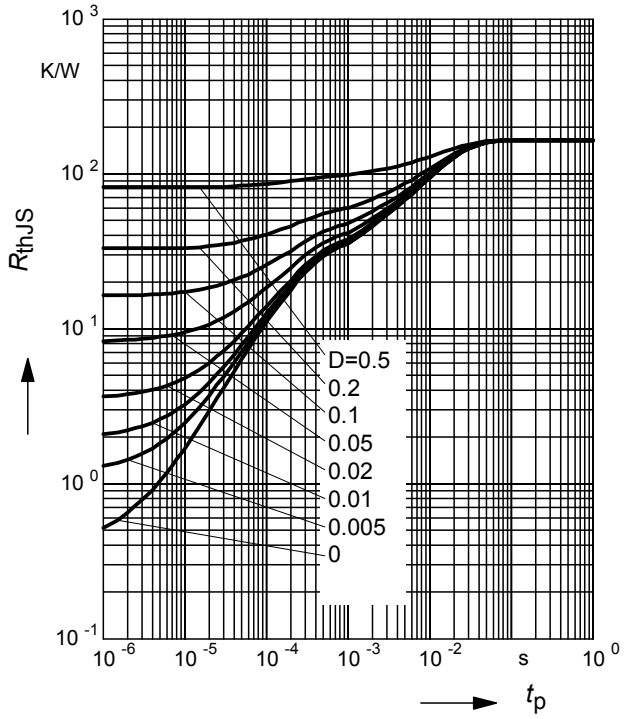
$P_{totmax}/P_{totDC} = f(t_p)$

BCR189L3



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

BCR189T



Permissible Pulse Load

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

BCR189T