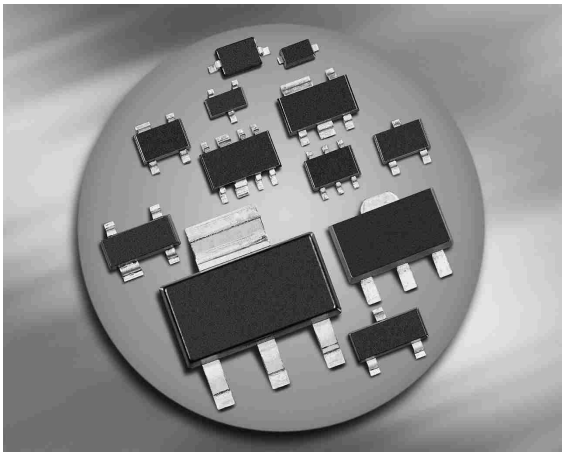
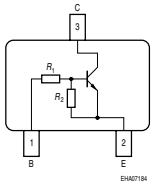
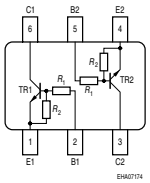
NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor (R_1=2.2kΩ, R_2=47kΩ)
- For 6-PIN packages: two (galvanic) internal isolated transistors with good matching in one package



BCR108/F/L3 **BCR108S**
BCR108T/W **SEMH10**





Type	Marking	Pin Configuration						Package
BCR108	WHs	1=B	2=E	3=C	-	-	-	SOT23
BCR108F	WHs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR108L3	WH	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR108S	WHs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR108T	WHs	1=B	2=E	3=C	-	-	-	SC75
BCR108W	WHs	1=B	2=E	3=C	-	-	-	SOT323
SEMH10	WH	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	$V_{i(on)}$	10	
Collector current	I_C	100	mA
Total power dissipation-	P_{tot}		mW
BCR108, $T_S \leq 102°C$		200	
BCR108F, $T_S \leq 128°C$		250	
BCR108L3, $T_S \leq 135°C$		250	
BCR108S, $T_S \leq 115°C$		250	
BCR108T, $T_S \leq 109°C$		250	
BCR108W, $T_S \leq 124°C$		250	
SEMH10, $T_S \leq 75°C$		250	
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
BCR108		≤ 240	
BCR108F		≤ 90	
BCR108L3		≤ 60	
BCR108S		≤ 140	
BCR108T		≤ 165	
BCR108W		≤ 105	
SEMH10		≤ 300	

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

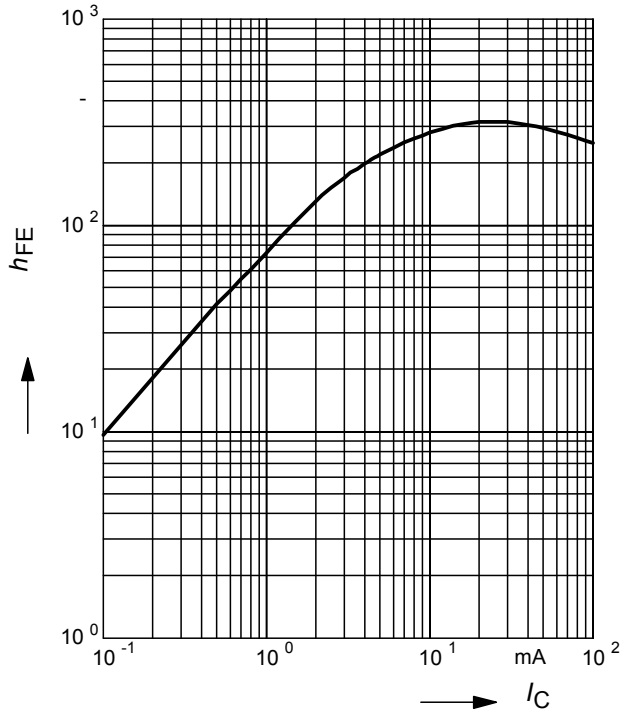
Electrical Characteristics at T_A = 25°C, unless otherwise specified

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	-	-	
Collector-base cutoff current V_{CB} = 40 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 5 V, I_C = 0	I_{EBO}	-	-	164	µA
DC current gain[1)] I_C = 5 mA, V_{CE} = 5 V	h_{FE}	70	-	-	-
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	1.5	2.2	2.9	kΩ
Resistor ratio	R_1/R_2	0.042	0.047	0.052	-
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 1 MHz	f_T	-	170	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	2	-	pF

[1]Pulse test: t < 300µs; D < 2%

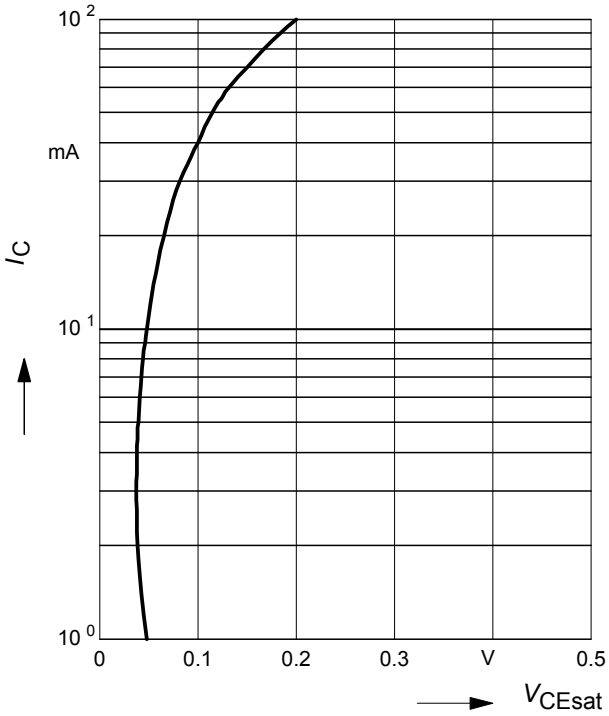
DC current gain $h_{FE} = f(I_C)$

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



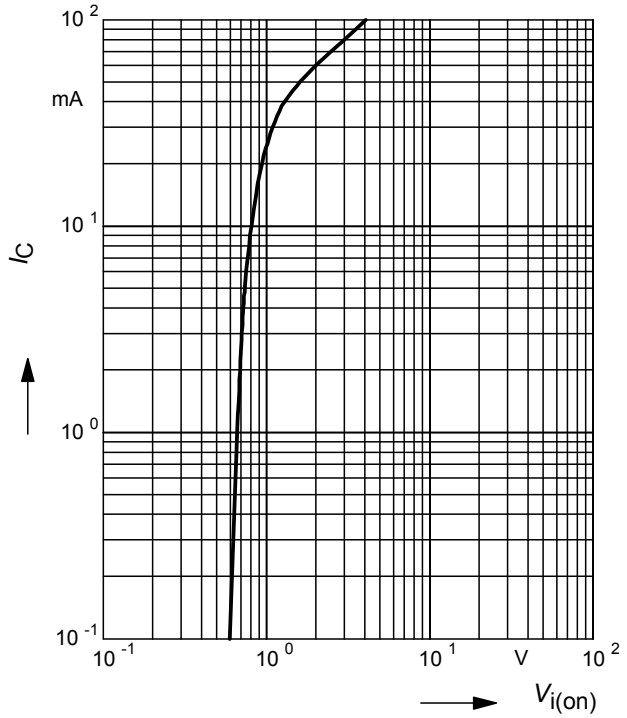
Collector-emitter saturation voltage

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



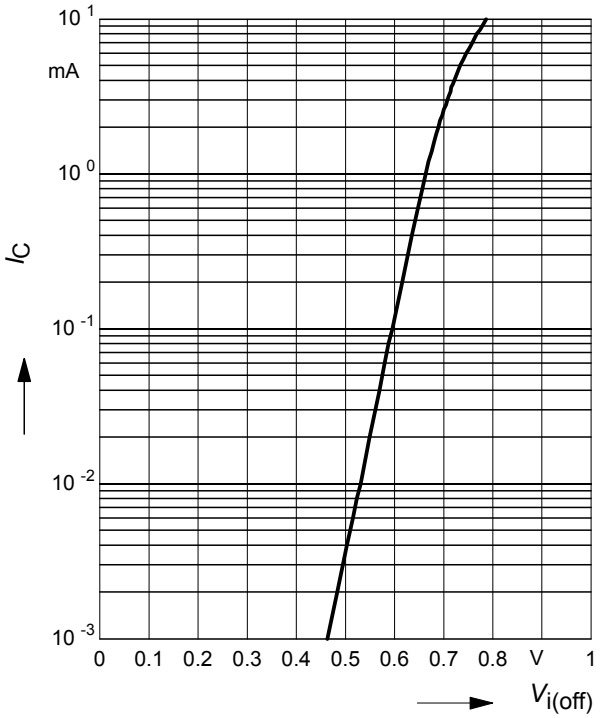
Input on Voltage $Vi_{(on)} = f(I_C)$

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

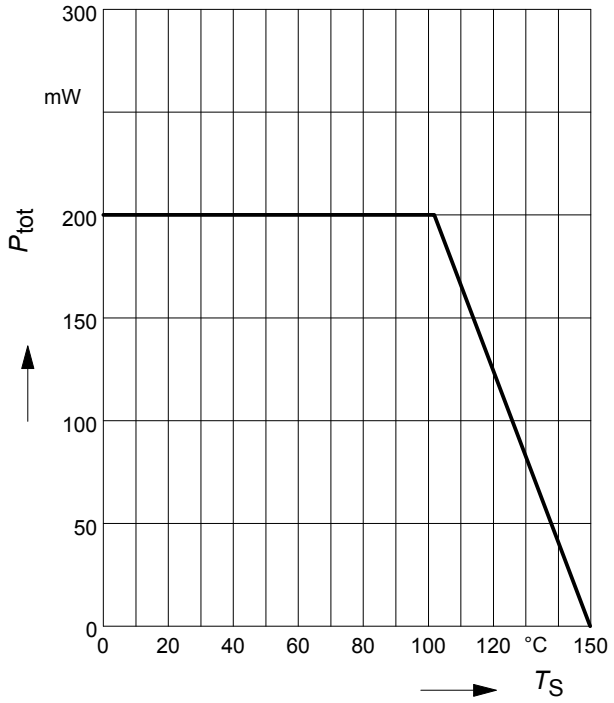


Input off voltage $V_{i(off)} = f(I_C)$

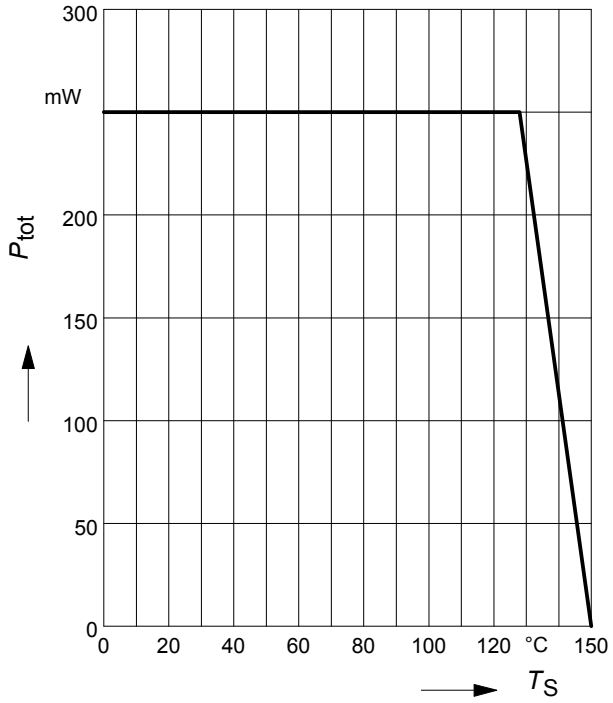
V_{CE} = 5V (common emitter configuration)



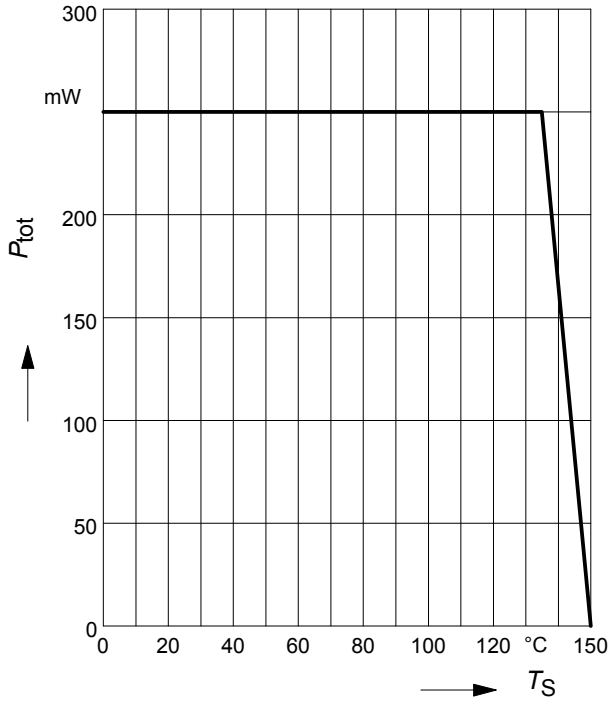
Total power dissipation $P_{tot} = f(T_S)$
BCR108



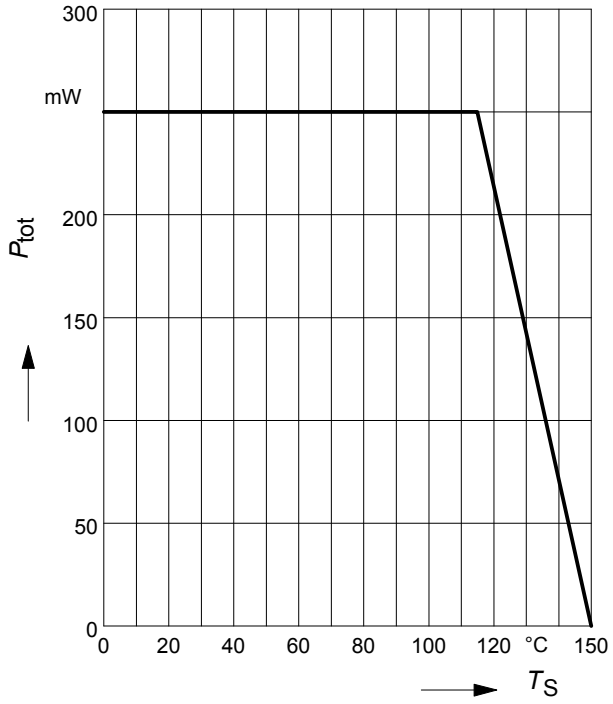
Total power dissipation $P_{tot} = f(T_S)$
BCR108F



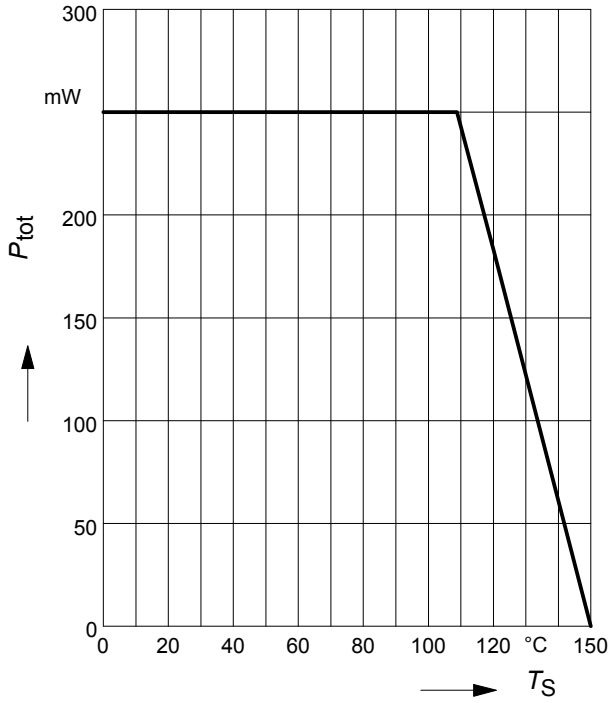
Total power dissipation $P_{tot} = f(T_S)$
BCR108L3



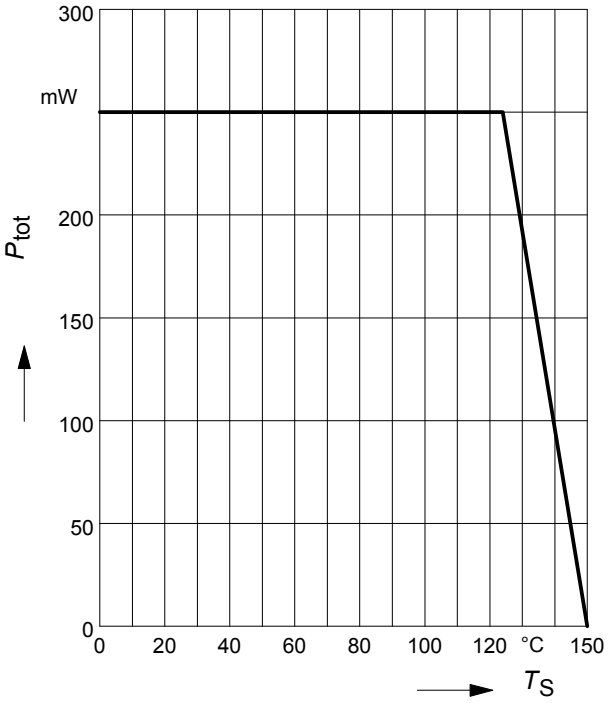
Total power dissipation $P_{tot} = f(T_S)$
BCR108S



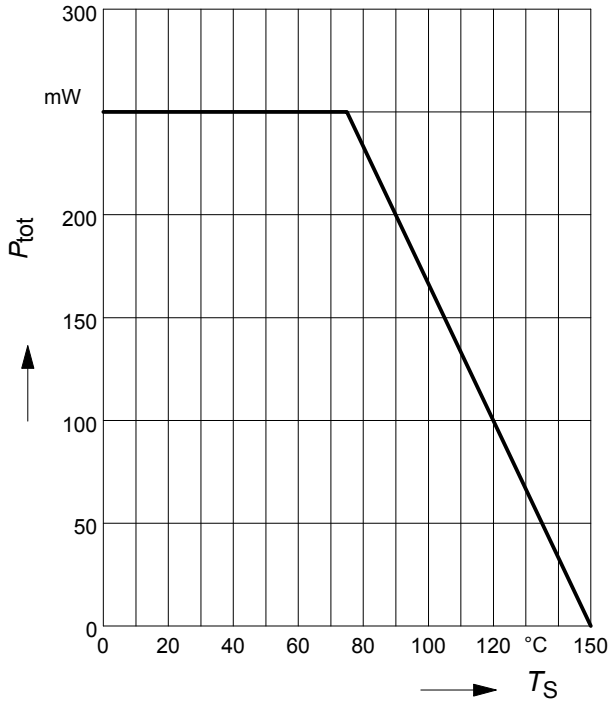
Total power dissipation $P_{tot} = f(T_S)$
BCR108T



Total power dissipation $P_{tot} = f(T_S)$
BCR108W

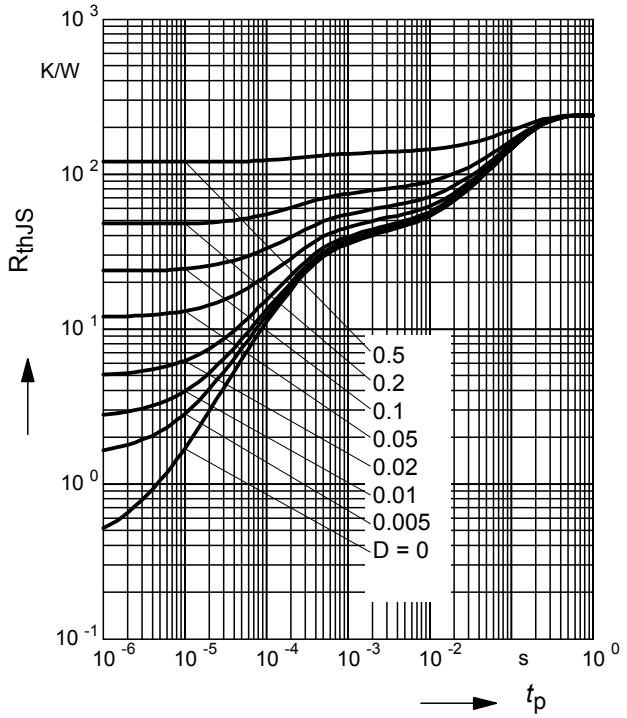


Total power dissipation $P_{tot} = f(T_S)$
SEMH10



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

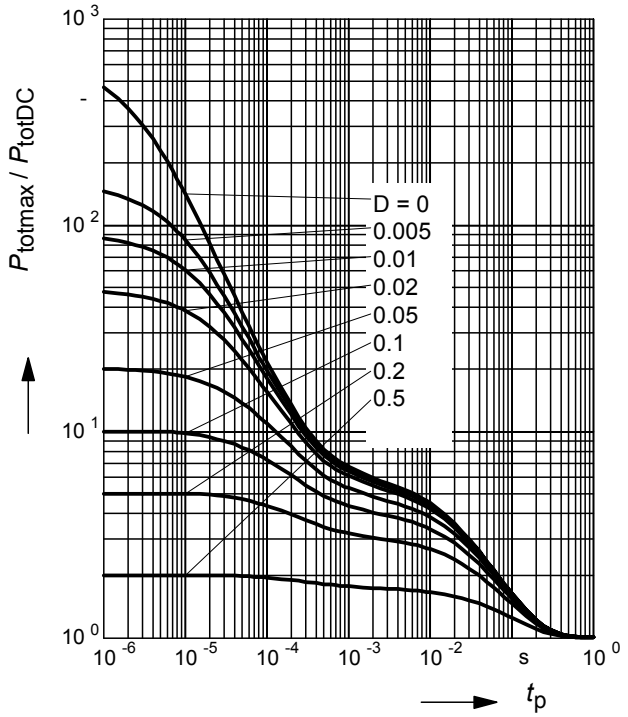
BCR108



Permissible Pulse Load

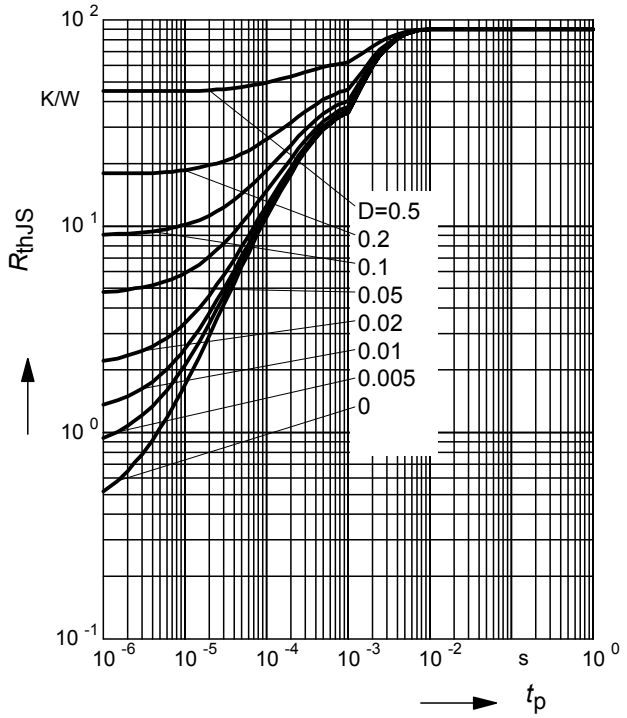
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108



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

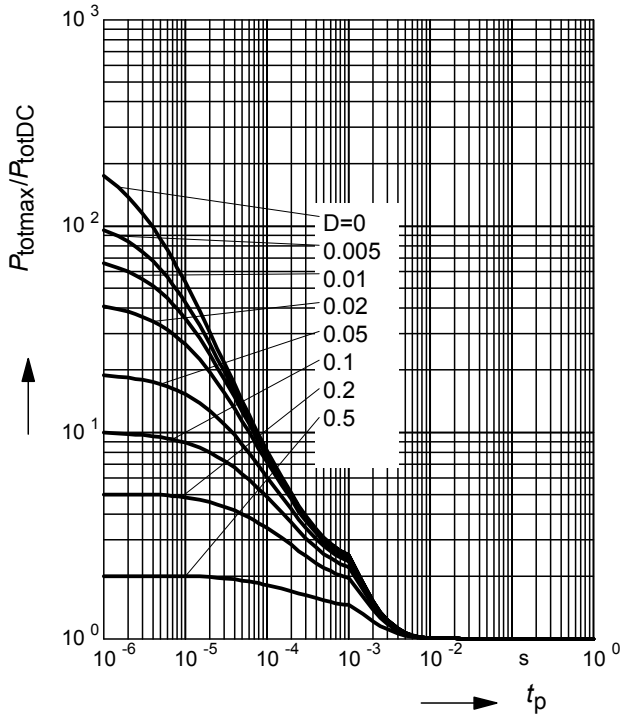
BCR108F



Permissible Pulse Load

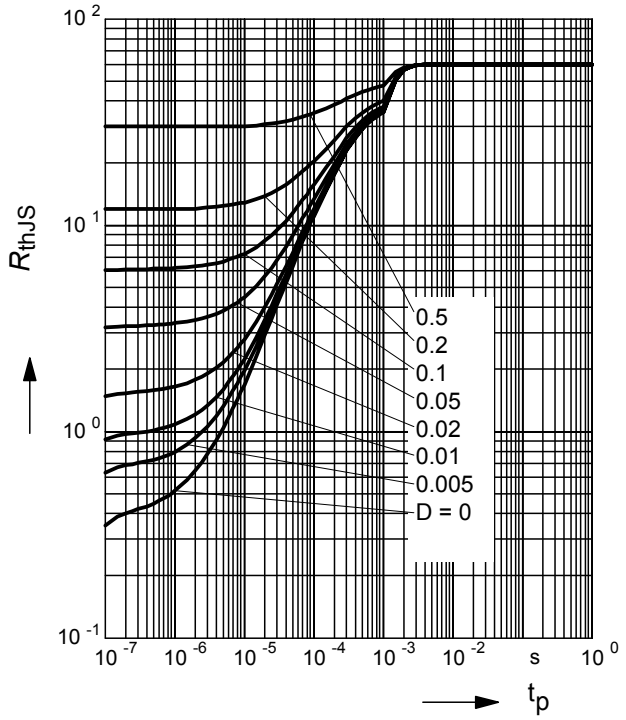
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108F



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

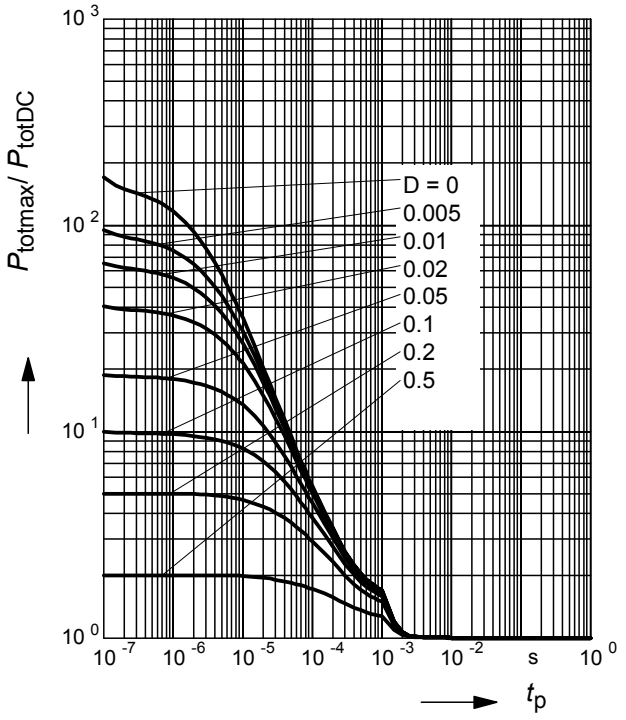
BCR108L3



Permissible Pulse Load

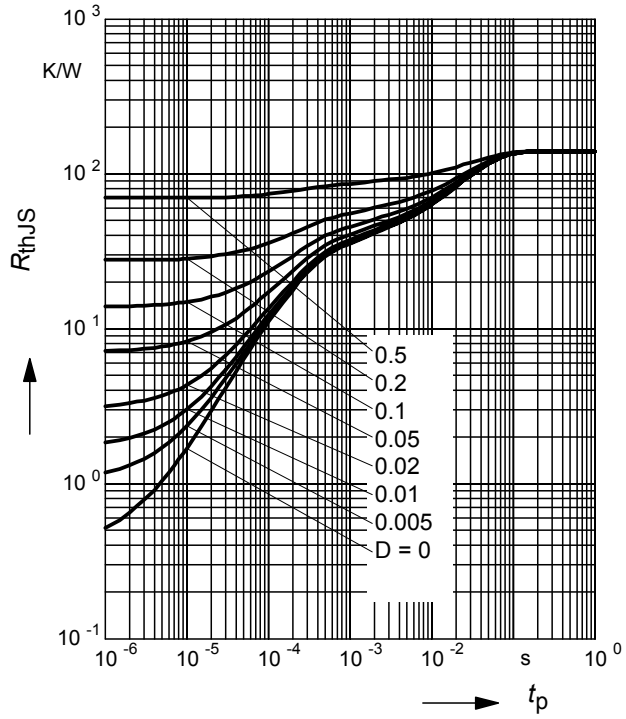
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108L3



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

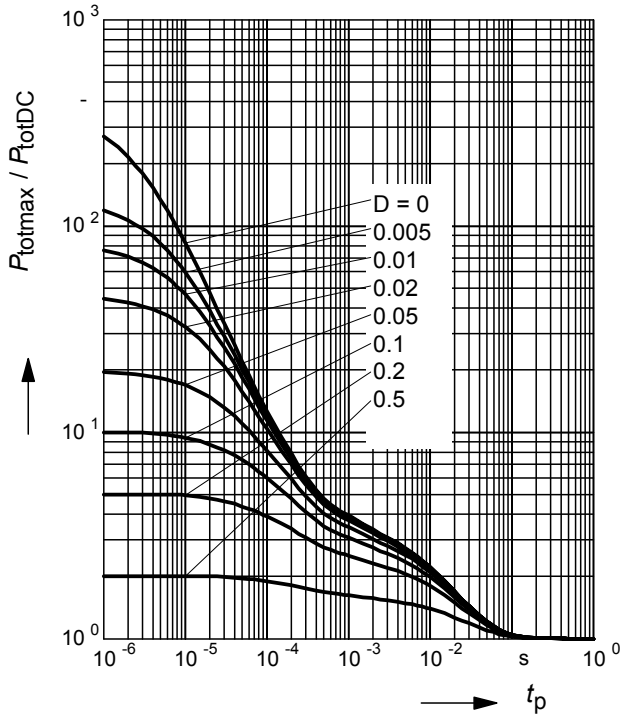
BCR108S



Permissible Pulse Load

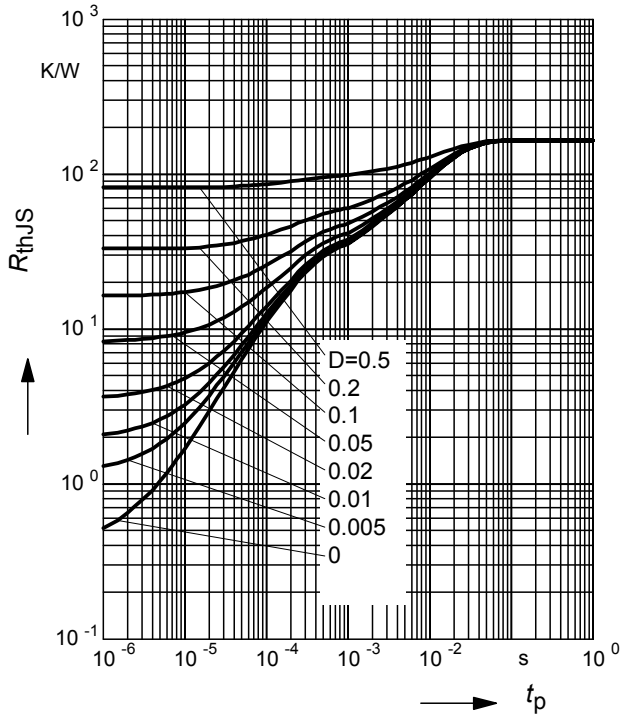
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108S



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

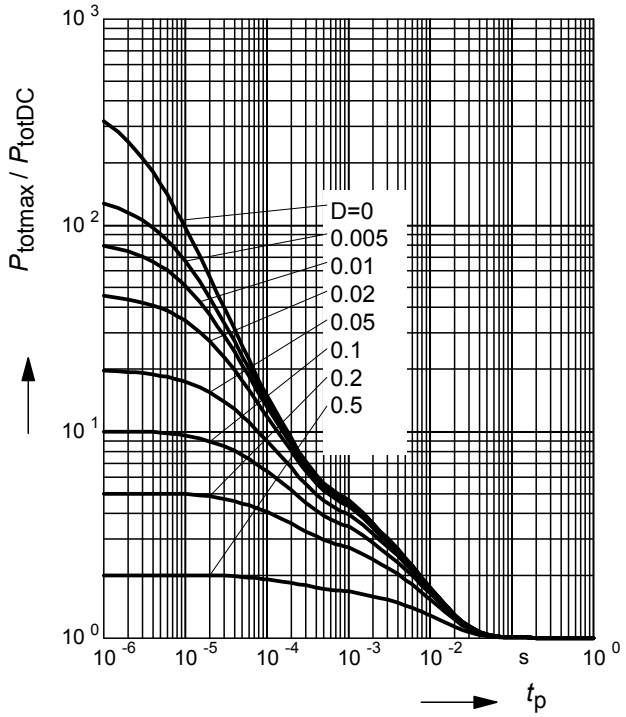
BCR108T



Permissible Pulse Load

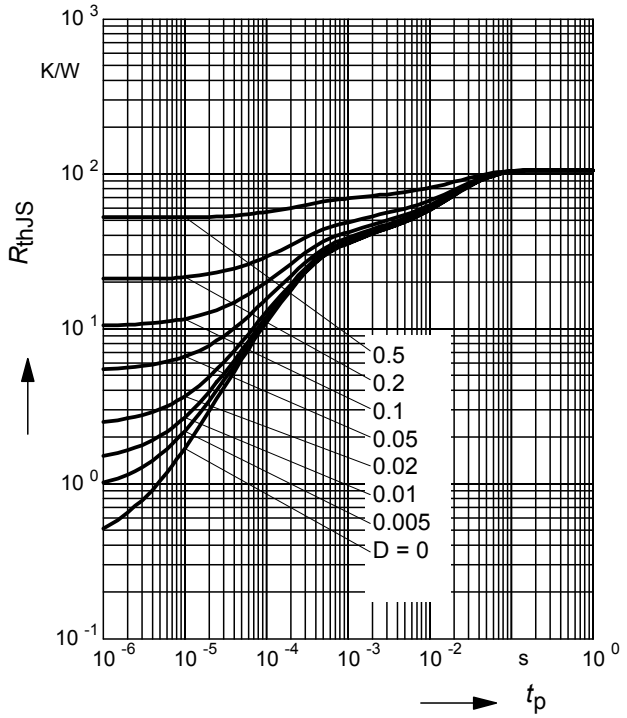
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108T



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

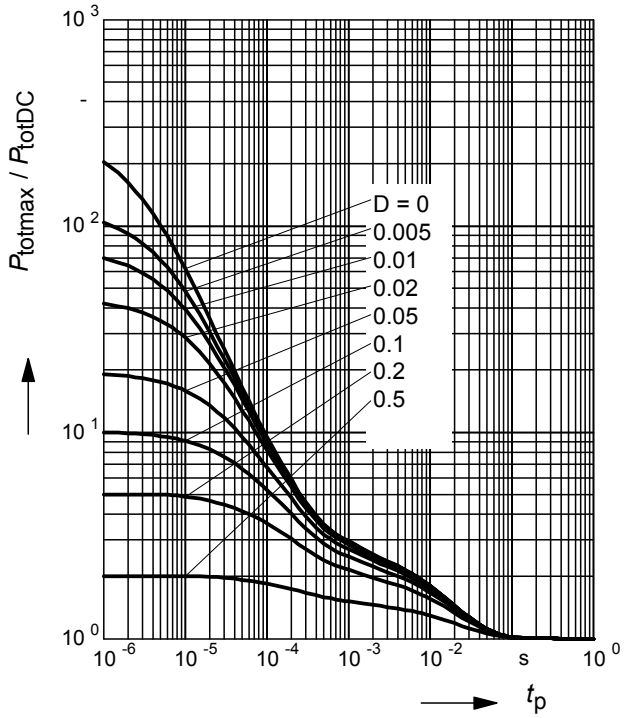
BCR108W



Permissible Pulse Load

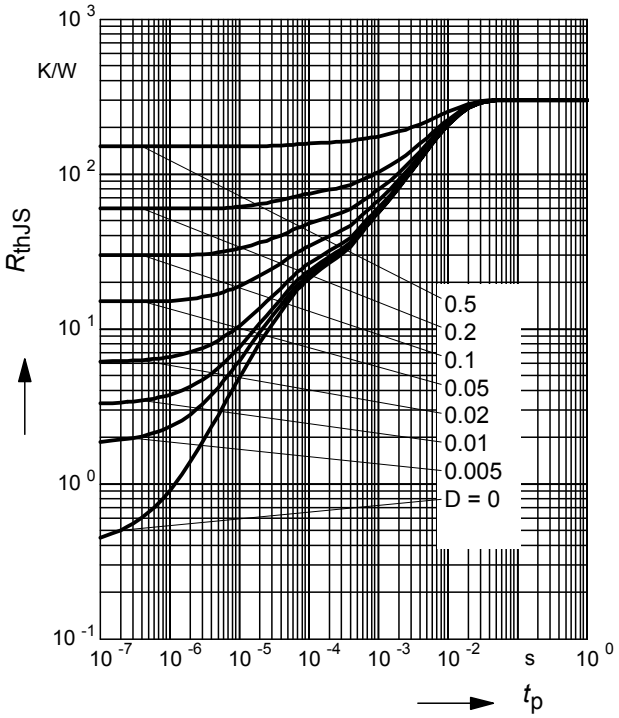
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108W



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

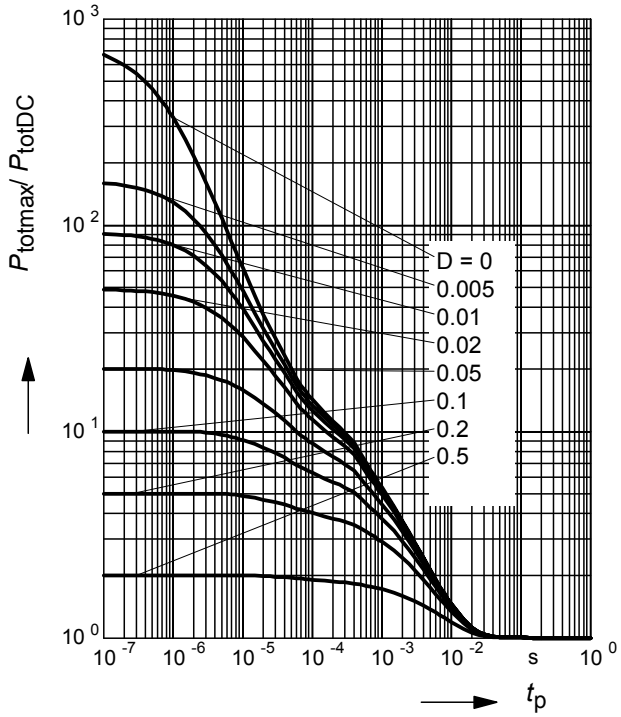
SEMH10



Permissible Pulse Load

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

SEMH10



Published by Infineon Technologies AG,
St.-Martin-Strasse 53,
81669 München

Attention please!

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.Infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.