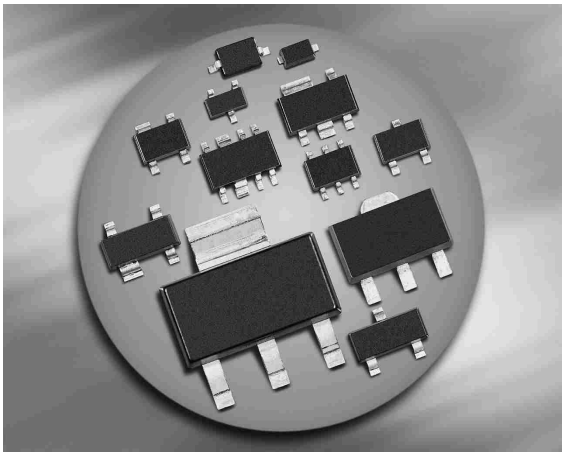
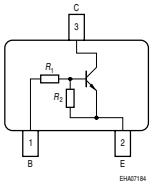
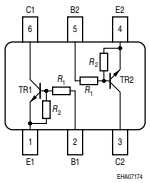
NPN Silicon Digital Transistor

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



BCR148/F/L3 **BCR148S/U**
BCR148T/W **SEMH2**





Type	Marking	Pin Configuration						Package
BCR148	WEs	1=B	2=E	3=C	-	-	-	SOT23
BCR148F	WEs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR148L3	WE	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR148S	WEs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR148T	WEs	1=B	2=E	3=C	-	-	-	SC75
BCR148U	WEs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SC74
BCR148W	WEs	1=B	2=E	3=C	-	-	-	SOT323
SEMH2	WE	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}	10	
Input on voltage	$V_{i(on)}$	50	
Collector current	I_C	70	mA
Total power dissipation-	P_{tot}		mW
BCR148, $T_S \leq 102°C$		200	
BCR148F, $T_S \leq 128°C$		250	
BCR148L3, $T_S \leq 135°C$		250	
BCR148S, $T_S \leq 115°C$		250	
BCR148T, $T_S \leq 109°C$		250	
BCR148U, $T_S \leq 118°C$		250	
BCR148W, $T_S \leq 124°C$		250	
SEMH2, $T_S \leq 75°C$		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
BCR148		≤ 240	
BCR148F		≤ 90	
BCR148L3		≤ 60	
BCR148S		≤ 140	
BCR148T		≤ 165	
BCR148U		≤ 133	
BCR148W		≤ 105	
SEMH2		≤ 300	

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

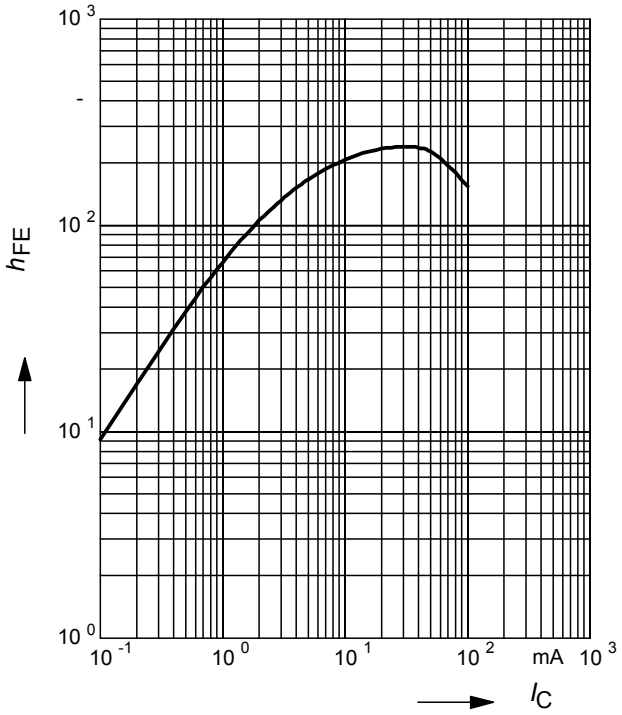
Electrical Characteristics at T_A = 25°C, unless otherwise specified

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} = 10 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	$V_{i(off)}$	0.8	-	1.5	
Input on voltage I_C = 2 mA, V_{CE} = 0.3 V	$V_{i(on)}$	1	-	3	
Input resistor	R_1	32	47	62	kΩ
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	100	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	3	-	pF

[1]Pulse test: t < 300µs; D < 2%

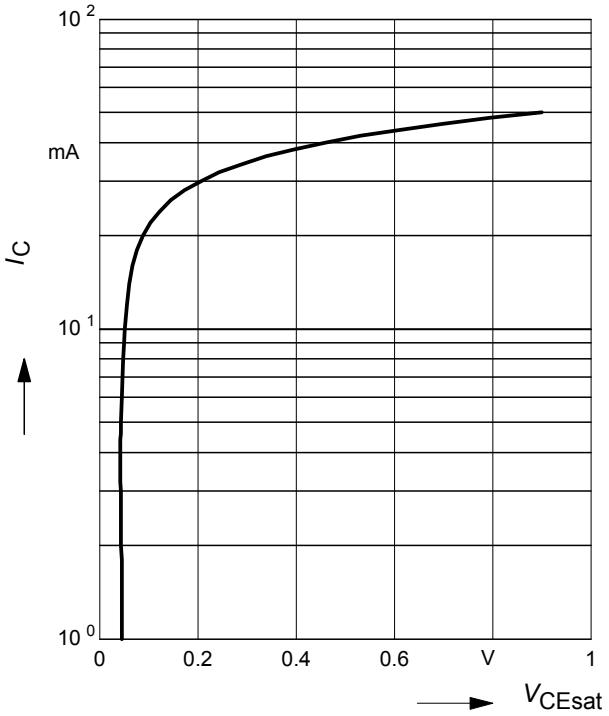
DC current gain $h_{FE} = f(I_C)$

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



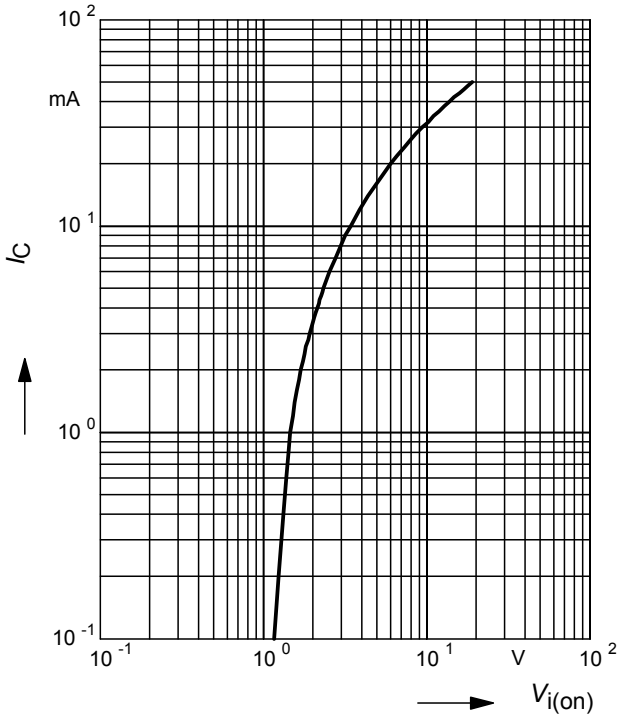
Collector-emitter saturation voltage

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



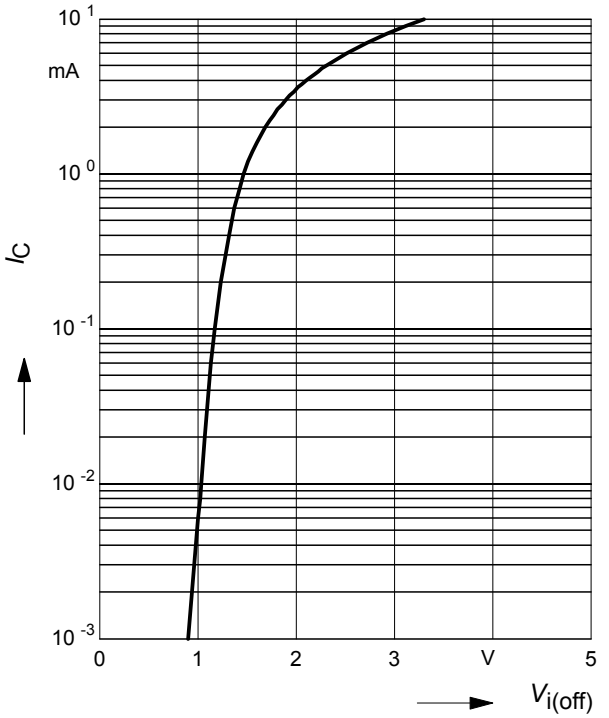
Input on Voltage $V_{i(on)} = f(I_C)$

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

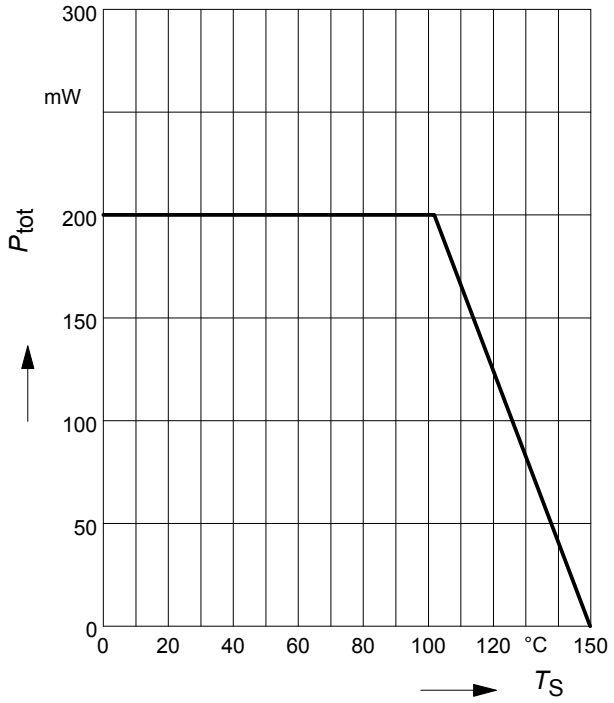


Input off voltage $V_{i(off)} = f(I_C)$

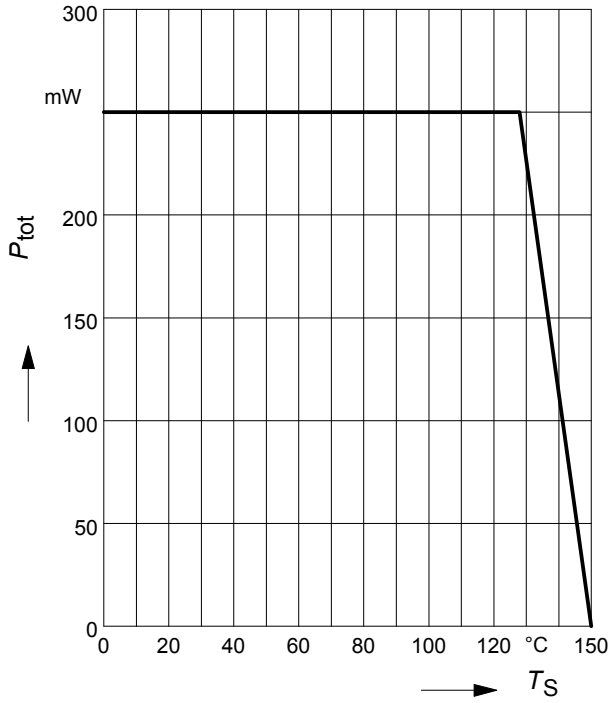
V_{CE} = 5V (common emitter configuration)



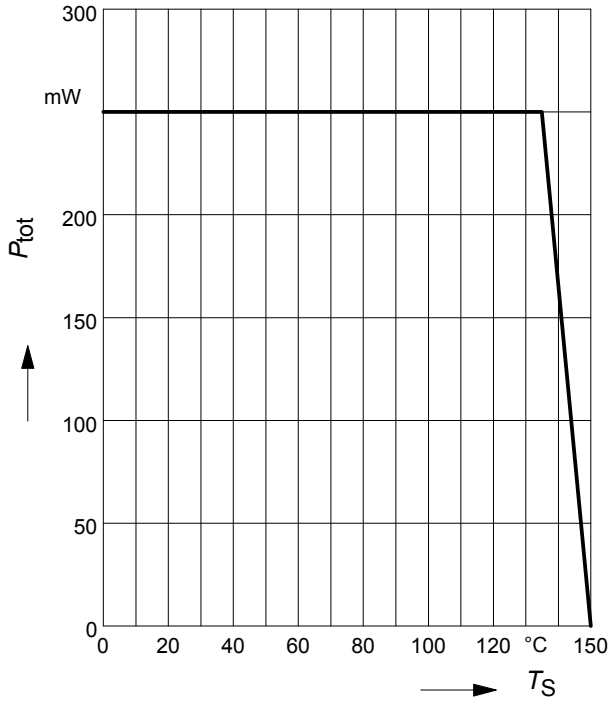
Total power dissipation $P_{tot} = f(T_S)$
BCR148



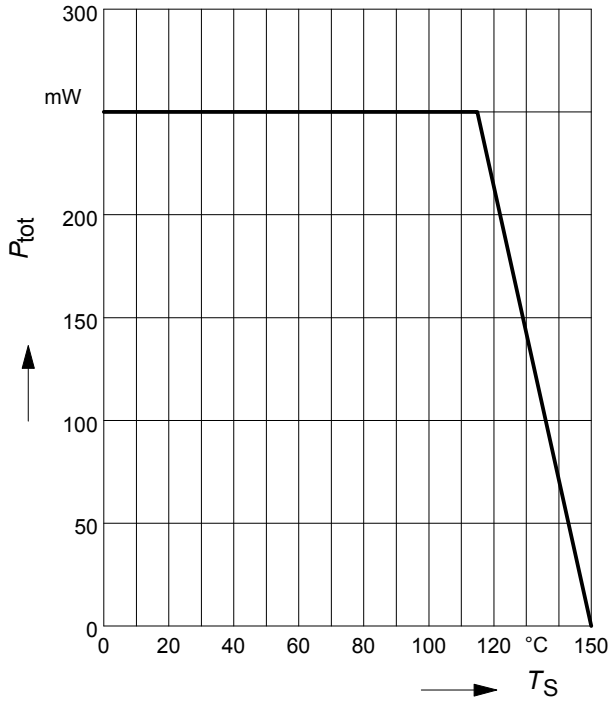
Total power dissipation $P_{tot} = f(T_S)$
BCR148F



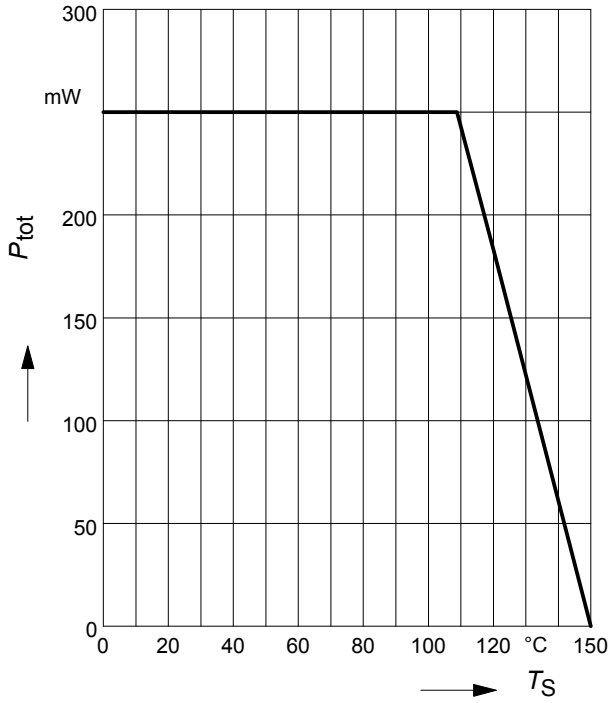
Total power dissipation $P_{tot} = f(T_S)$
BCR148L3



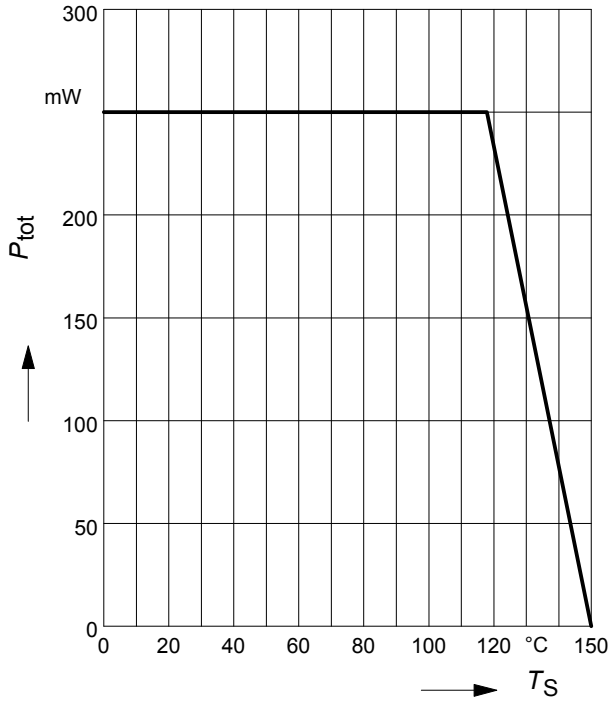
Total power dissipation $P_{tot} = f(T_S)$
BCR148S



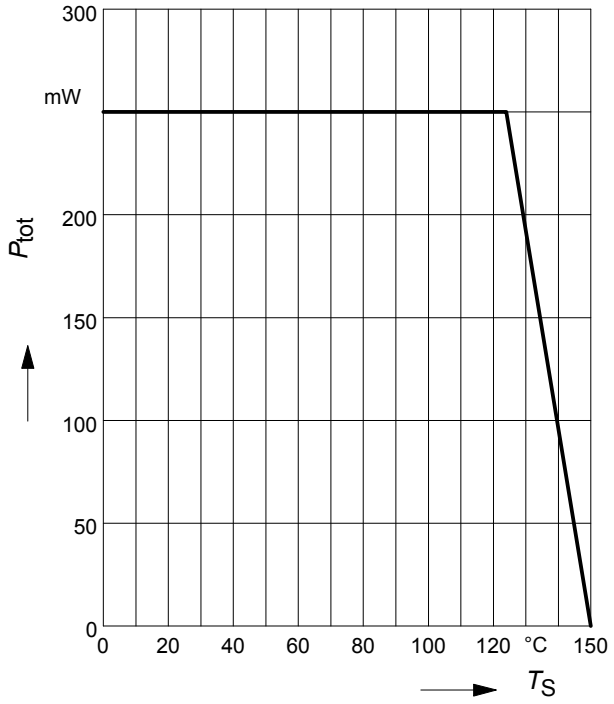
Total power dissipation $P_{tot} = f(T_S)$
BCR148T



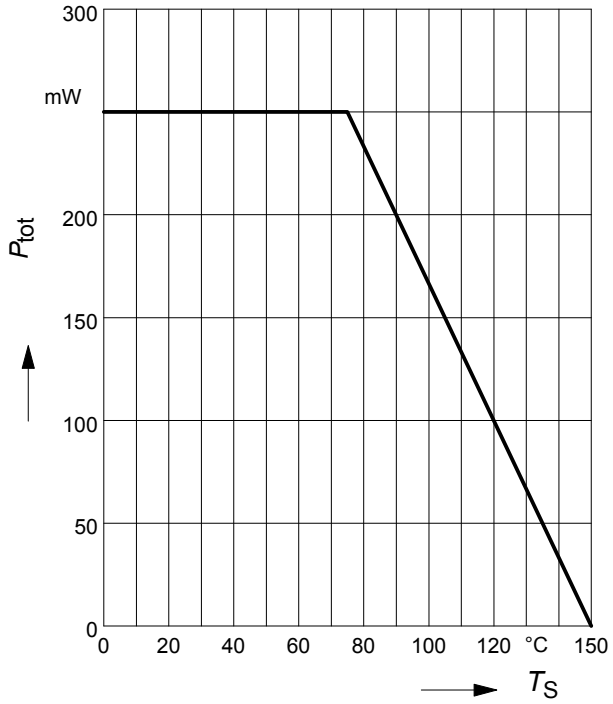
Total power dissipation $P_{tot} = f(T_S)$
BCR148U



Total power dissipation $P_{tot} = f(T_S)$
BCR148W

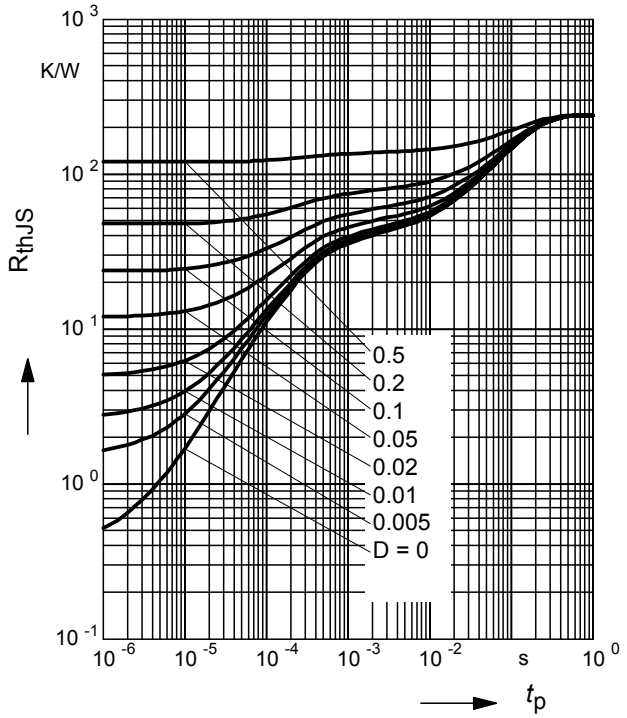


Total power dissipation $P_{tot} = f(T_S)$
SEMH2



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

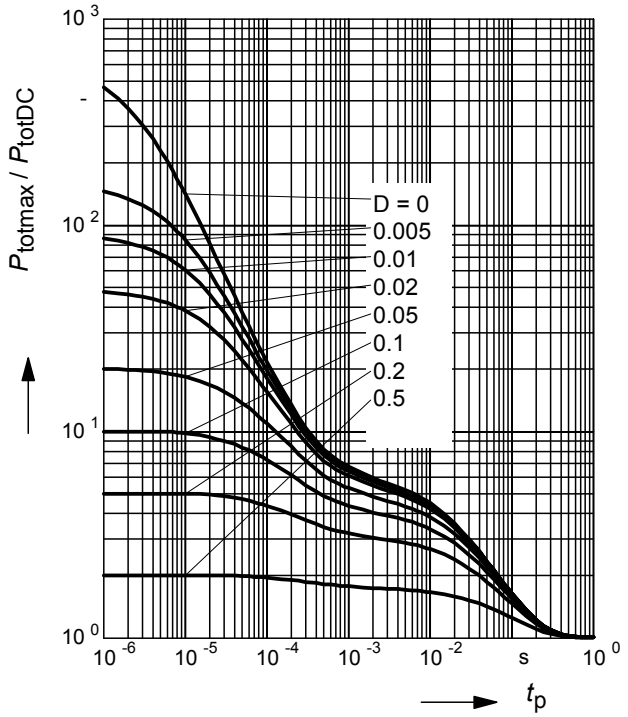
BCR148



Permissible Pulse Load

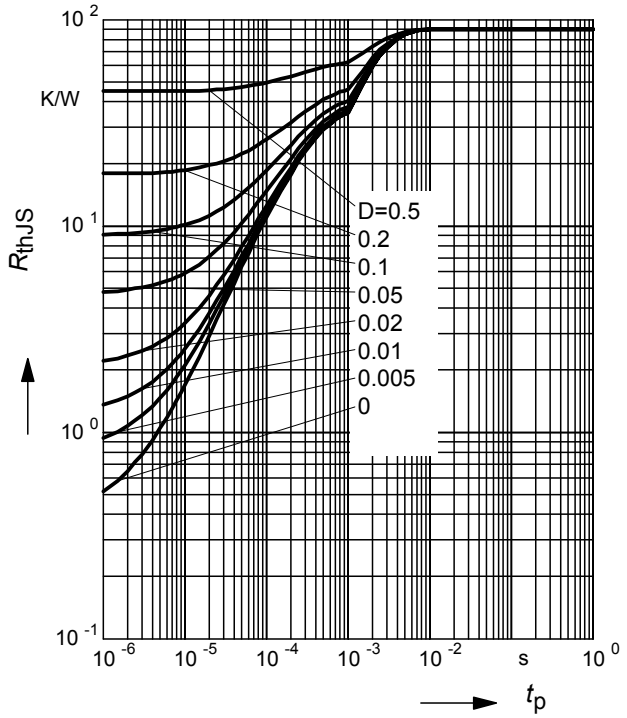
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148



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

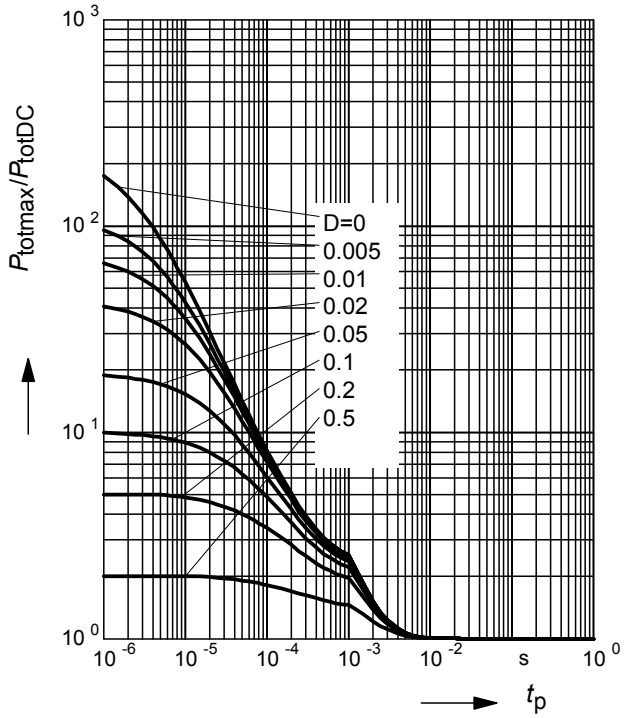
BCR148F



Permissible Pulse Load

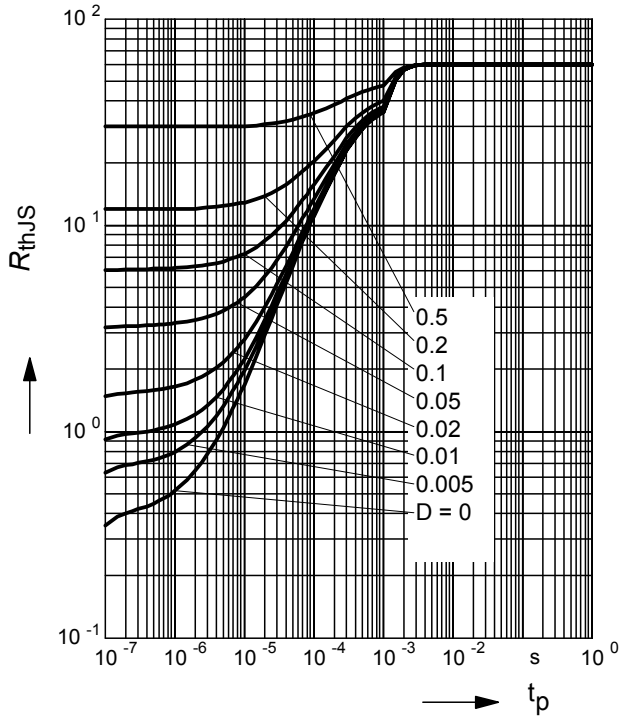
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148F



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

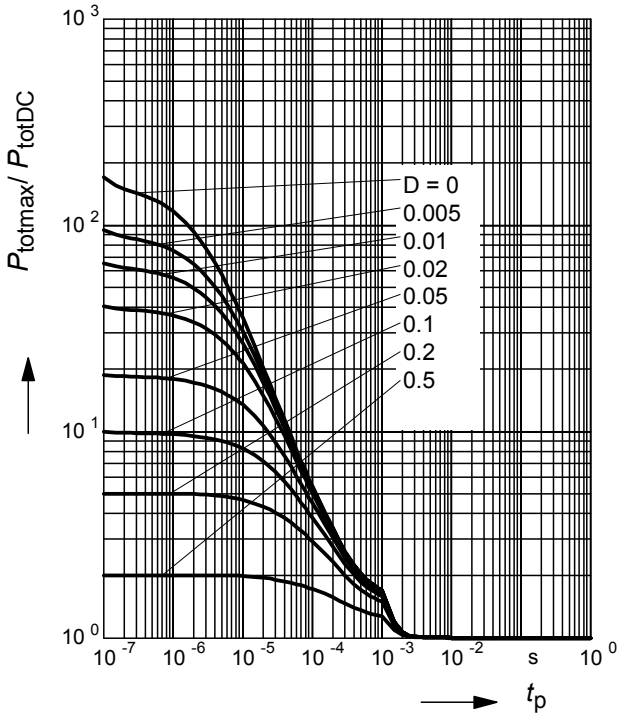
BCR148L3



Permissible Pulse Load

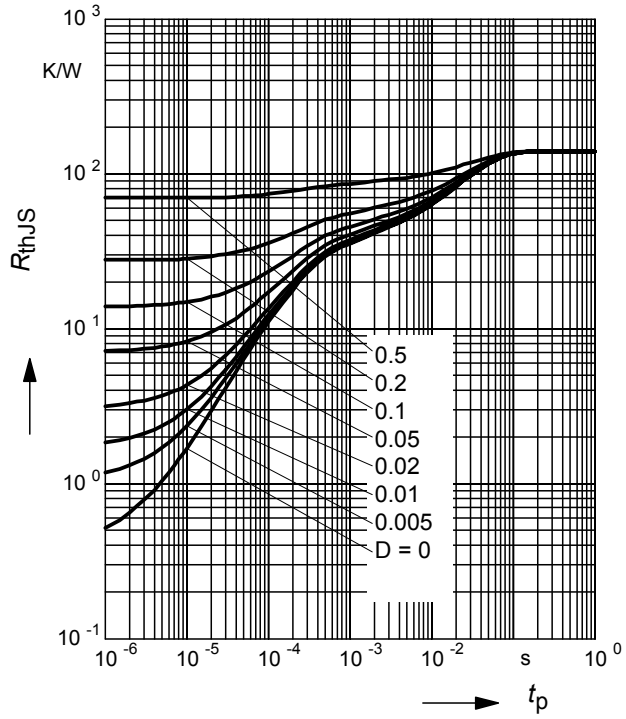
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148L3



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

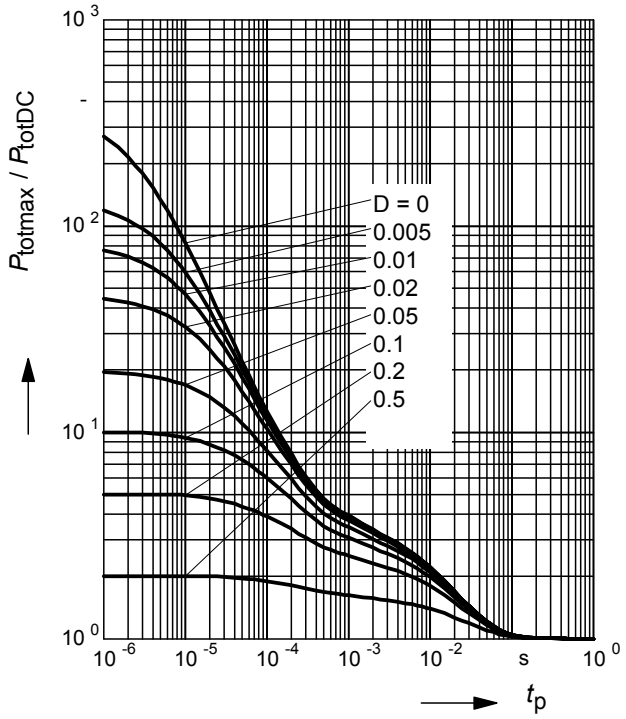
BCR148S



Permissible Pulse Load

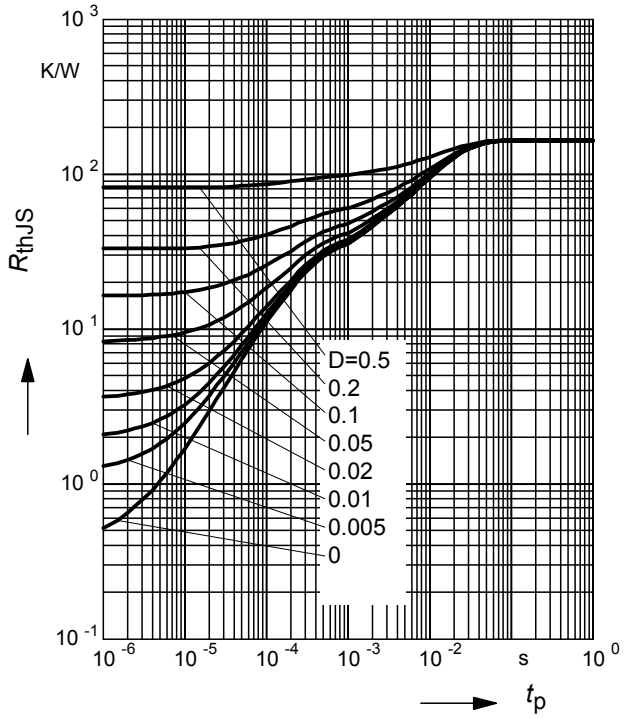
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148S



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

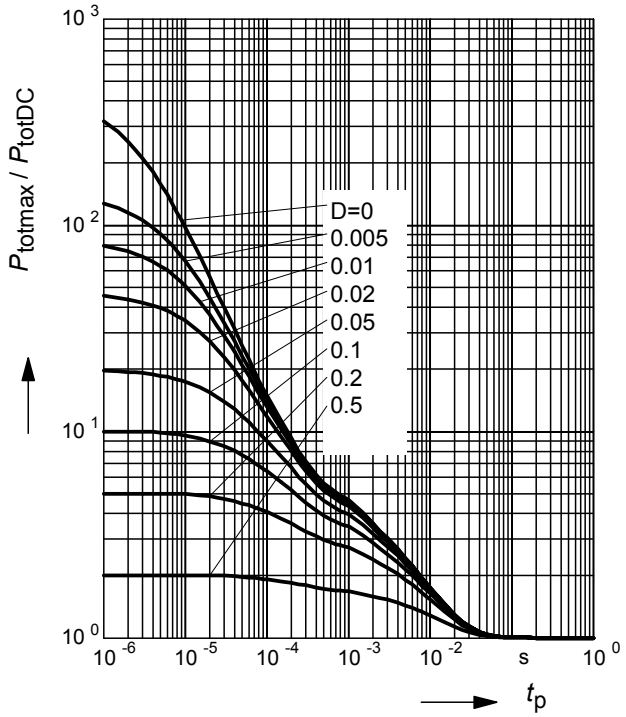
BCR148T



Permissible Pulse Load

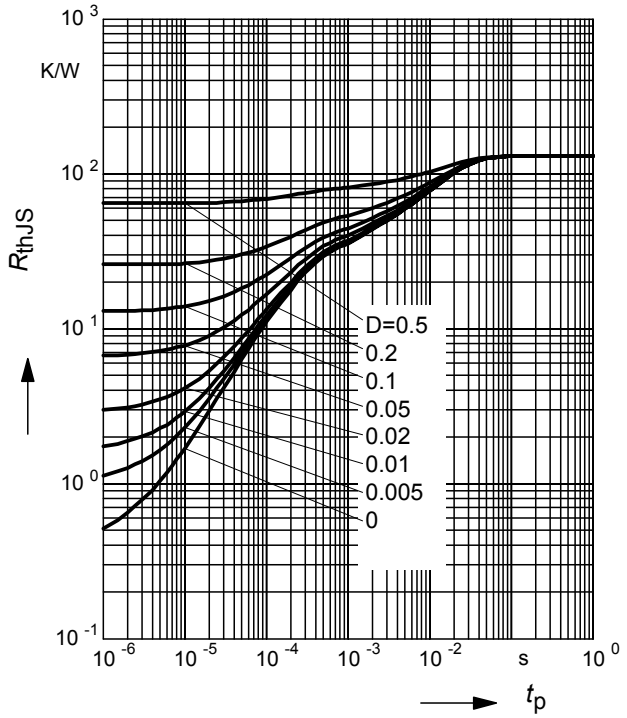
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148T



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

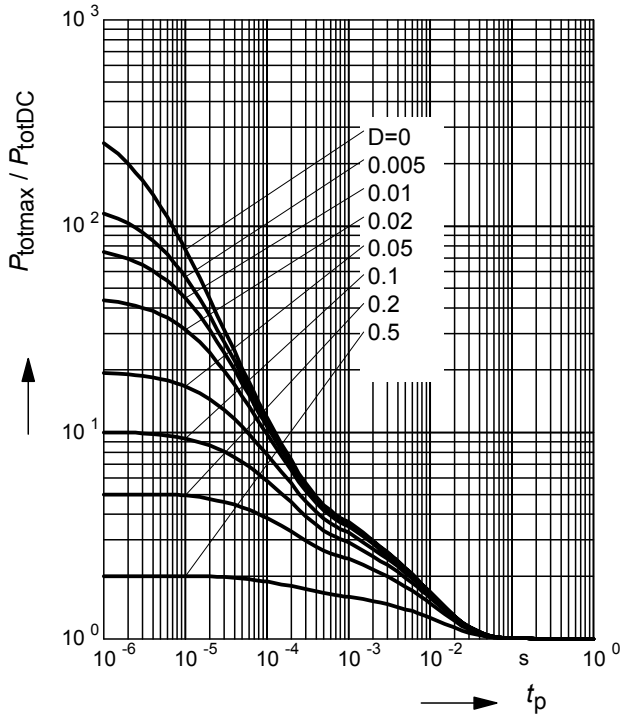
BCR148U



Permissible Pulse Load

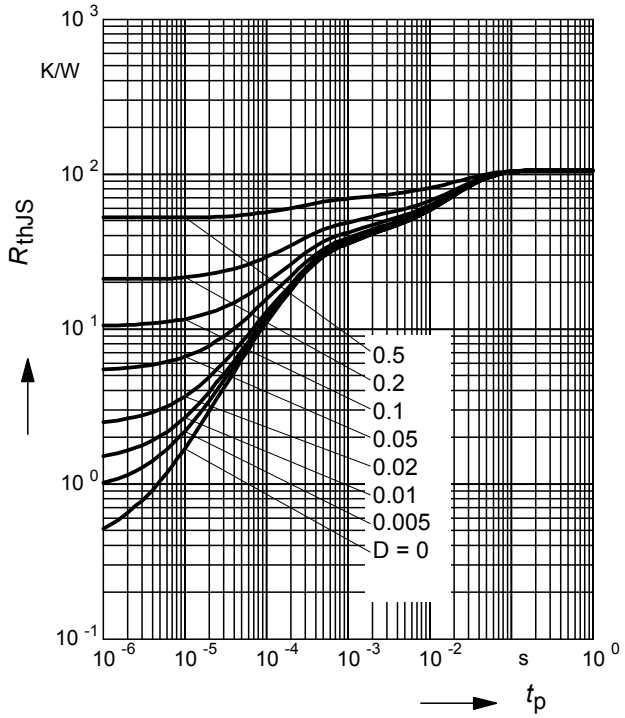
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148U



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

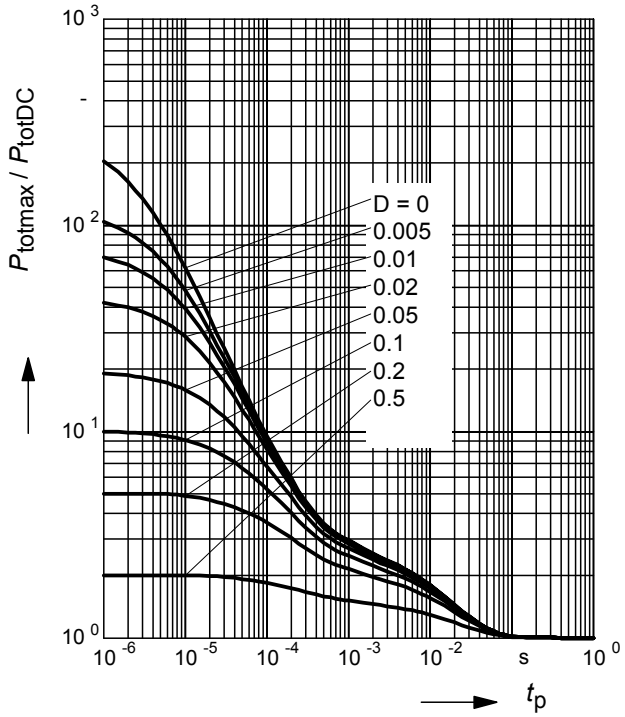
BCR148W



Permissible Pulse Load

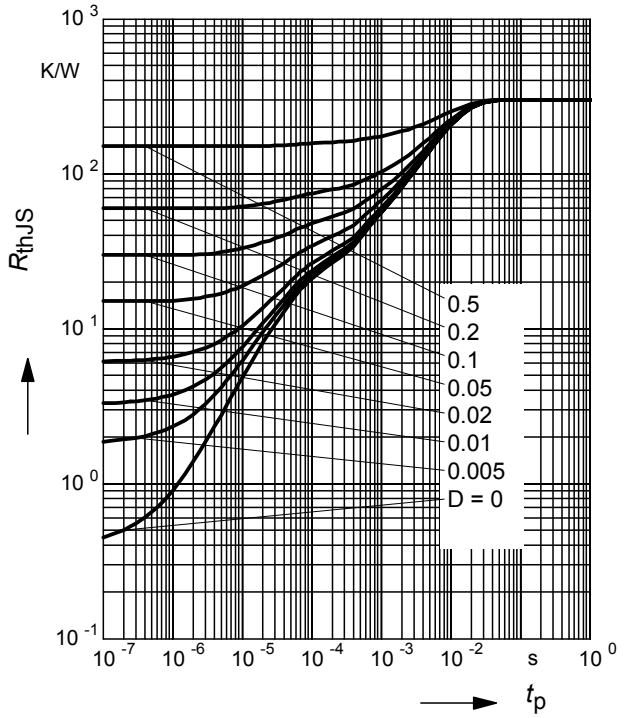
$P_{totmax}/P_{totDC} = f(t_p)$

BCR148W



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

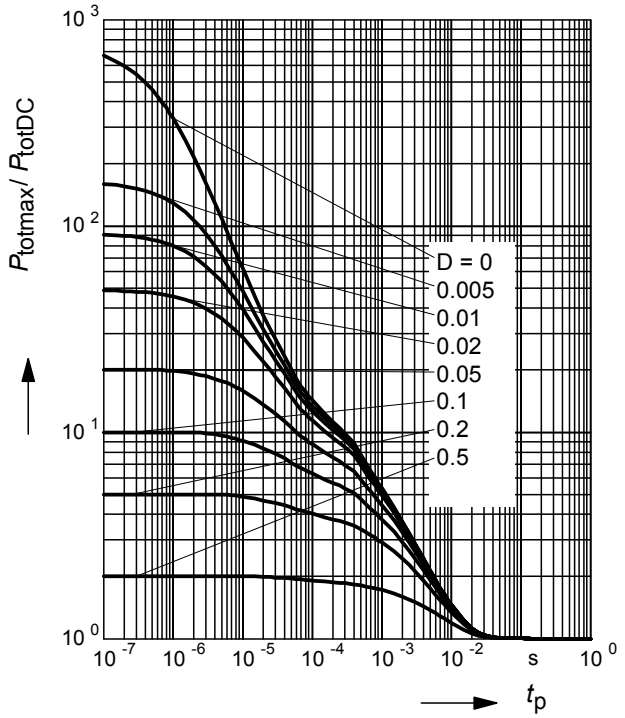
SEMH2



Permissible Pulse Load

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

SEMH2



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

© Infineon Technologies AG 2004.
All Rights Reserved.

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.