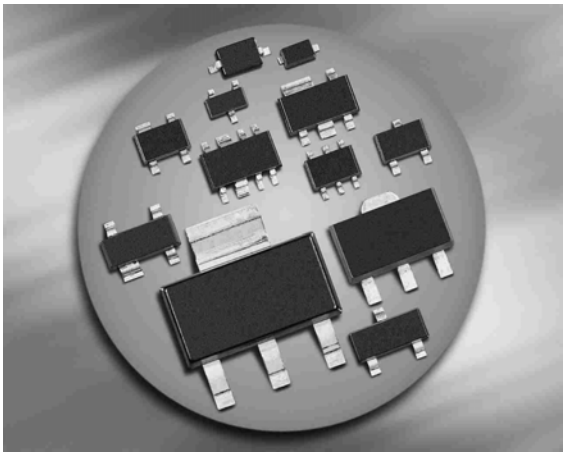
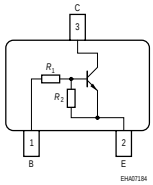
NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor (R_1=4.7kΩ, R_2=10kΩ)



BCR114/F
BCR114L3/T



Type	Marking	Pin Configuration						Package
BCR114	U4s	1=B	2=E	3=C	-	-	-	SOT23
BCR114F	U4s	1=B	2=E	3=C	-	-	-	TSFP-3
BCR114L3	U4	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR114T	U4s	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	$V_{i(on)}$	15	
Collector current	I_C	100	mA
Total power dissipation-	P_{tot}		mW
BCR114, $T_S \leq 102°C$		200	
BCR114F, $T_S \leq 128°C$		250	
BCR114L3, $T_S \leq 135°C$		250	
BCR114T, $T_S \leq 109°C$		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
BCR114		≤ 240	
BCR114F		≤ 90	
BCR114L3		≤ 60	
BCR114T		≤ 165	

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

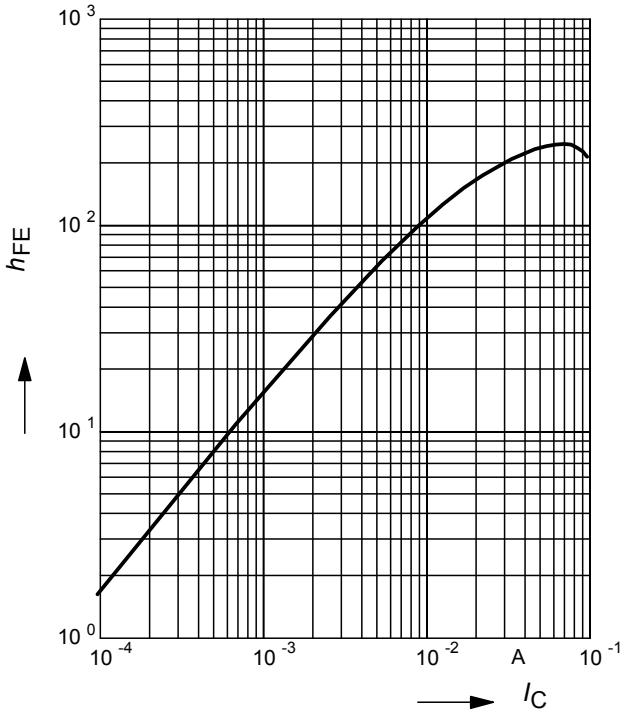
Electrical Characteristics at T_A = 25°C, unless otherwise specified

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	-	-	
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}	-	-	520	µA
DC current gain[1)] I_C = 5 mA, V_{CE} = 5 V	h_{FE}	30	-	-	-
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	$V_{i(off)}$	0.5	-	1.1	
Input on voltage I_C = 2 mA, V_{CE} = 0.3 V	$V_{i(on)}$	0.5	-	1.4	
Input resistor	R_1	3.2	4.7	6.2	kΩ
Resistor ratio	R_1/R_2	0.42	0.47	0.52	-
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	160	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	3	-	pF

[1]Pulse test: t < 300µs; D < 2%

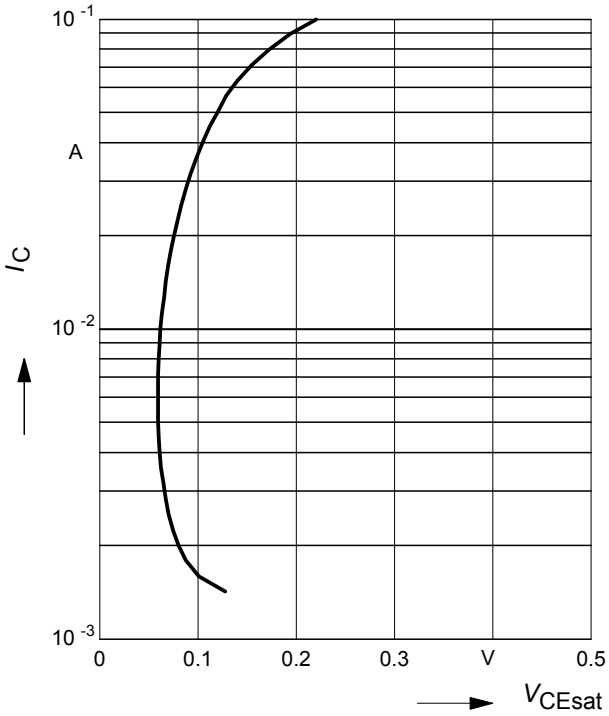
DC current gain $h_{FE} = f(I_C)$

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



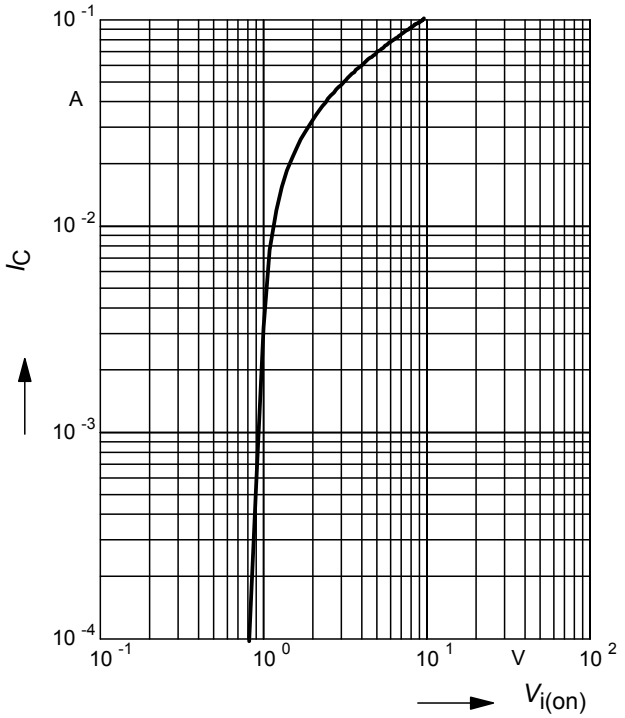
Collector-emitter saturation voltage

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



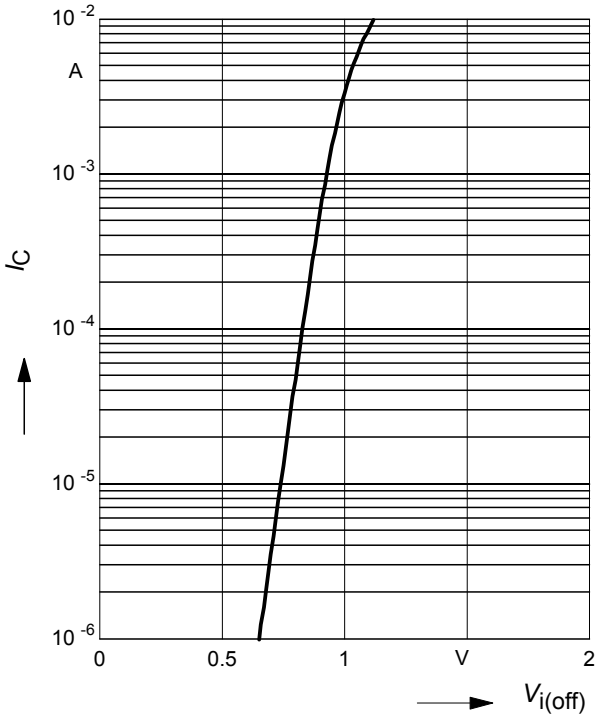
Input on Voltage $V_{i(on)} = f(I_C)$

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

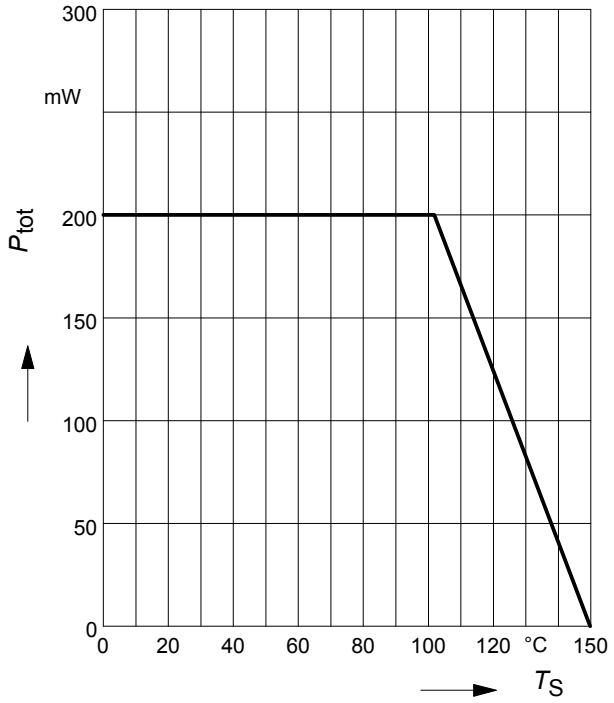


Input off voltage $V_{i(off)} = f(I_C)$

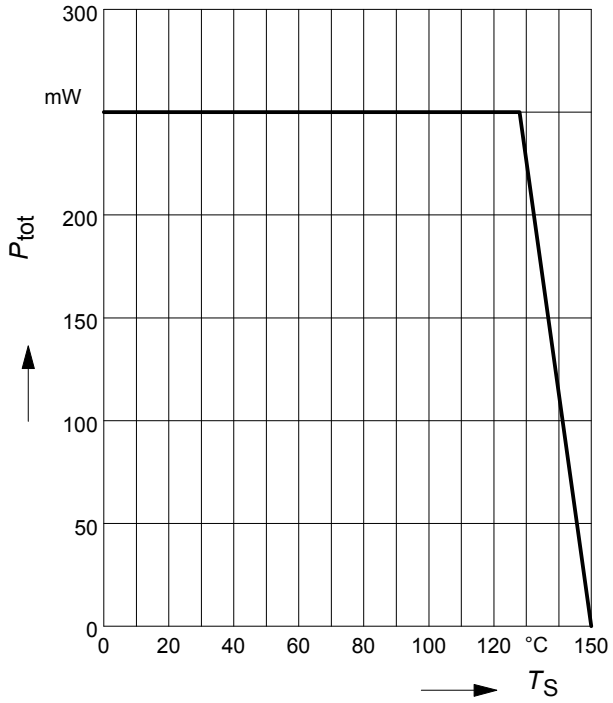
V_{CE} = 5V (common emitter configuration)



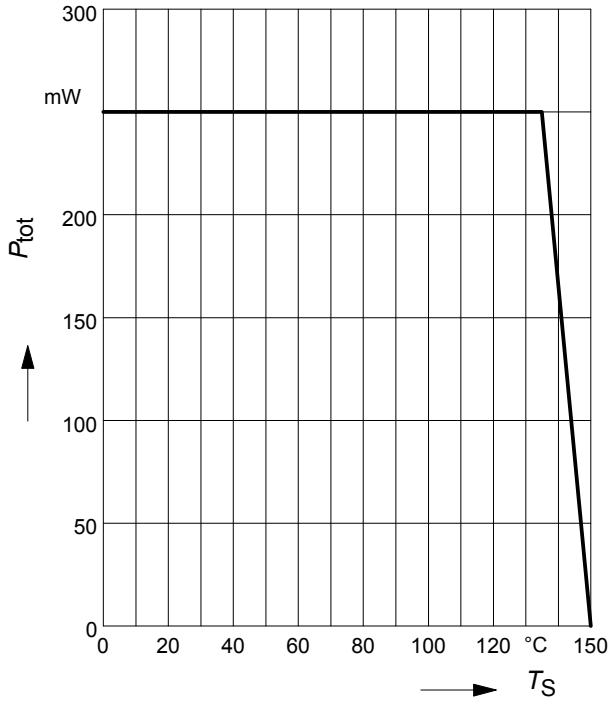
Total power dissipation $P_{tot} = f(T_S)$
BCR114



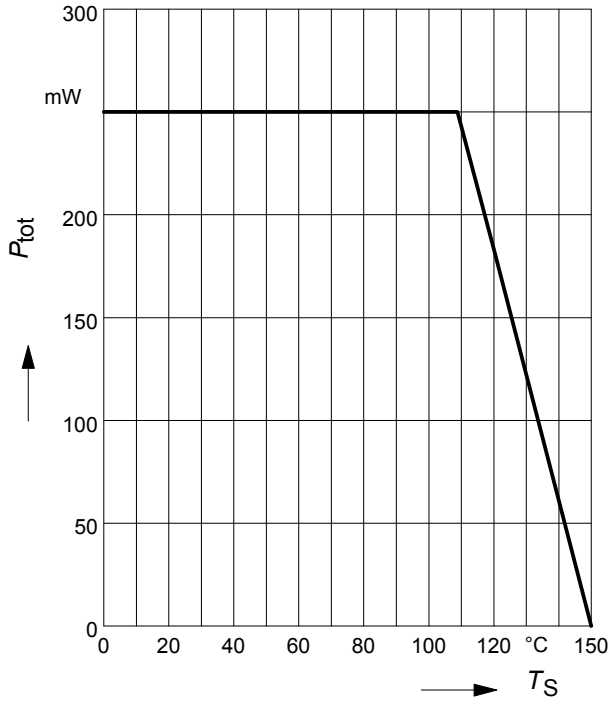
Total power dissipation $P_{tot} = f(T_S)$
BCR114F



Total power dissipation $P_{tot} = f(T_S)$
BCR114L3

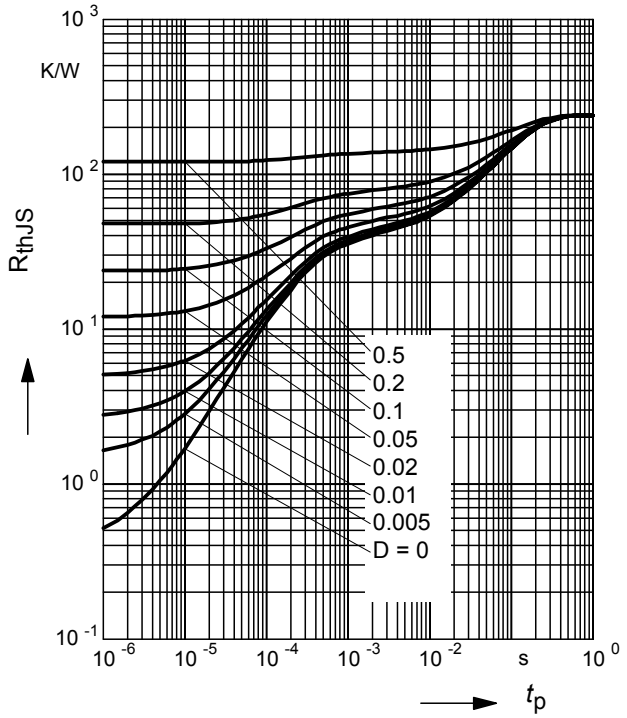


Total power dissipation $P_{tot} = f(T_S)$
BCR114T



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

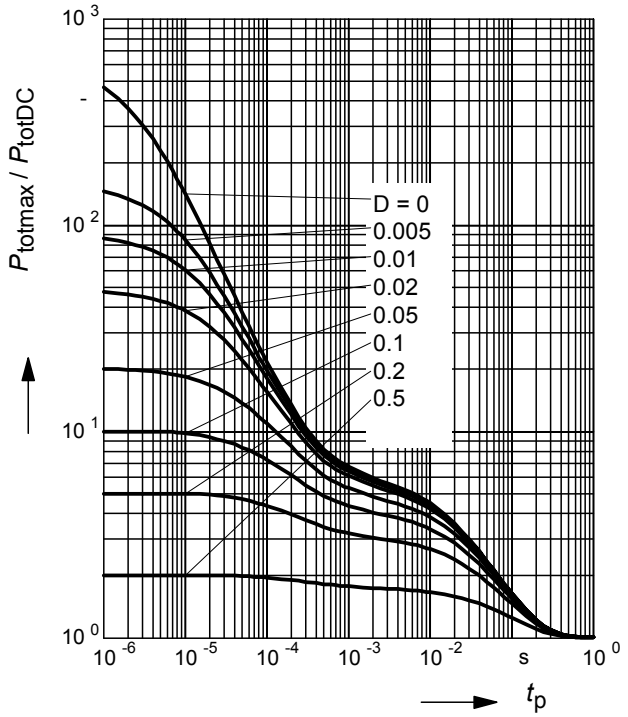
BCR114



Permissible Pulse Load

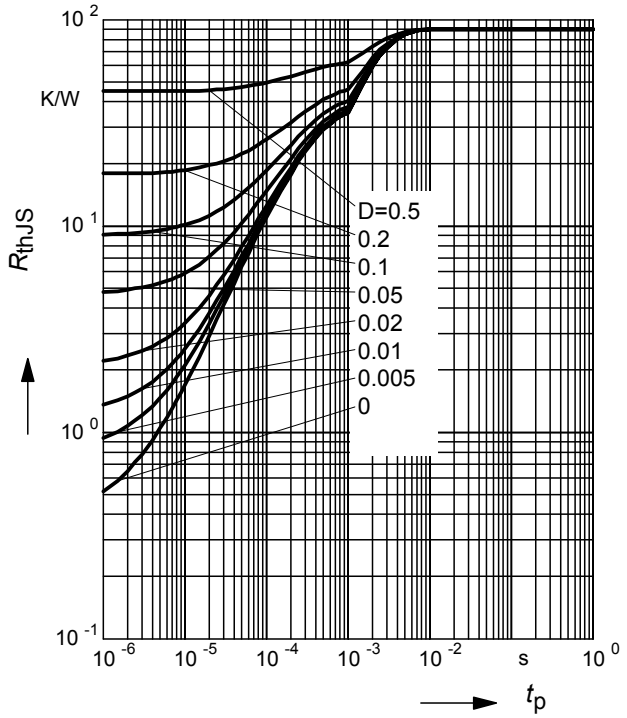
$P_{totmax}/P_{totDC} = f(t_p)$

BCR114



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

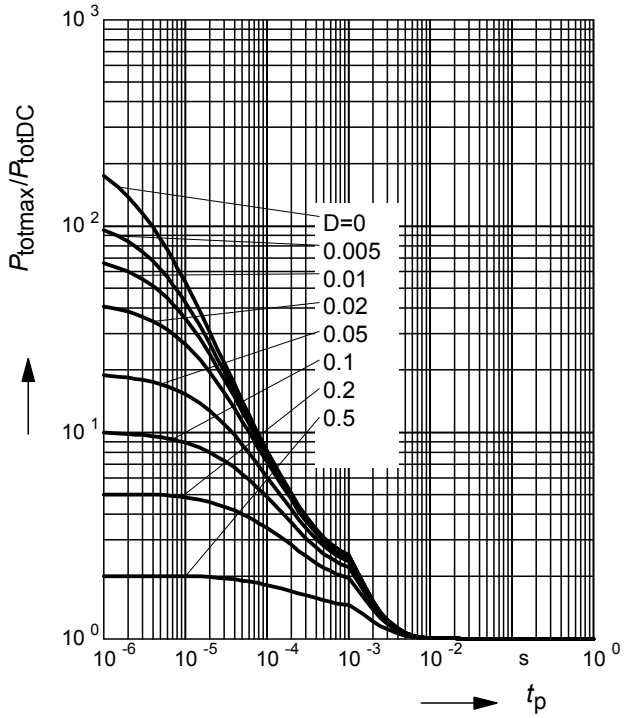
BCR114F



Permissible Pulse Load

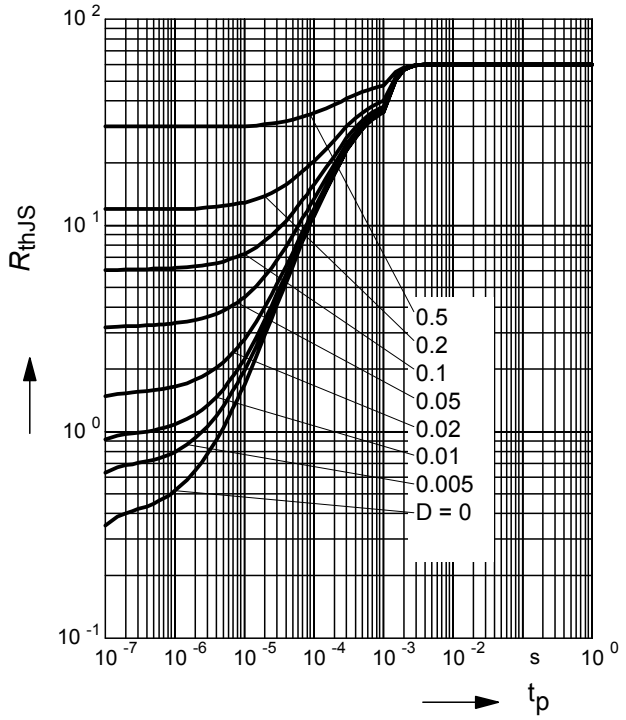
$P_{totmax}/P_{totDC} = f(t_p)$

BCR114F



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

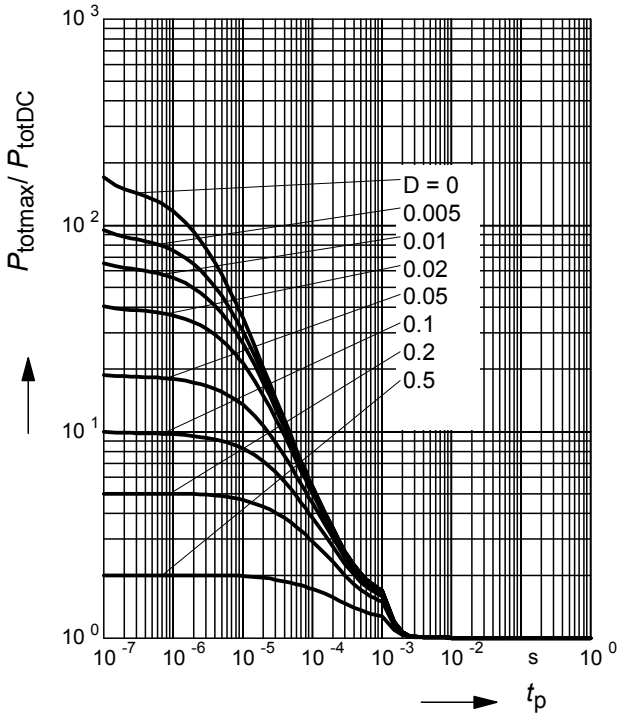
BCR114L3



Permissible Pulse Load

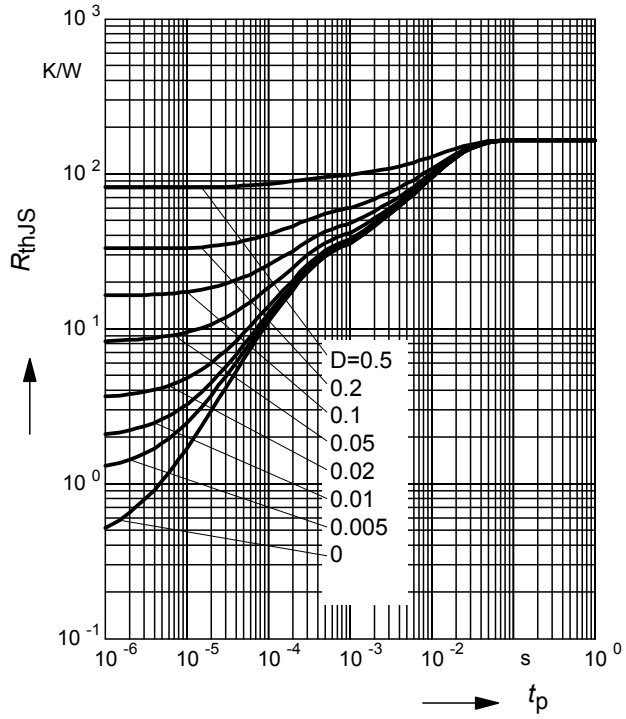
$P_{totmax}/P_{totDC} = f(t_p)$

BCR114L3



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

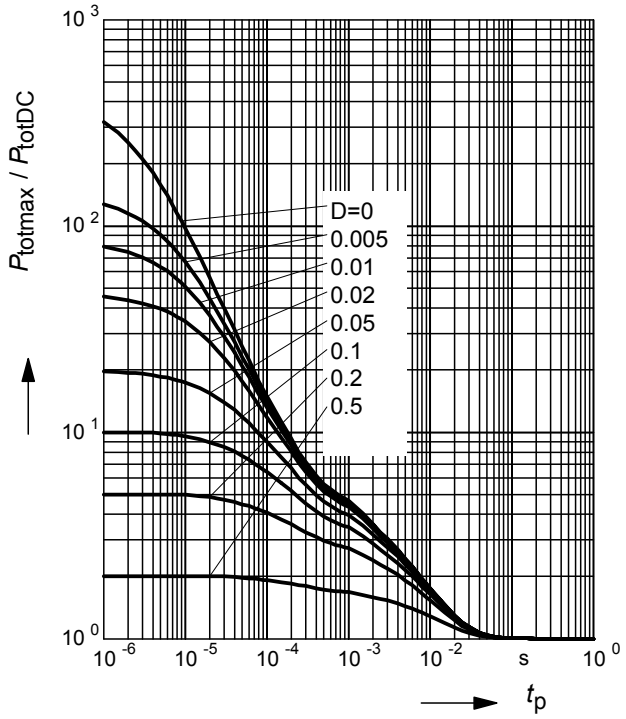
BCR114T



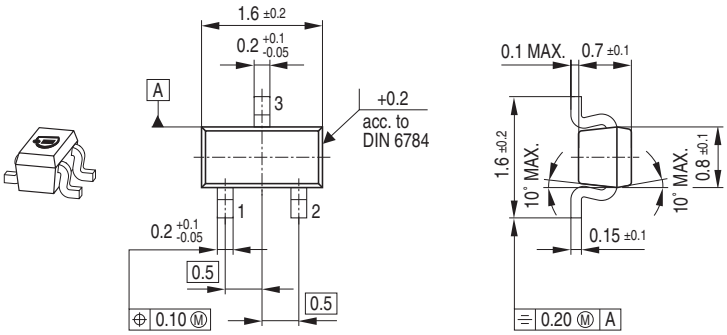
Permissible Pulse Load

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

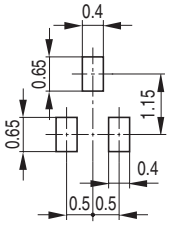
BCR114T



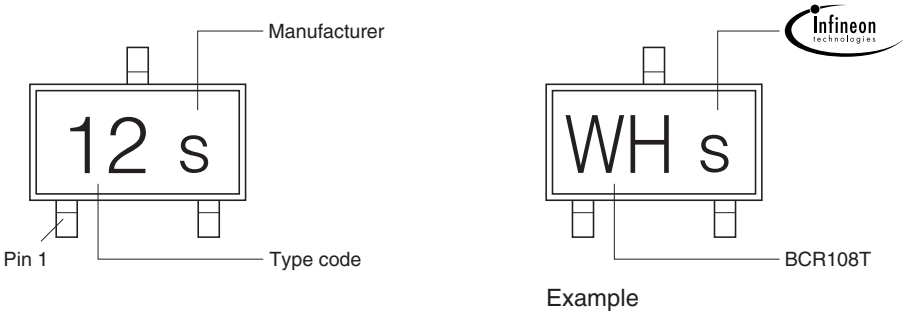
Package Outline



Foot Print



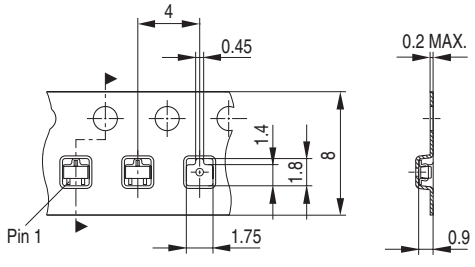
Marking Layout



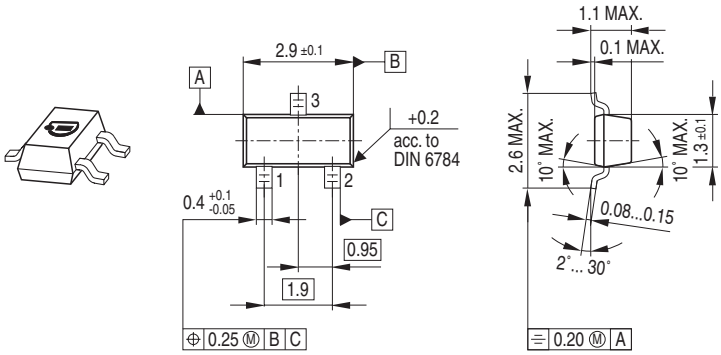
Example

Packing

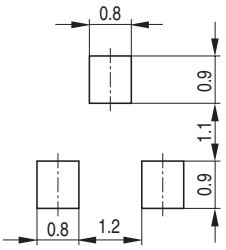
Code E6327: Reel ø180 mm = 3.000 Pieces/Reel
Code E6433: Reel ø330 mm = 10.000 Pieces/Reel



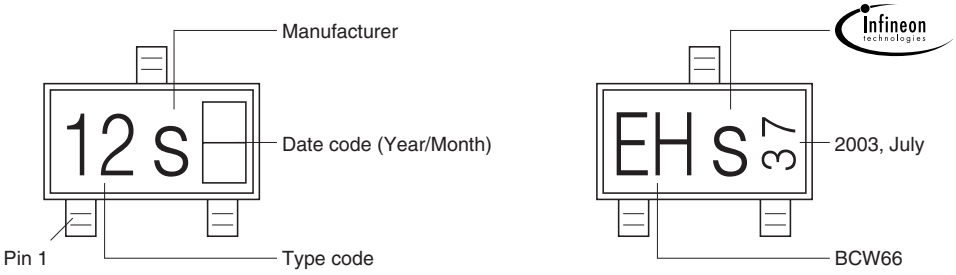
Package Outline



Foot Print



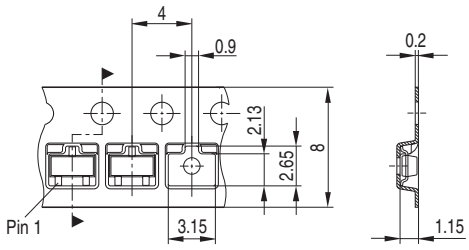
Marking Layout



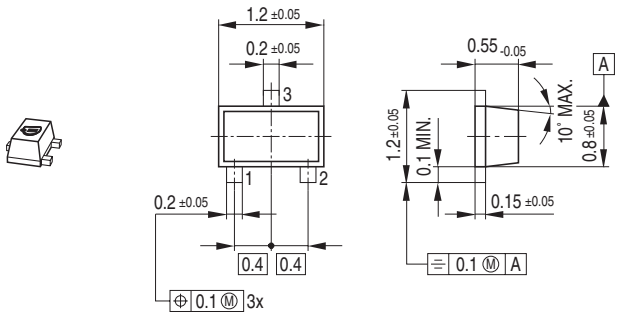
Example

Packing

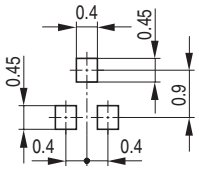
Code E6327: Reel ø180 mm = 3.000 Pieces/Reel
Code E6433: Reel ø330 mm = 10.000 Pieces/Reel



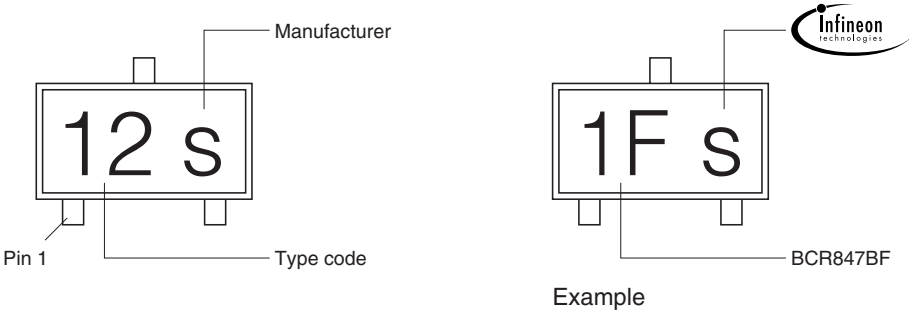
Package Outline



Foot Print



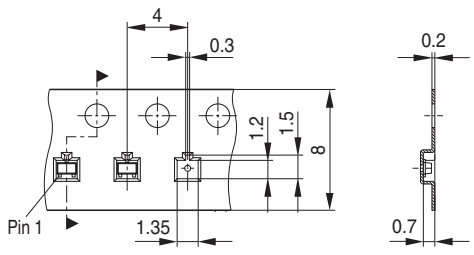
Marking Layout



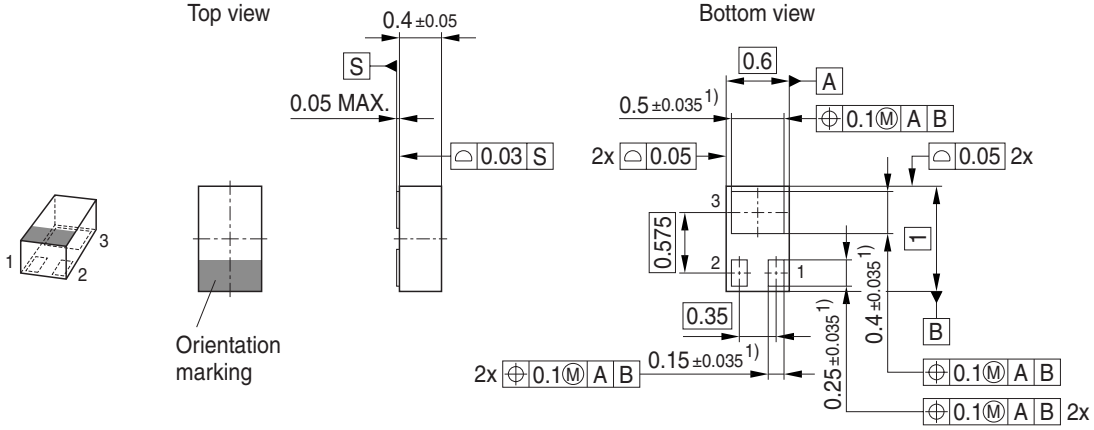
Example

Packing

Code E6327: Reel ø180 mm = 3.000 Pieces/Reel
Code E6433: Reel ø330 mm = 10.000 Pieces/Reel

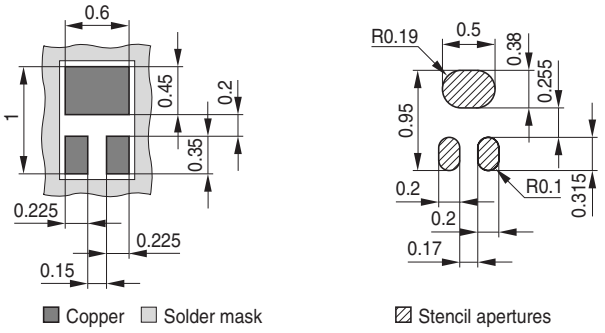


Package Outline

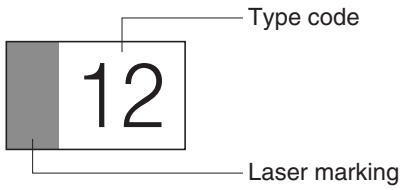


1) Dimension applies to plated terminals

Foot Print

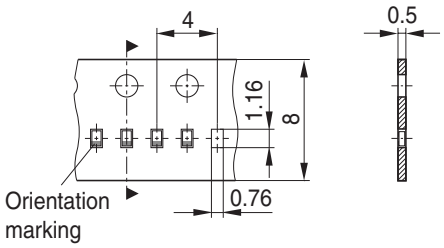


Marking Layout



Packing

Code E6327: Reel ø180 mm = 15.000 Pieces/Reel



Published by Infineon Technologies AG,
St.-Martin-Strasse 53,
81669 München
© Infineon Technologies AG 2005.
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.