

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	50	V
Collector-base voltage	V_{CBO}	50	
Input forward voltage	$V_{i(fwd)}$	40	
Input reverse voltage	$V_{i(rev)}$	10	
Collector current	I_C	100	mA
Total power dissipation- BCR133, $T_S \leq 102^\circ\text{C}$ BCR133S, $T_S \leq 115^\circ\text{C}$ BCR133W, $T_S \leq 124^\circ\text{C}$	P_{tot}	200 250 250	mW
Junction temperature	T_j	150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BCR133		≤ 240	
BCR133S		≤ 140	
BCR133W		≤ 105	

¹⁾For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

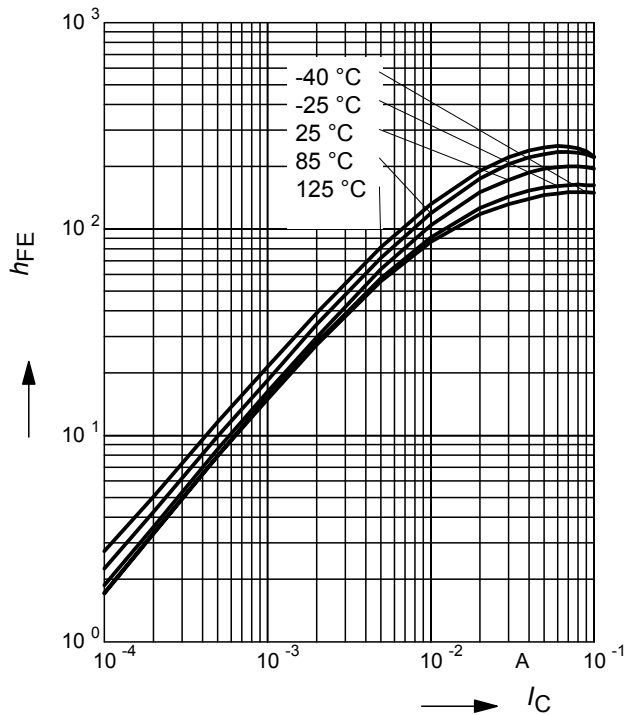
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}$, $I_B = 0$	$V_{(\text{BR})\text{CEO}}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}$, $I_E = 0$	$V_{(\text{BR})\text{CBO}}$	50	-	-	
Collector-base cutoff current $V_{\text{CB}} = 40\ \text{V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{\text{EB}} = 10\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	0.75	mA
DC current gain ¹⁾ $I_C = 5\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$	h_{FE}	30	-	-	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{\text{CE}} = 5\ \text{V}$	$V_{\text{i(off)}}$	0.8	-	1.5	
Input on voltage $I_C = 2\ \text{mA}$, $V_{\text{CE}} = 0.3\ \text{V}$	$V_{\text{i(on)}}$	1	-	2.5	
Input resistor	R_1	7	10	13	kΩ
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
Transition frequency $I_C = 10\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_{T}	-	130	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

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

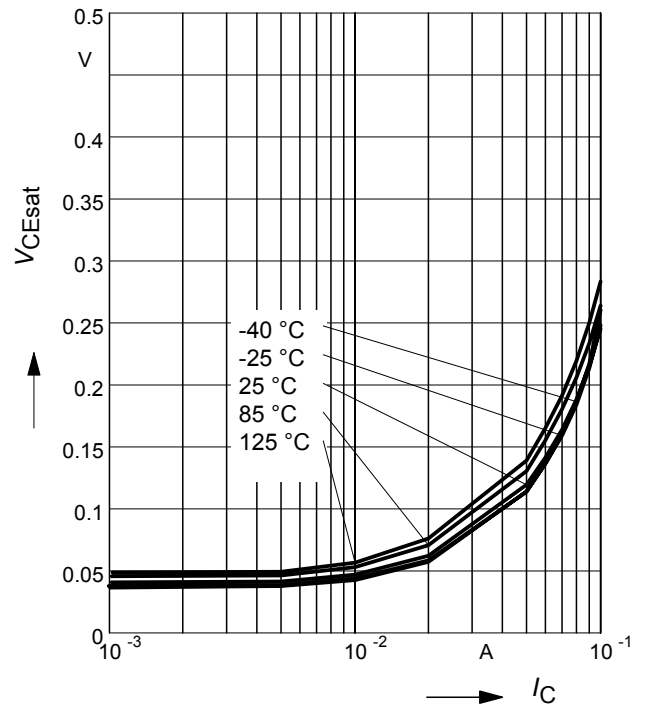
DC current gain $h_{FE} = f(I_C)$

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



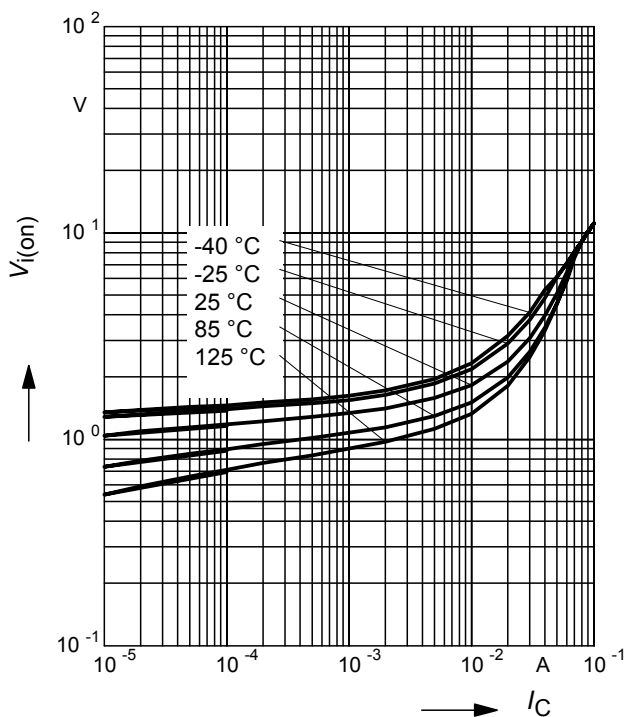
Collector-emitter saturation voltage

$V_{CEsat} = f(I_C)$, $I_C/I_B = 20$



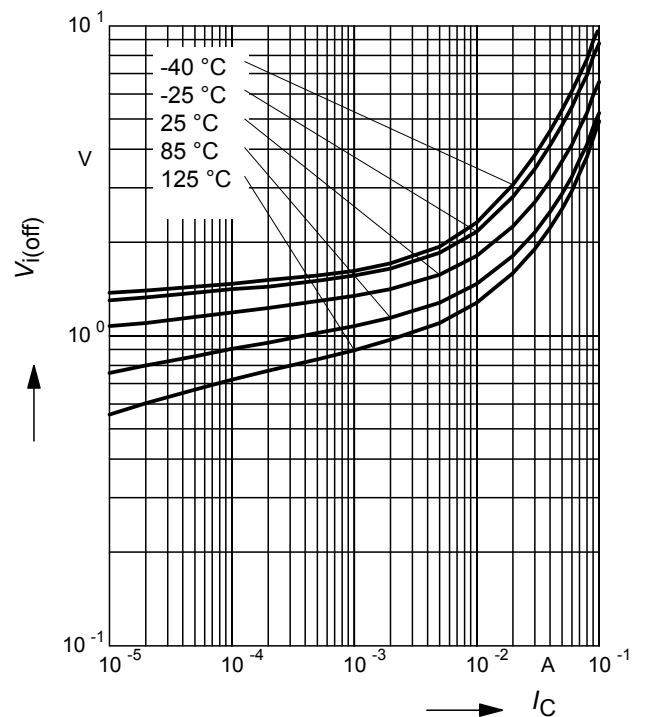
Input on Voltage $V_{i(on)} = f(I_C)$

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



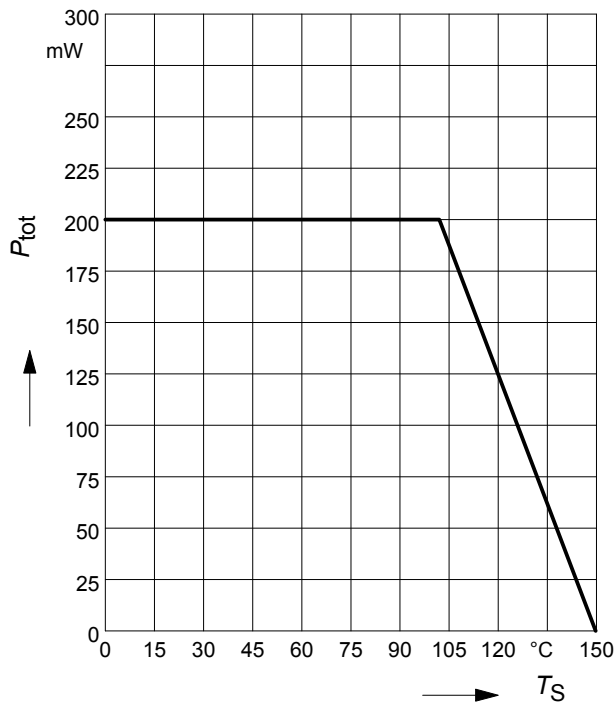
Input off voltage $V_{i(off)} = f(I_C)$

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



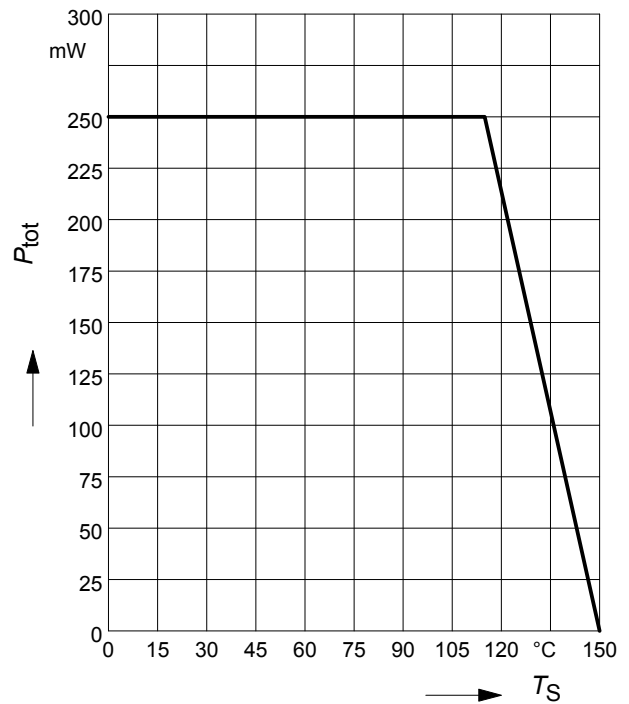
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR133



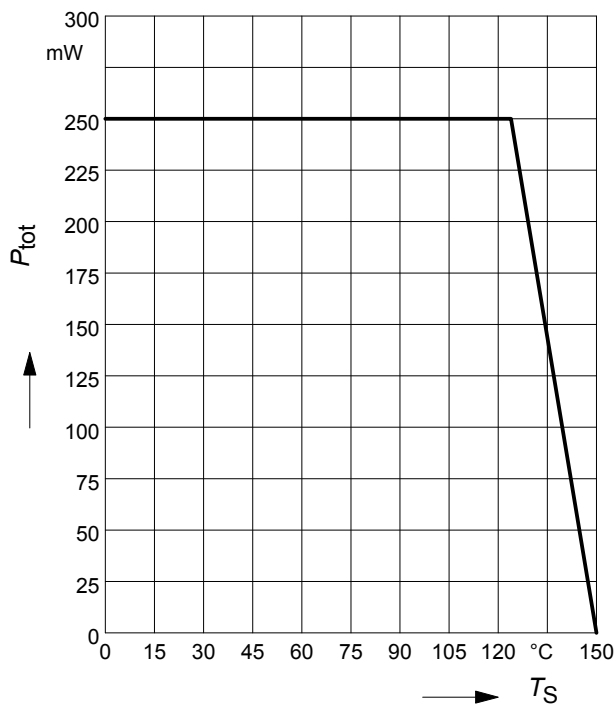
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR133S



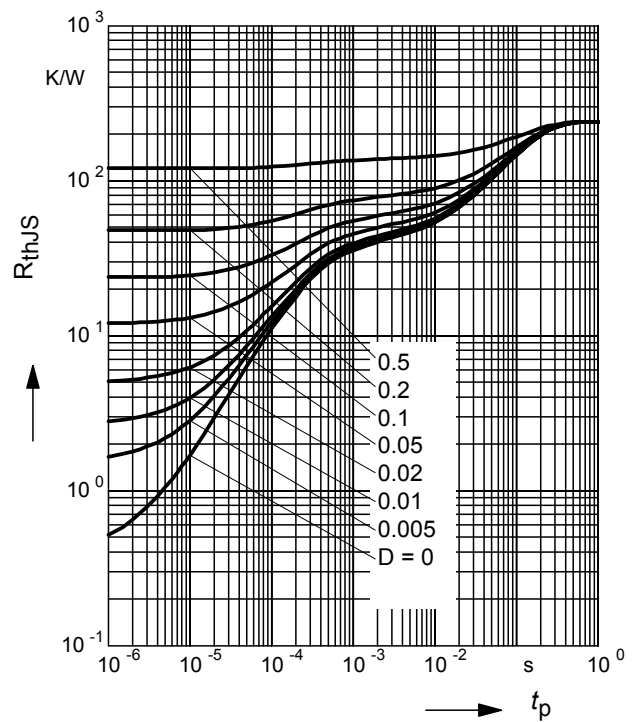
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR133W



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

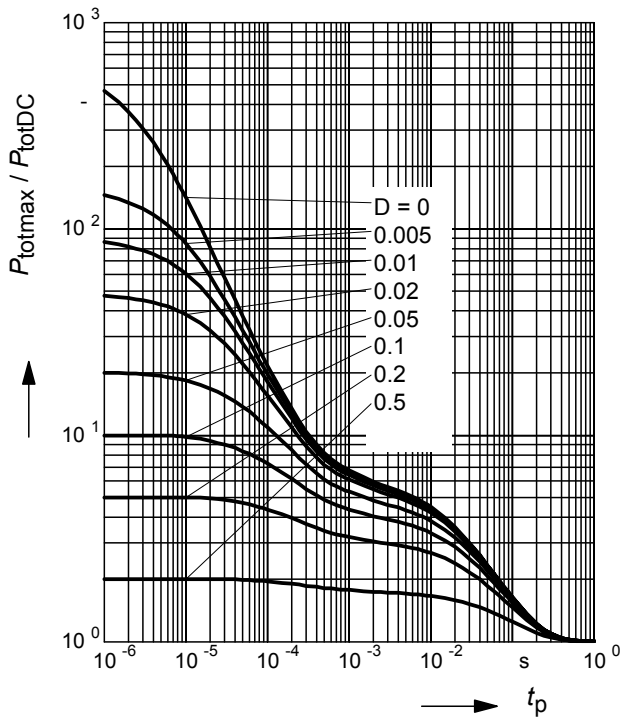
BCR133



Permissible Pulse Load

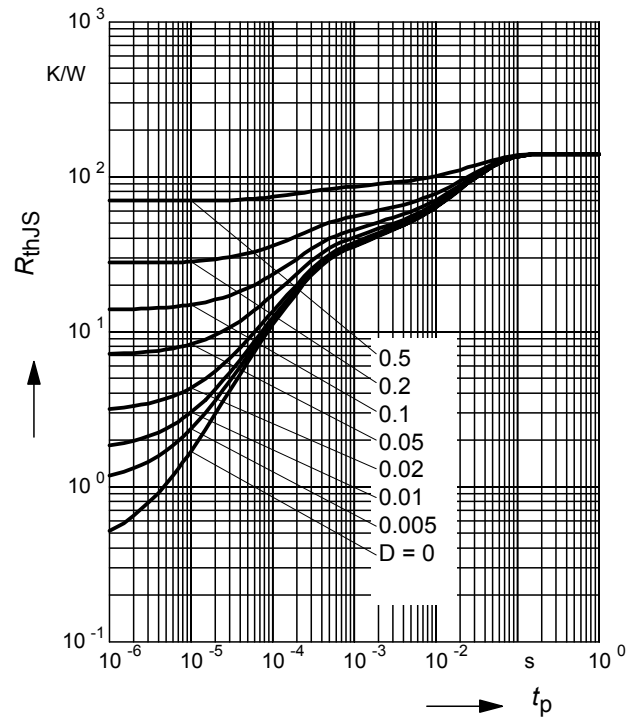
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR133



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

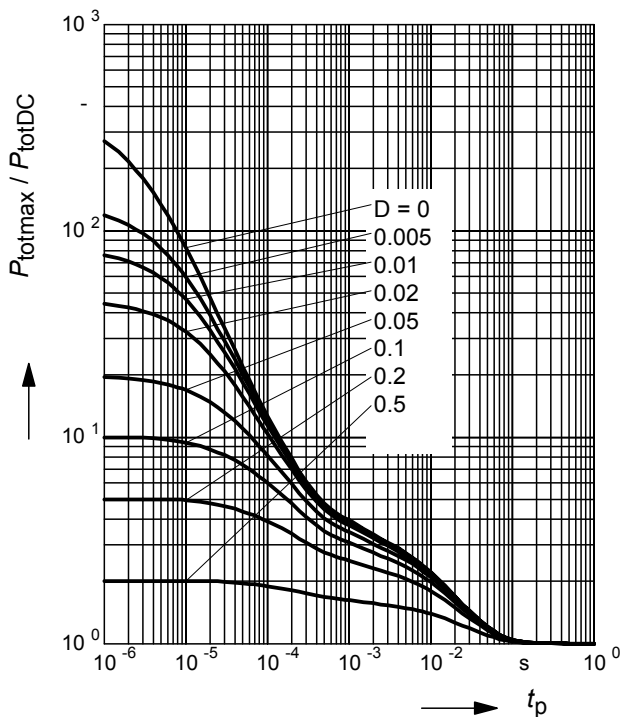
BCR133S



Permissible Pulse Load

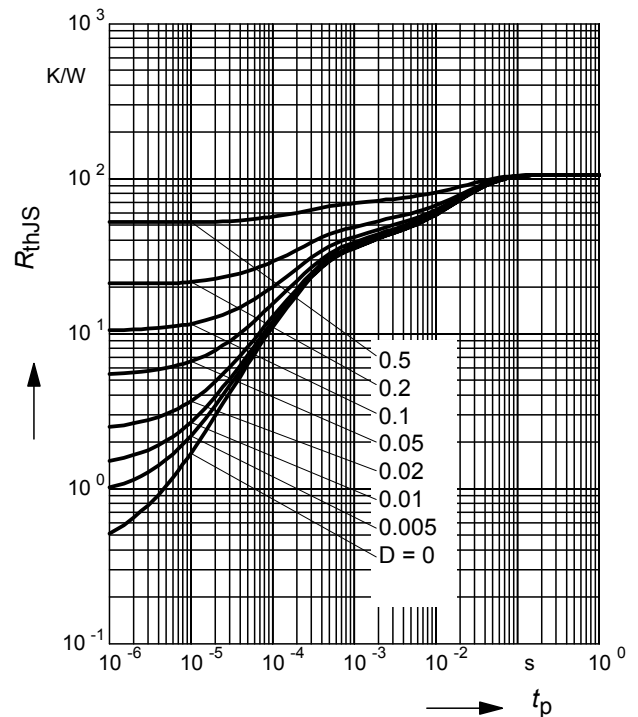
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR133S



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

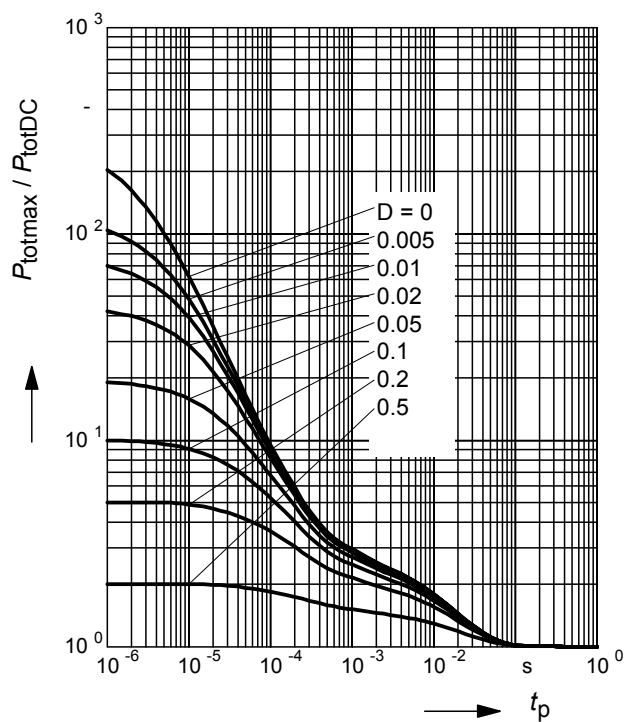
BCR133W



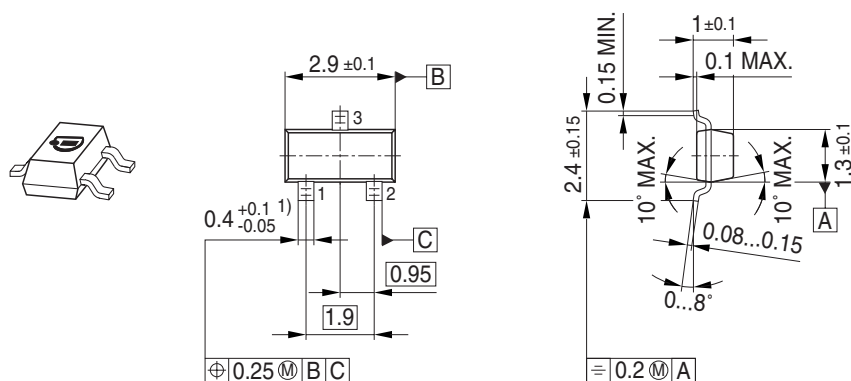
Permissible Pulse Load

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

BCR133W

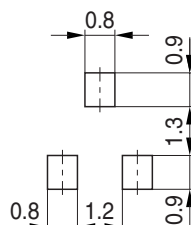


Package Outline

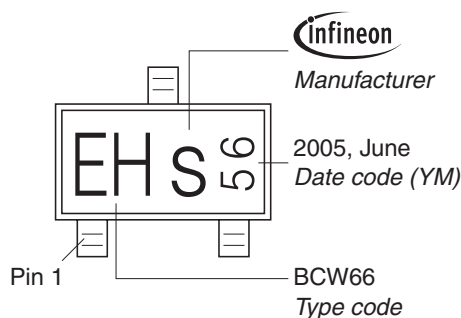


1) Lead width can be 0.6 max. in dambar area

Foot Print

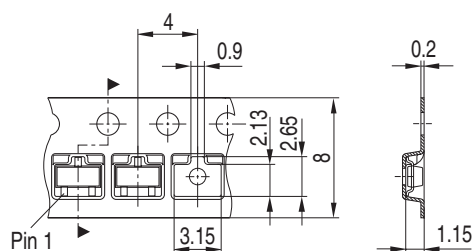


Marking Layout (Example)

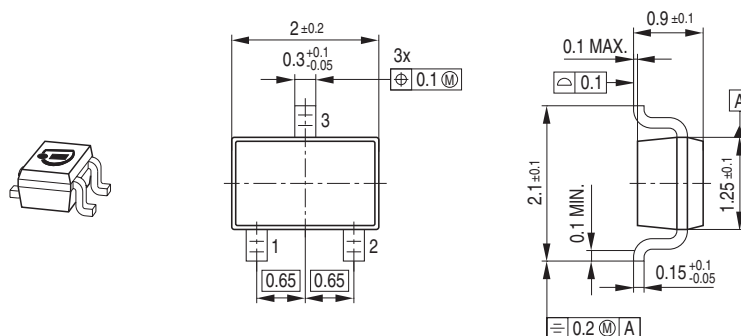


Standard Packing

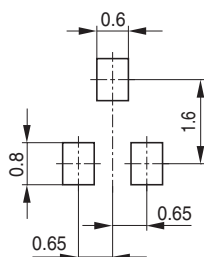
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



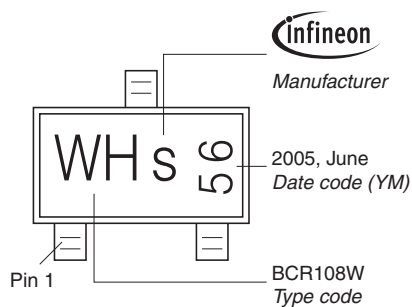
Package Outline



Foot Print

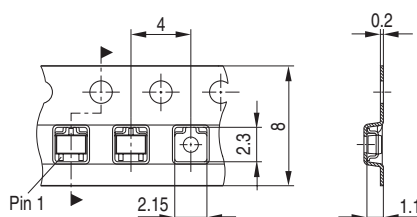


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



The drawing shows the mechanical specifications for the 6-pin connector. The top view (left) shows a rectangular component with six pins (1-6) and a pin 1 marking. Dimensions include a total width of 2 ± 0.2 mm, a pin pitch of $0.2^{+0.1}_{-0.05}$ mm, and a pin diameter of $\varnothing 0.1 \text{ M}$. The side view (right) shows a height of 0.9 ± 0.1 mm, a maximum pin height of 0.1 MAX. , a minimum pin height of 0.1 MIN. , and a pin diameter of $\varnothing 0.1 \text{ M}$. A detail view of the pin shows a diameter of $0.15^{+0.1}_{-0.05}$ mm and a length of 1.25 ± 0.1 mm. A note indicates that the pin is to be inserted into the connector housing.

Technical drawing of a 3x3 grid of rectangular holes. The grid is 1.6 units wide and 0.9 units high. Each hole is 0.3 units wide and 0.65 units high. The holes are spaced 0.7 units apart both horizontally and vertically. A dashed center line is shown.

Diagram illustrating the marking on the BCR108S component:

- Manufacturer:** Infineon Technologies
- Date code (Year/Month):** 2005, June
- Pin 1 marking:** 1 (in the date code)
- Laser marking:** WH S
- Type code:** BCR108S

Edition 2009-11-16

**Published by
Infineon Technologies AG
81726 Munich, Germany**

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