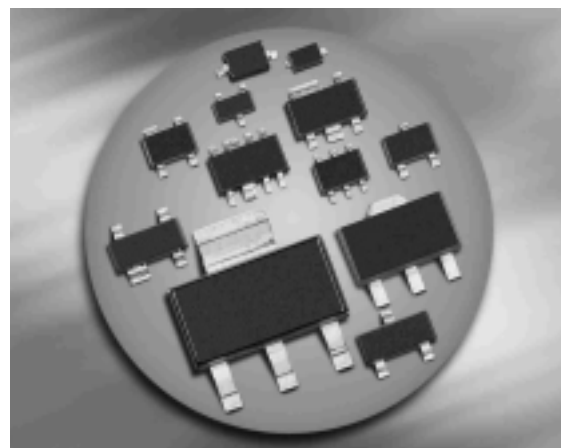




# THE DATASHEET OF BCR119 E6327

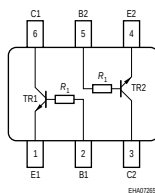
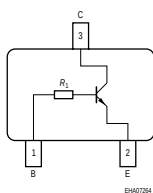
## NPN silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in resistor ( $R_1=4.7\text{ k}\Omega$ )
- BCR119S: Two internally isolated transistors with good matching in one multichip package
- BCR119S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



### BCR119/F/W

### BCR119S



| Type    | Marking | Pin Configuration |      |      |      |      |      | Package |
|---------|---------|-------------------|------|------|------|------|------|---------|
| BCR119  | WKs     | 1=B               | 2=E  | 3=C  | -    | -    | -    | SOT23   |
| BCR119F | WKs     | 1=B               | 2=E  | 3=C  | -    | -    | -    | TSFP-3  |
| BCR119S | WKs     | 1=E1              | 2=B1 | 3=C2 | 4=E2 | 5=B2 | 6=C1 | SOT363  |
| BCR119W | WKs     | 1=B               | 2=E  | 3=C  | -    | -    | -    | SOT323  |

<sup>1</sup>Pb-containing package may be available upon special request

**Maximum Ratings**

| Parameter                                                                                                                                                                                   | Symbol       | Value                    | Unit |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------|------|
| Collector-emitter voltage                                                                                                                                                                   | $V_{CEO}$    | 50                       | V    |
| Collector-base voltage                                                                                                                                                                      | $V_{CBO}$    | 50                       |      |
| Input forward voltage                                                                                                                                                                       | $V_{i(fwd)}$ | 30                       |      |
| Input reverse voltage                                                                                                                                                                       | $V_{i(rev)}$ | 5                        |      |
| DC collector current                                                                                                                                                                        | $I_E$        | 100                      | mA   |
| Total power dissipation-<br>BCR119, $T_S \leq 102^\circ\text{C}$<br>BCR119F, $T_S \leq 128^\circ\text{C}$<br>BCR119S, $T_S \leq 115^\circ\text{C}$<br>BCR119W, $T_S \leq 124^\circ\text{C}$ | $P_{tot}$    | 200<br>250<br>250<br>250 | mW   |
| Junction temperature                                                                                                                                                                        | $T_j$        | 150                      |      |
| Storage temperature                                                                                                                                                                         | $T_{stg}$    | -65 ... 150              |      |

**Thermal Resistance**

| Parameter                                                                           | Symbol     | Value                                               | Unit |
|-------------------------------------------------------------------------------------|------------|-----------------------------------------------------|------|
| Junction - soldering point <sup>1)</sup><br>BCR119<br>BCR119F<br>BCR119S<br>BCR119W | $R_{thJS}$ | $\leq 240$<br>$\leq 90$<br>$\leq 140$<br>$\leq 105$ | K/W  |

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

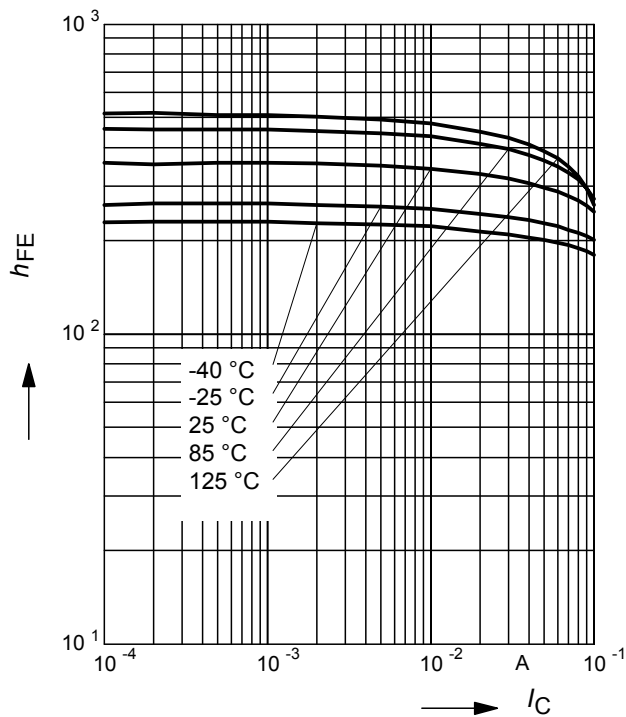
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter                                                                                             | Symbol                      | Values |      |      | Unit |
|-------------------------------------------------------------------------------------------------------|-----------------------------|--------|------|------|------|
|                                                                                                       |                             | min.   | typ. | max. |      |
| DC Characteristics                                                                                    |                             |        |      |      |      |
| Collector-emitter breakdown voltage<br>$I_C = 100\ \mu\text{A}$ , $I_B = 0$                           | $V_{(\text{BR})\text{CEO}}$ | 50     | -    | -    | V    |
| Collector-base breakdown voltage<br>$I_C = 10\ \mu\text{A}$ , $I_E = 0$                               | $V_{(\text{BR})\text{CBO}}$ | 50     | -    | -    |      |
| Collector-base cutoff current<br>$V_{\text{CB}} = 40\ \text{V}$ , $I_E = 0$                           | $I_{\text{CBO}}$            | -      | -    | 100  | nA   |
| Emitter-base cutoff current<br>$V_{\text{EB}} = 5\ \text{V}$ , $I_C = 0$                              | $I_{\text{EBO}}$            | -      | -    | 100  | nA   |
| DC current gain <sup>1)</sup><br>$I_C = 5\ \text{mA}$ , $V_{\text{CE}} = 5\ \text{V}$                 | $h_{\text{FE}}$             | 120    | -    | 630  | -    |
| Collector-emitter saturation voltage <sup>1)</sup><br>$I_C = 10\ \text{mA}$ , $I_B = 0.5\ \text{mA}$  | $V_{\text{CEsat}}$          | -      | -    | 0.3  | V    |
| Input off voltage<br>$I_C = 100\ \mu\text{A}$ , $V_{\text{CE}} = 5\ \text{V}$                         | $V_{\text{i(off)}}$         | 0.4    | -    | 0.8  |      |
| Input on voltage<br>$I_C = 2\ \text{mA}$ , $V_{\text{CE}} = 0.3\ \text{V}$                            | $V_{\text{i(on)}}$          | 0.5    | -    | 1.1  |      |
| Input resistor                                                                                        | $R_1$                       | 3.2    | 4.7  | 6.2  | kΩ   |
| AC Characteristics                                                                                    |                             |        |      |      |      |
| Transition frequency<br>$I_C = 10\ \text{mA}$ , $V_{\text{CE}} = 5\ \text{V}$ , $f = 100\ \text{MHz}$ | $f_{\text{T}}$              | -      | 150  | -    | MHz  |
| Collector-base capacitance<br>$V_{\text{CB}} = 10\ \text{V}$ , $f = 1\ \text{MHz}$                    | $C_{\text{cb}}$             | -      | 3    | -    | pF   |

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

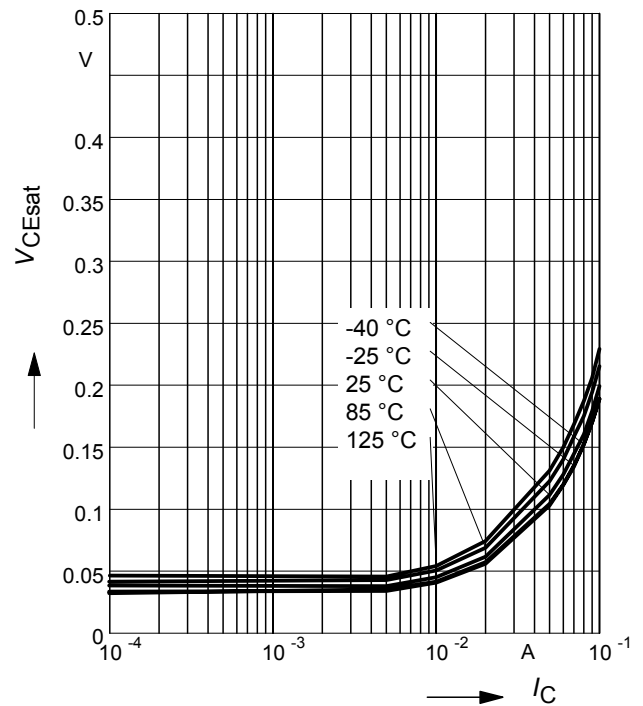
### DC current gain $h_{FE} = f(I_C)$

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



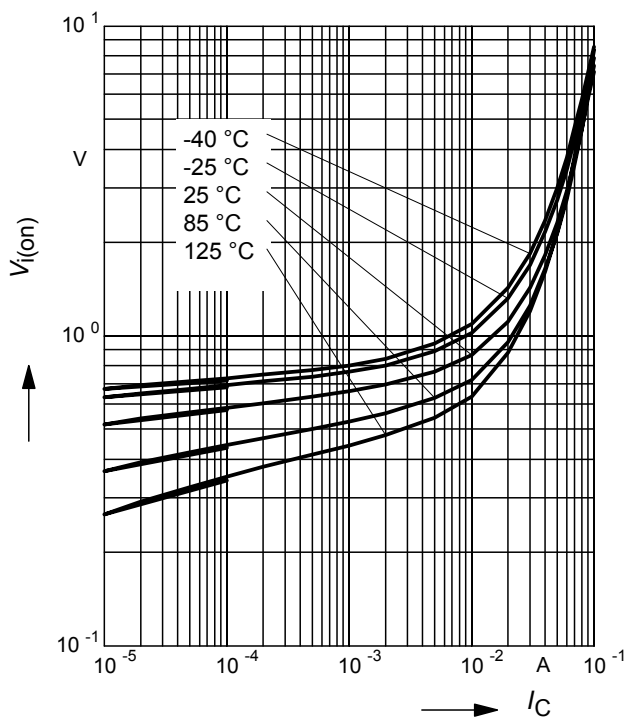
### Collector-emitter saturation voltage

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



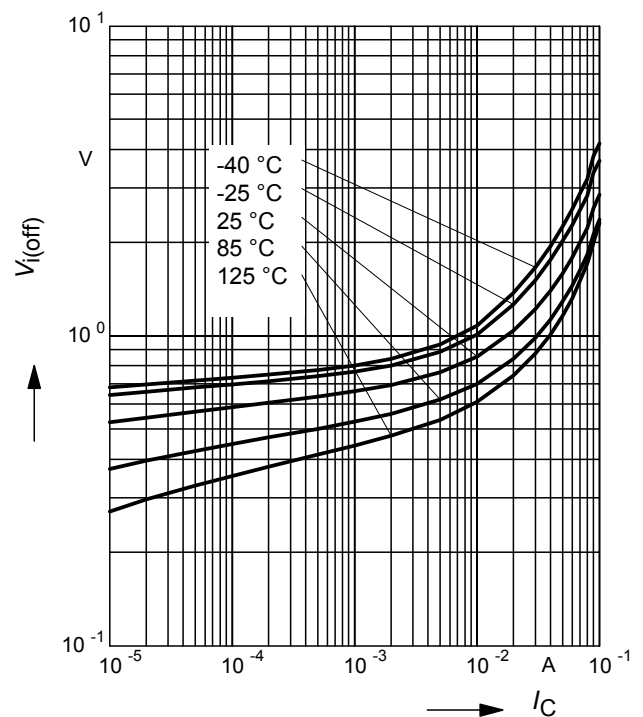
### Input on Voltage $V_{i(on)} = f(I_C)$

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



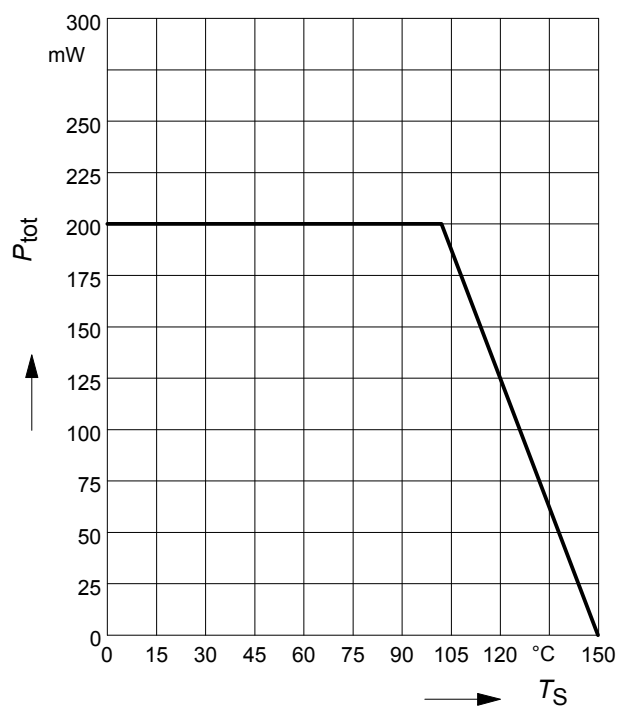
### Input off voltage $V_{i(off)} = f(I_C)$

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



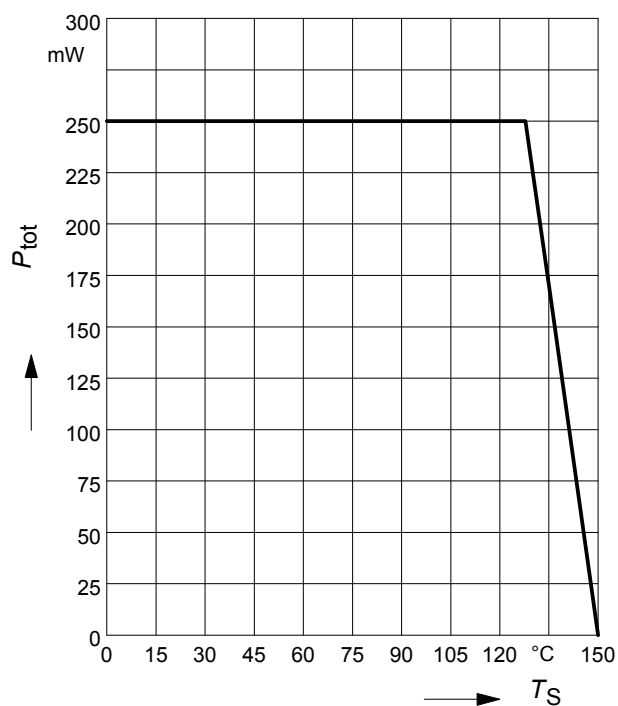
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**

**BCR119**



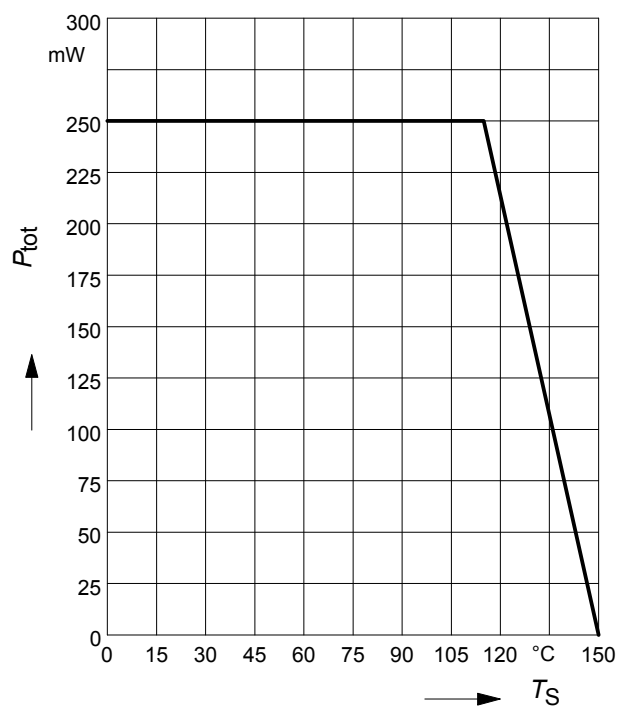
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**

**BCR119F**



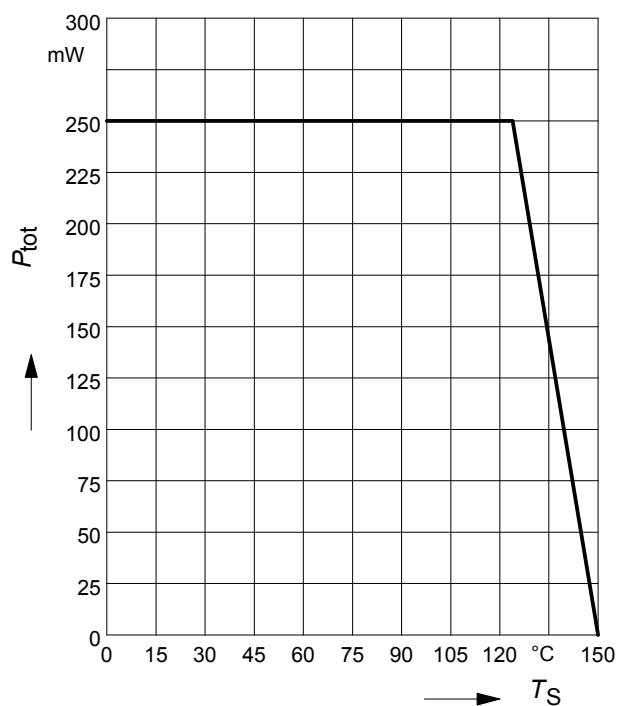
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**

**BCR119S**



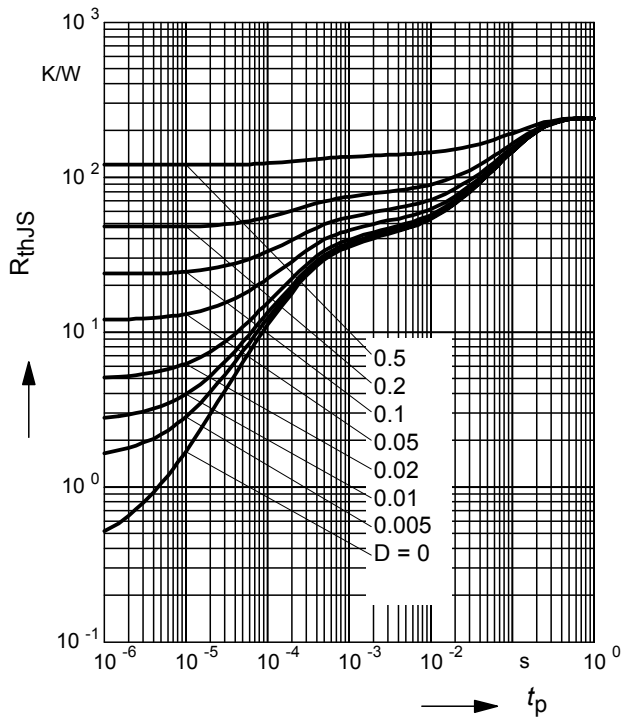
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**

**BCR119W**



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

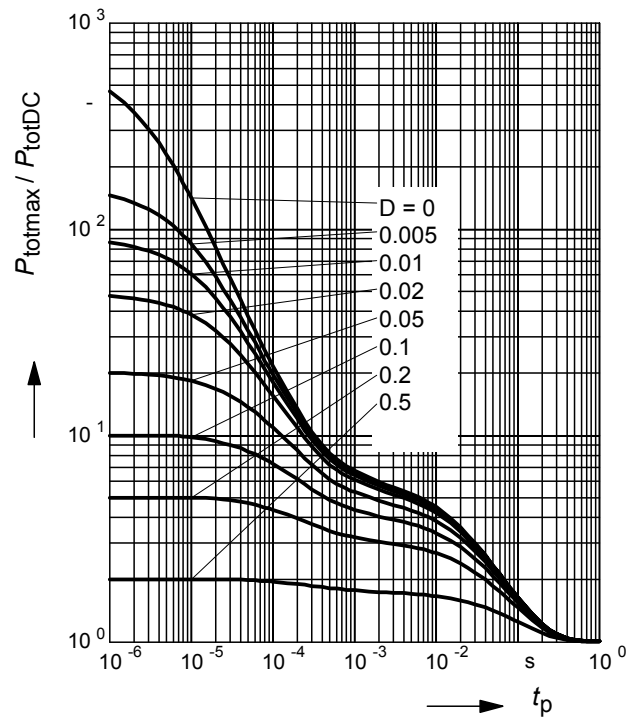
BCR119



### Permissible Pulse Load

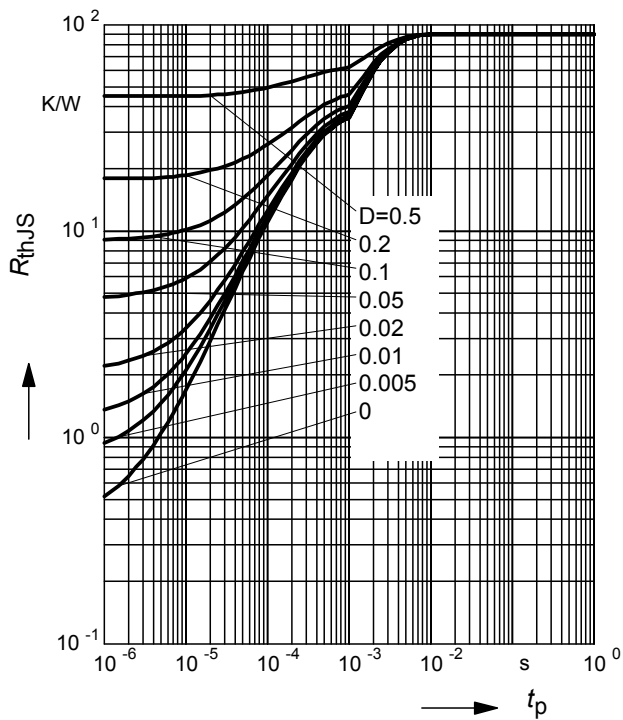
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR119



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

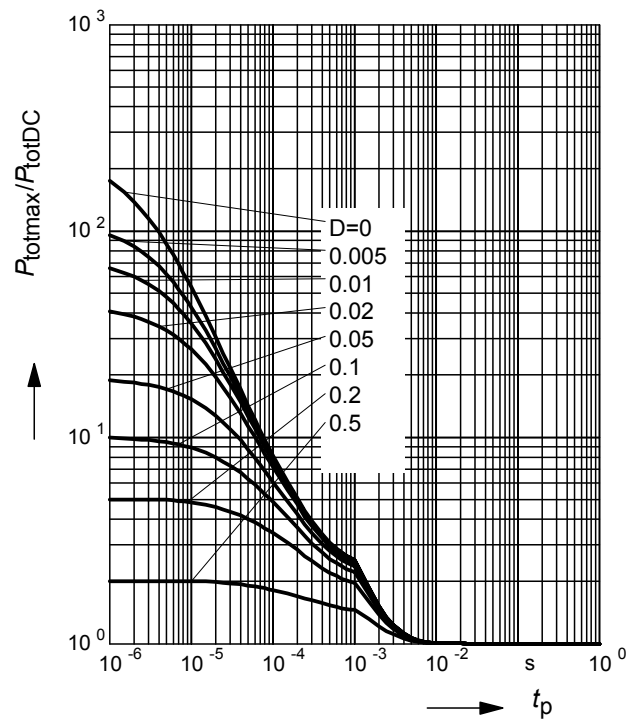
BCR119F



### Permissible Pulse Load

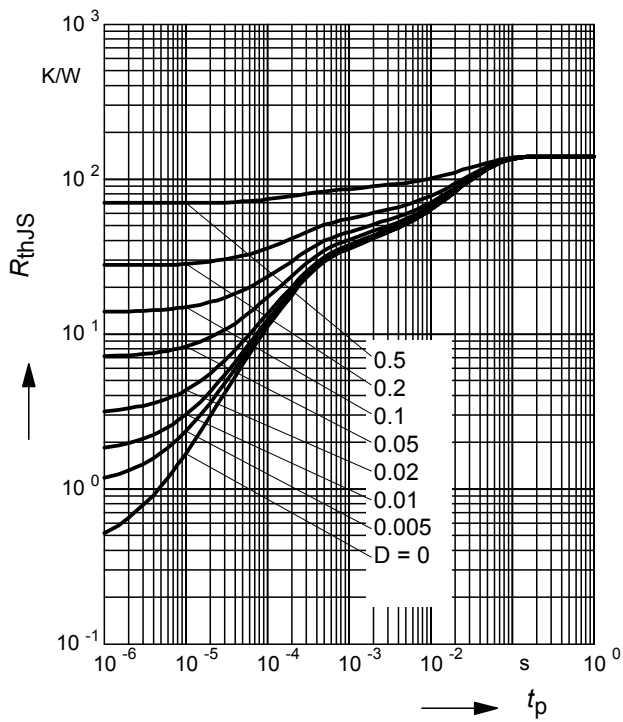
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR119F



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

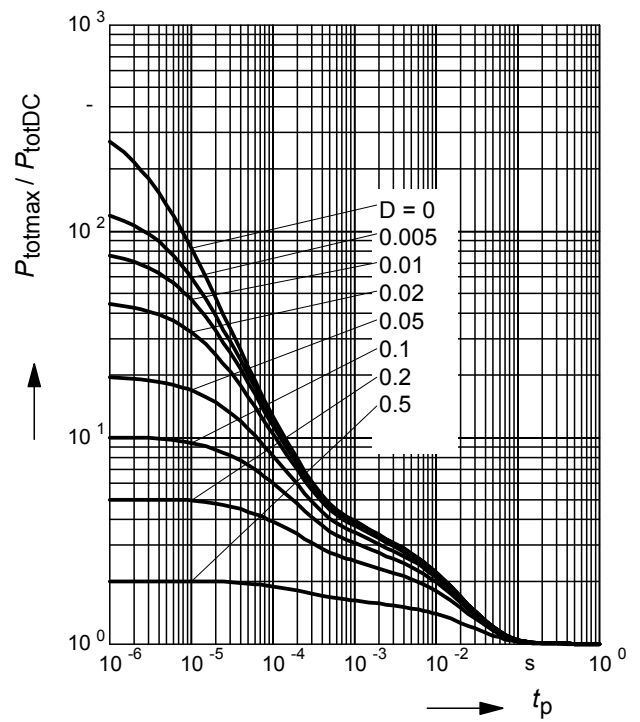
BCR119S



### Permissible Pulse Load

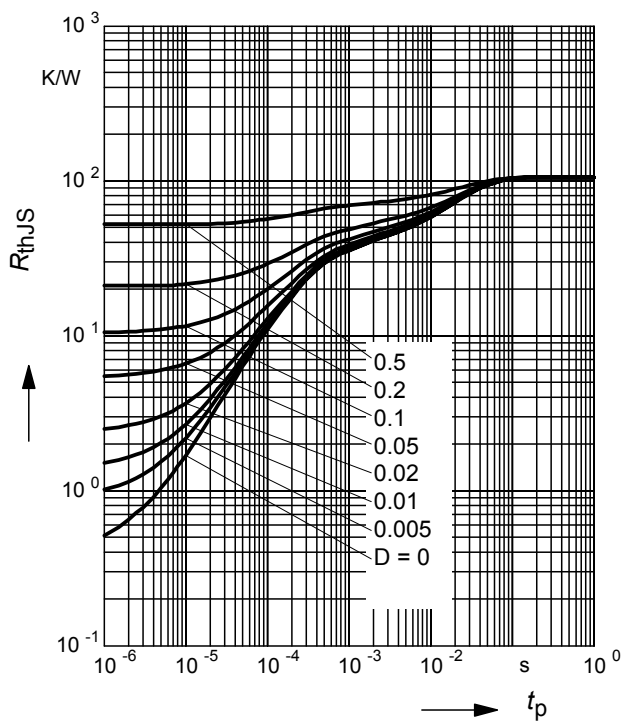
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR119S



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

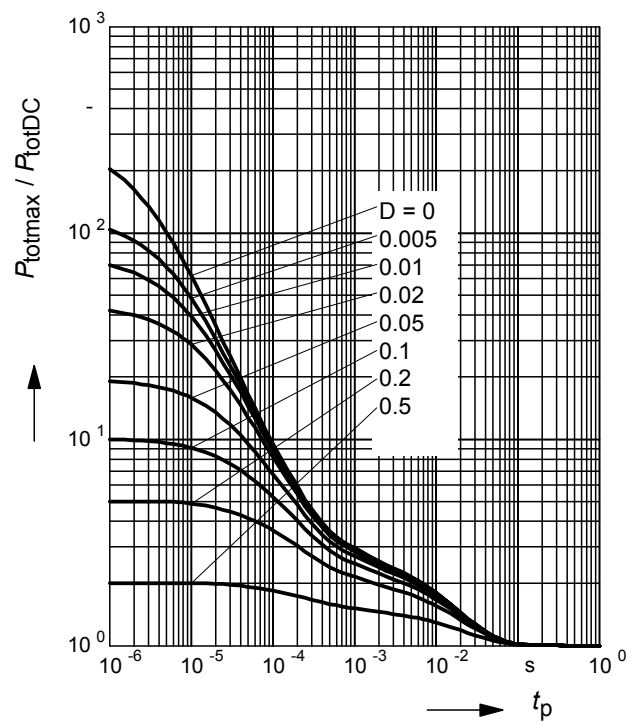
BCR119W



### Permissible Pulse Load

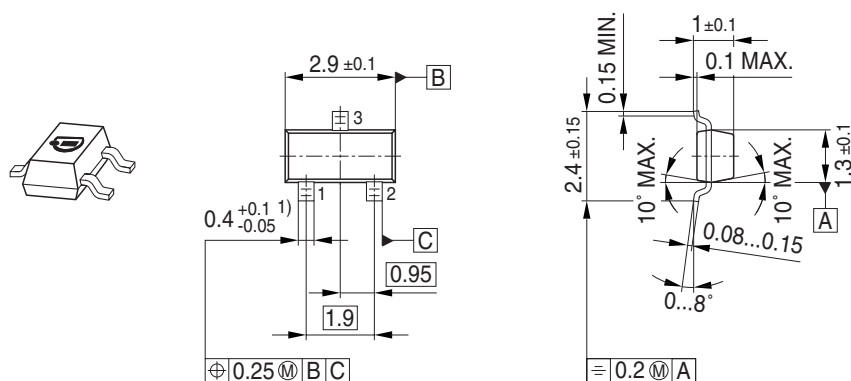
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR119W



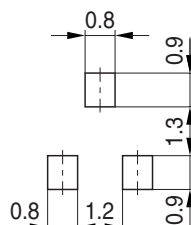


## Package Outline

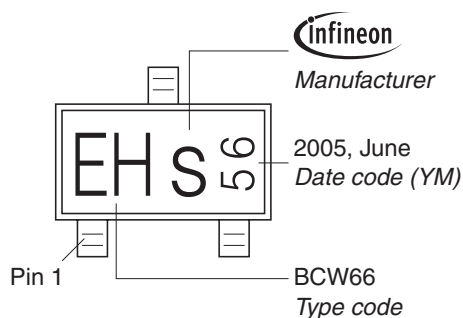


1) Lead width can be 0.6 max. in dambar area

## Foot Print

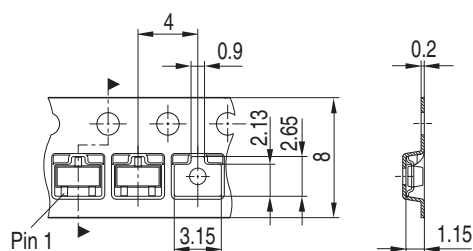


## Marking Layout (Example)

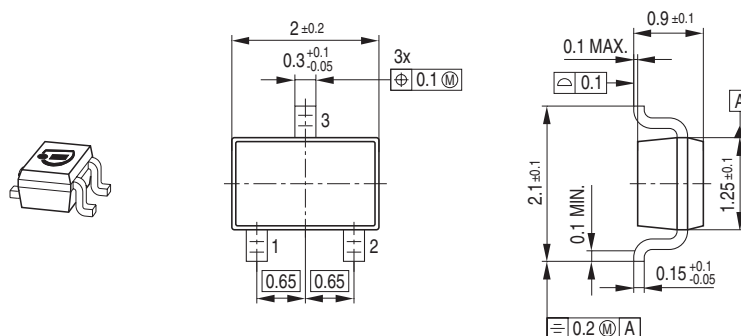


## Standard Packing

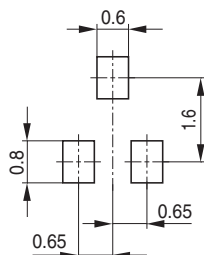
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



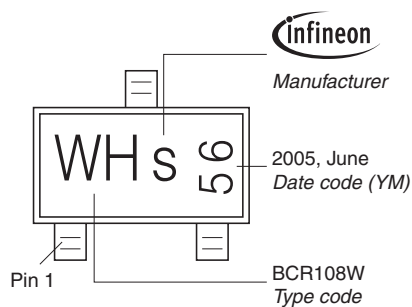
## Package Outline



## Foot Print

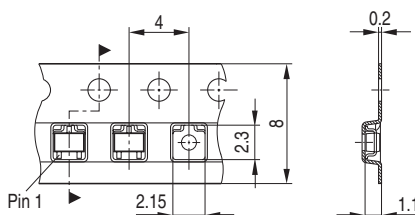


## Marking Layout (Example)



## Standard Packing

Reel  $\varnothing 180$  mm = 3.000 Pieces/Reel  
 Reel  $\varnothing 330$  mm = 10.000 Pieces/Reel



Manufacture are possible.

Infineon  
technologies

Manufacturer

2005, June  
Date code (Year/Month)

Pin 1 marking  
Laser marking

BCR108S  
Type code

The technical drawing shows a top-down view of a rectangular PCB footprint with irregular edges on the left side. Key dimensions include a total width of 4 units, a total height of 8 units, and a central vertical slot of width 2.3 units. Three circular pads are located along the top edge, each with a diameter of 0.2 units. A horizontal dimension of 2.15 units is shown from the left edge to the center of the first pad. A callout points to the bottom-left corner, labeled "Pin 1 marking". To the right, a cross-sectional view shows the board thickness as 1.1 units and the pad thickness as 0.2 units.

[illegible]

Technical drawing of a mechanical part. The drawing shows a top view and a side view. The top view is a rectangle with a width of 0.4 and a height of 0.45. The side view is a rectangle with a width of 0.4 and a height of 1.05. The drawing is labeled with dimensions: 0.4, 0.45, 1.05, and 0.4.

Pin 1

BCR847BF

Type code

infineon  
Manufacturer

Edition 2006-02-01  
Published by  
Infineon Technologies AG  
81726 München, Germany  
© Infineon Technologies AG 2007.  
All Rights Reserved.

### **Attention please!**

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

### **Information**

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://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.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  View [BCR119 E6327](#) on WIN SOURCE
-  [Infineon Technologies](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management