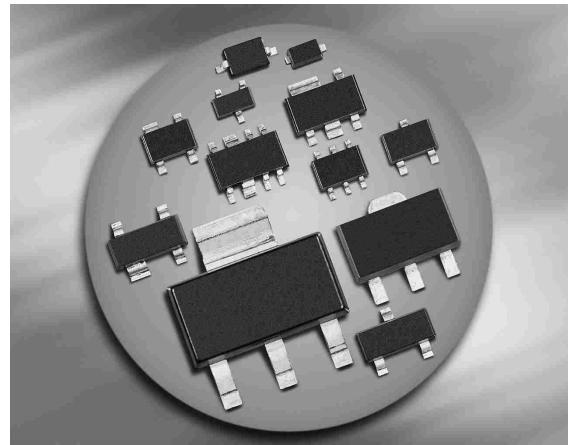


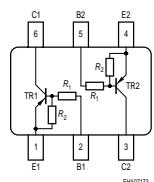
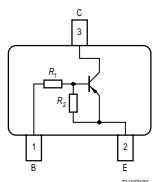
### PNP Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ( $R_1 = 10 \text{ k}\Omega$ ,  $R_2 = 10 \text{ k}\Omega$ )
- BCR183S / U: Two internally isolated transistors with good matching in one multichip package
- BCR183S / U: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



**BCR183**  
**BCR183W**

**BCR183S**  
**BCR183U**



Type	Marking	Pin Configuration							Package
BCR183	WMs	1=B	2=E	3=C	-	-	-	-	SOT23
BCR183S	WMs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1		SOT363
BCR183U	WMs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1		SC74
BCR183W	WMs	1=B	2=E	3=C	-	-	-		SOT323

**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- BCR183, $T_S \leq 102^\circ\text{C}$	$P_{tot}$	200	mW
BCR183S, $T_S \leq 115^\circ\text{C}$		250	
BCR183U, $T_S \leq 118^\circ\text{C}$		250	
BCR183W, $T_S \leq 124^\circ\text{C}$		250	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup> BCR183	$R_{thJS}$	$\leq 240$	K/W
BCR183S		$\leq 140$	
BCR183U		$\leq 133$	
BCR183W		$\leq 105$	

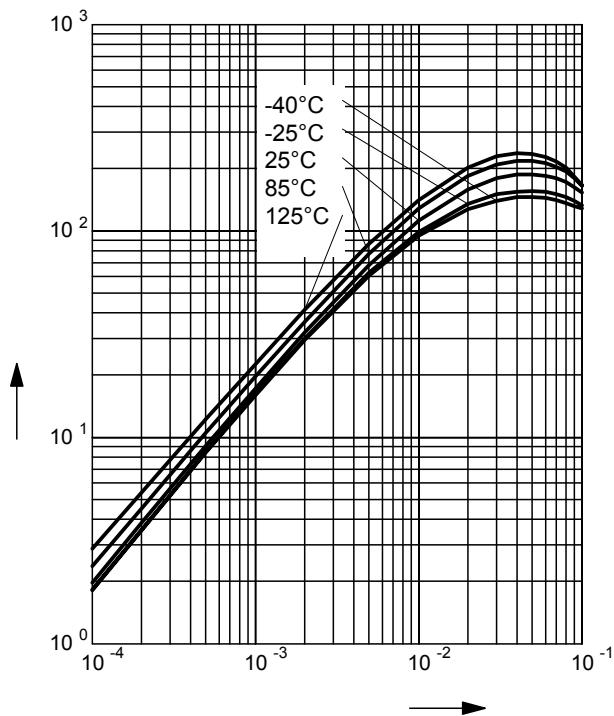
<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

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

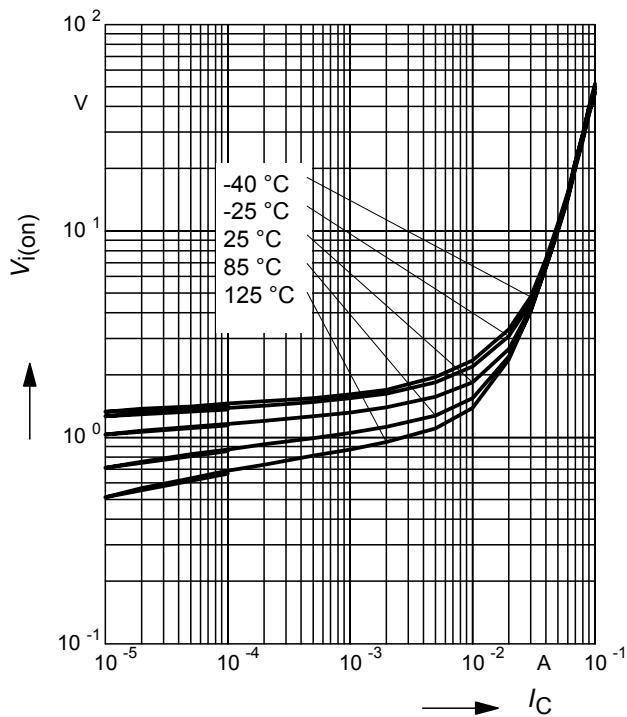
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(\text{BR})\text{CEO}}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(\text{BR})\text{CBO}}$	50	-	-	
Collector-base cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	$I_{\text{CBO}}$	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 10 \text{ V}, I_C = 0$	$I_{\text{EBO}}$	-	-	0.75	mA
DC current gain <sup>1)</sup> $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	$h_{\text{FE}}$	30	-	-	-
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	$V_{\text{CEsat}}$	-	-	0.3	V
Input off voltage $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(\text{off})}$	0.8	-	1.8	
Input on voltage $I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(\text{on})}$	1	-	2.5	
Input resistor	$R_1$	7	10	13	kΩ
Resistor ratio	$R_1/R_2$	0.9	1	1.1	-
<b>AC Characteristics</b>					
Transition frequency $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	$f_T$	-	200	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{cb}$	-	3	-	pF

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

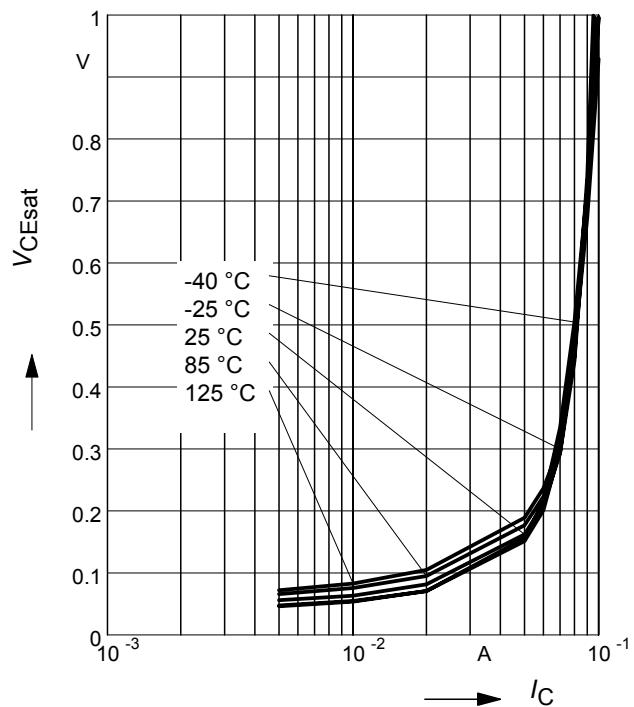
**DC current gain  $h_{FE} = f(I_C)$**   
 $V_{CE} = 5 \text{ V}$  (common emitter configuration)



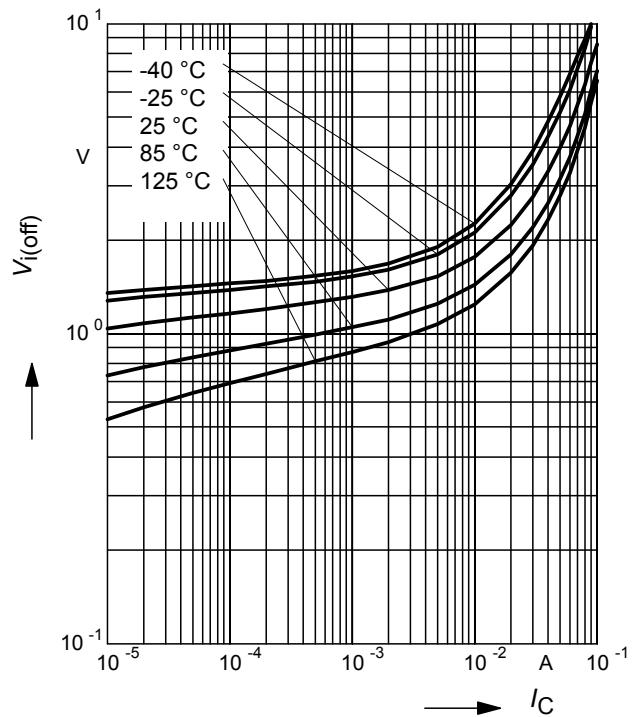
**Input on Voltage  $V_{i(on)} = f(I_C)$**   
 $V_{CE} = 0.3 \text{ V}$  (common emitter configuration)



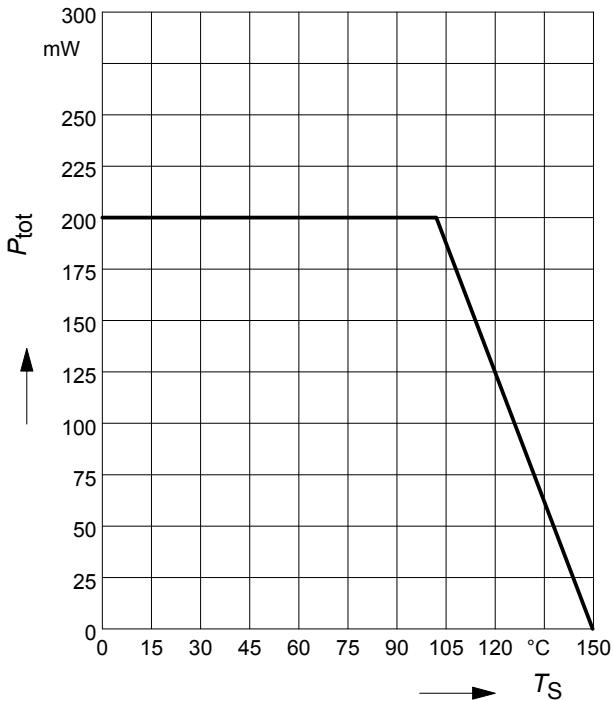
**Collector-emitter saturation voltage**  
 $V_{CEsat} = f(I_C)$ ,  $I_C/I_B = 20$



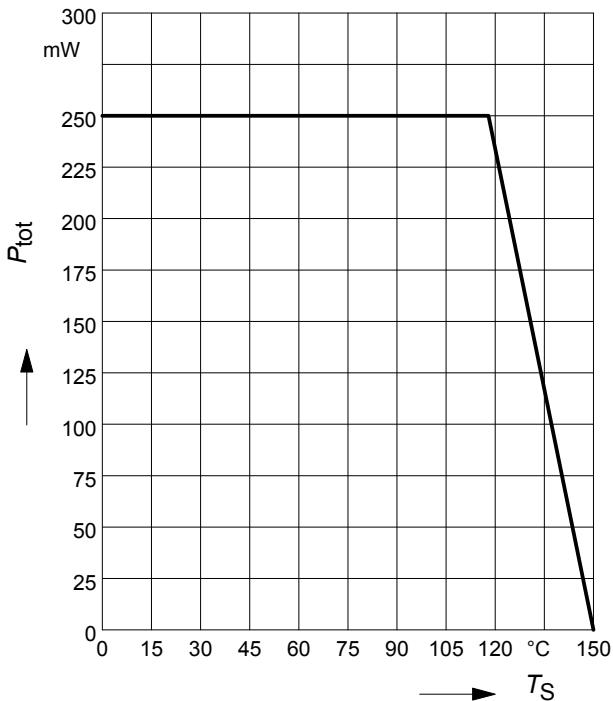
**Input off voltage  $V_{i(off)} = f(I_C)$**   
 $V_{CE} = 5 \text{ V}$  (common emitter configuration)



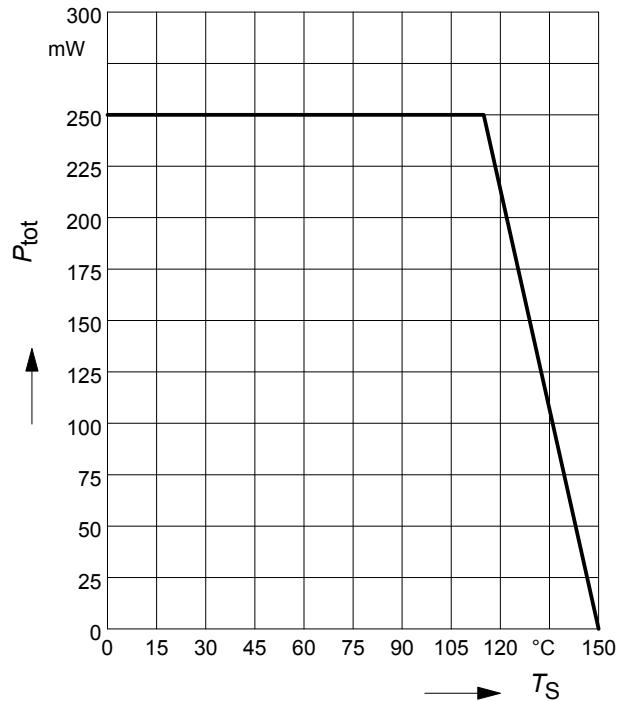
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**   
BCR183



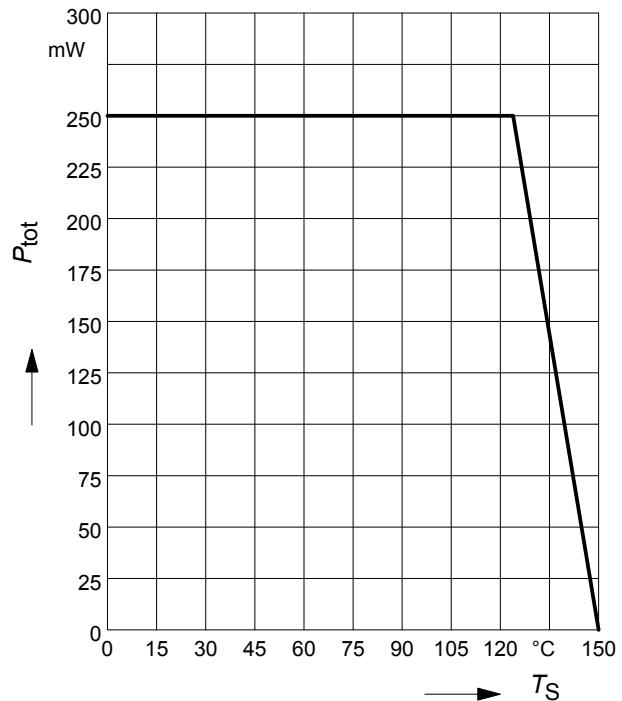
**Total power dissipation  $P_{\text{tot}} = f(T_S)$**   
BCR183U



**Total power dissipation  $P_{\text{tot}} = f(T_S)$**   
BCR183S

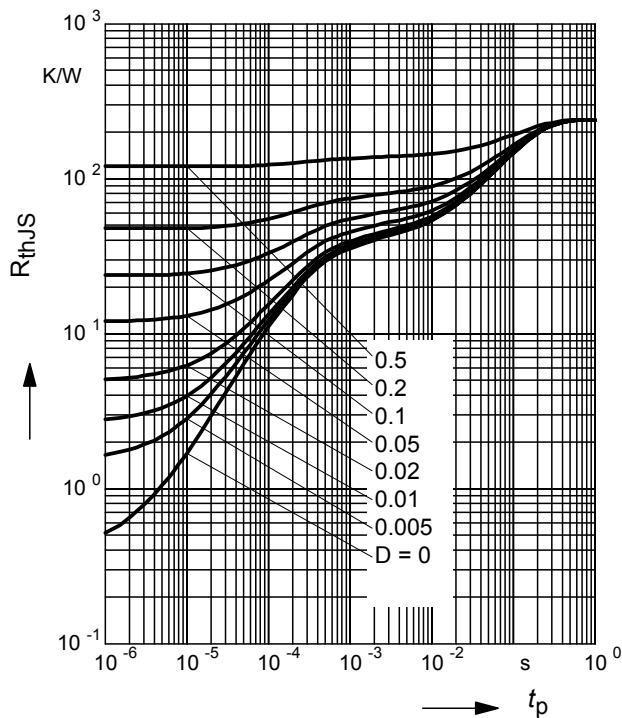


**Total power dissipation  $P_{\text{tot}} = f(T_S)$**   
BCR183W



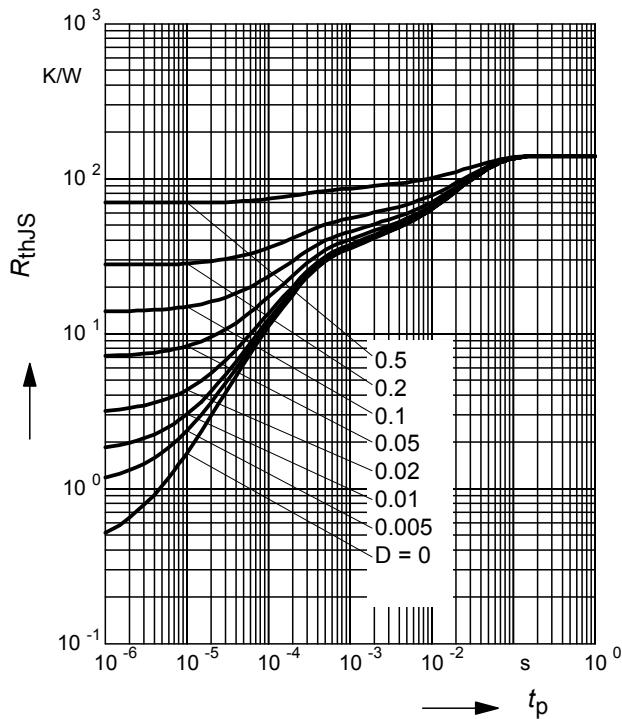
**Permissible Pulse Load**  $R_{\text{thJS}} = f(t_p)$

BCR183



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

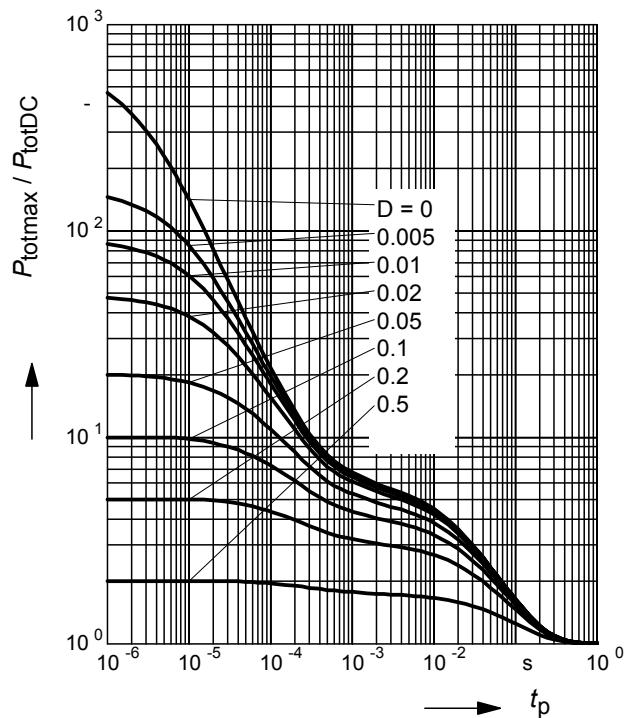
BCR183S



**Permissible Pulse Load**

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

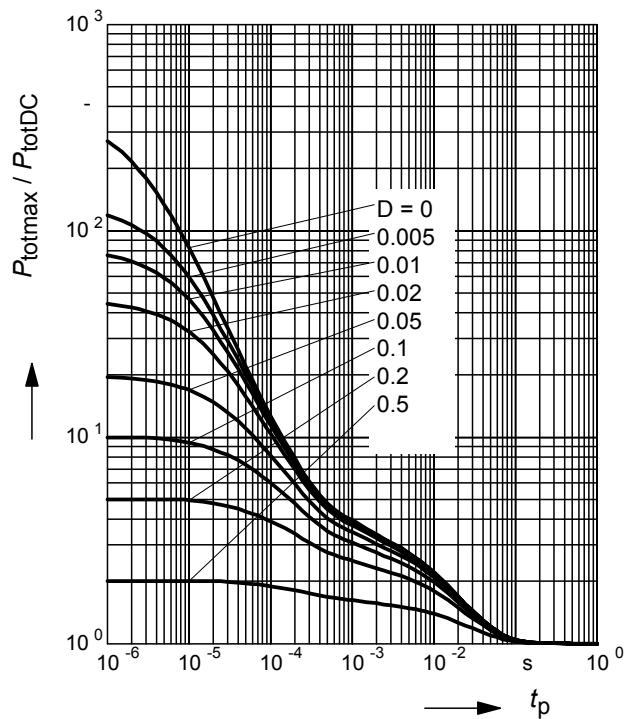
BCR183



**Permissible Pulse Load**

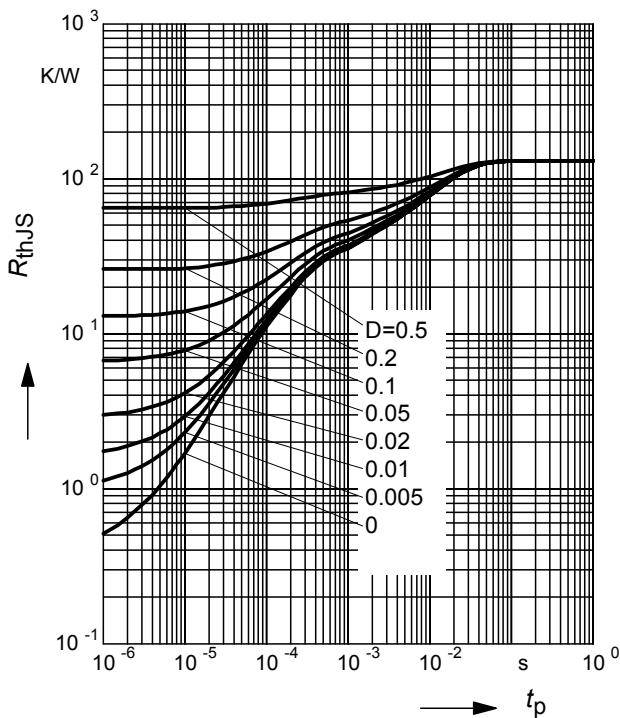
$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$

BCR183S



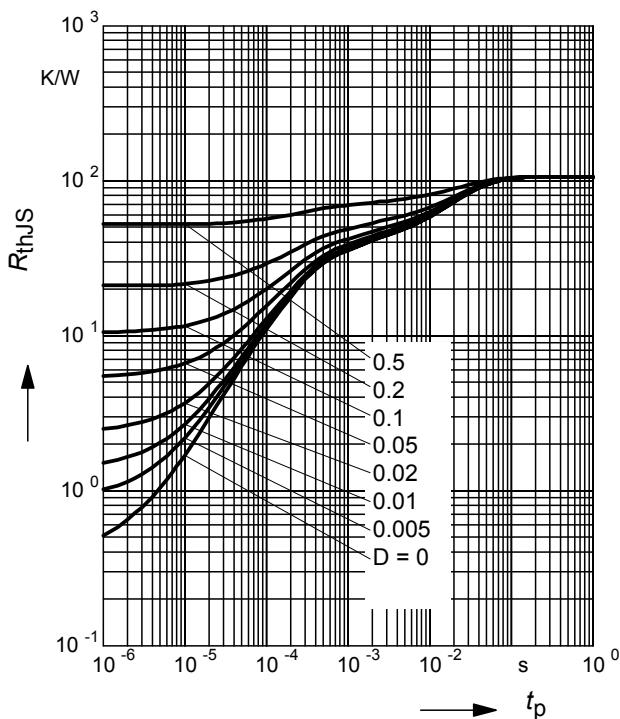
**Permissible Puls Load  $R_{\text{thJS}} = f(t_p)$**

BCR183U



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

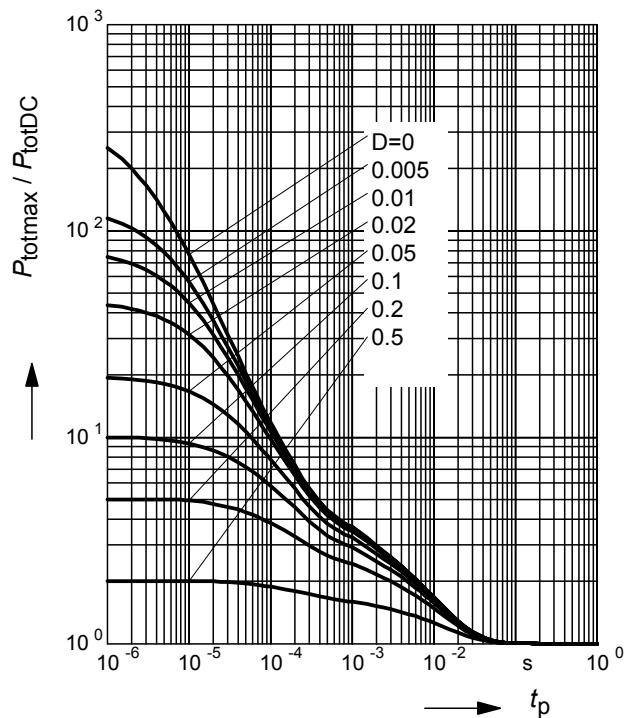
BCR183W



**Permissible Pulse Load**

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

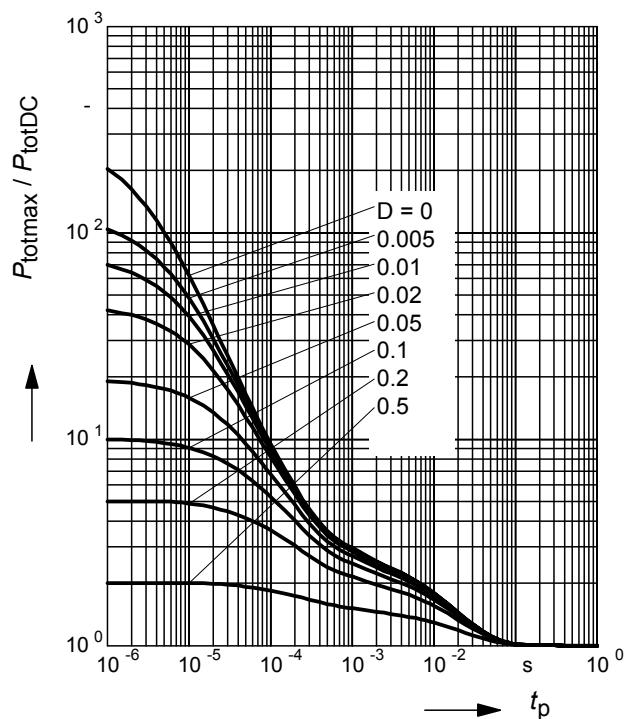
BCR183U



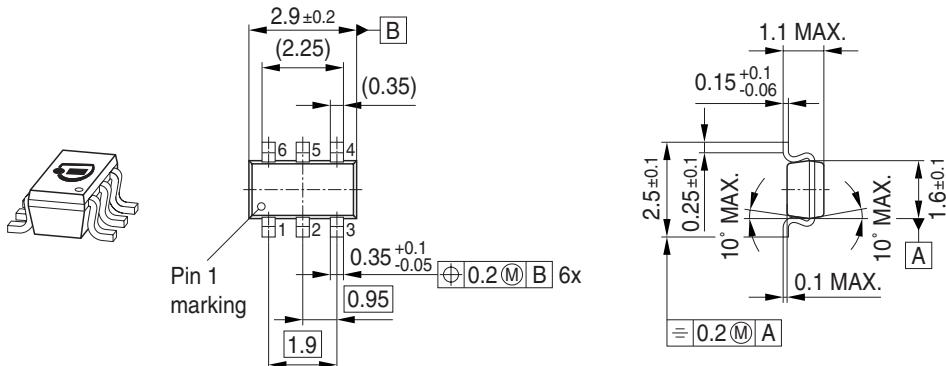
**Permissible Pulse Load**

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

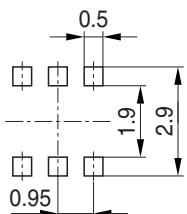
BCR183W



### Package Outline

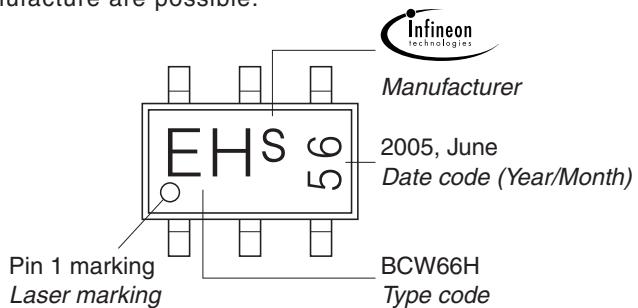


### Foot Print



### Marking Layout (Example)

Small variations in positioning of Date code, Type code and Manufacture are possible.

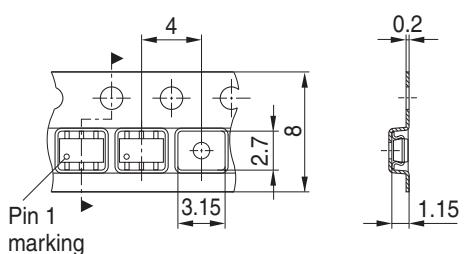


### Standard Packing

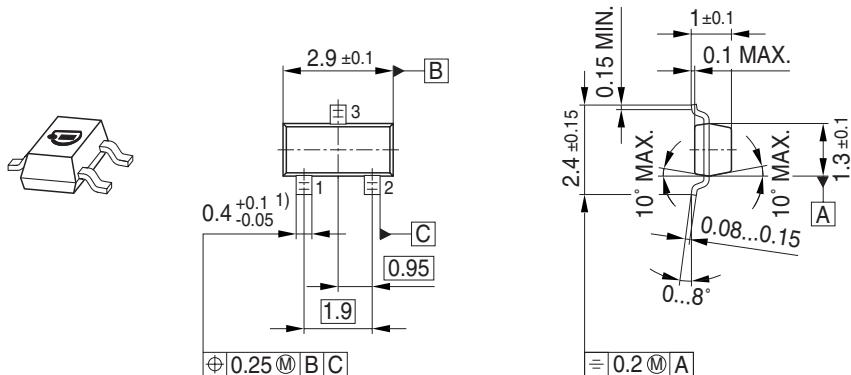
Reel ø180 mm = 3.000 Pieces/Reel

Reel ø330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.

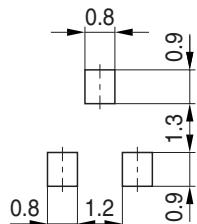


## Package Outline

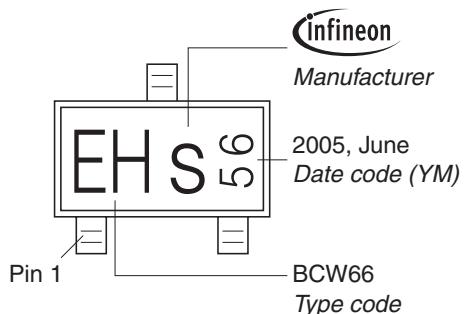


1) Lead width can be 0.6 max. in dambar area

## Foot Print

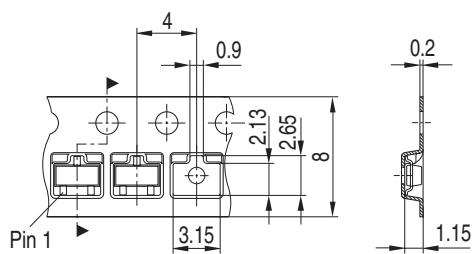


## Marking Layout (Example)

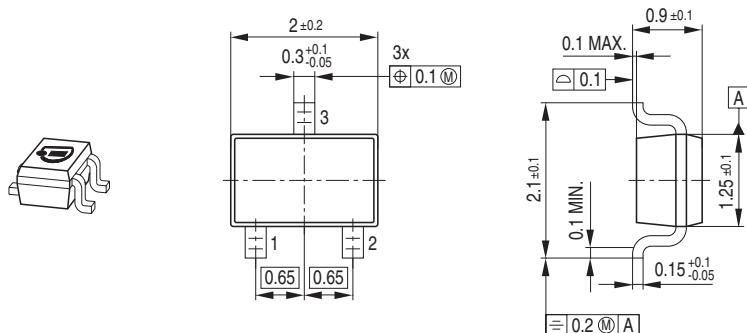


## Standard Packing

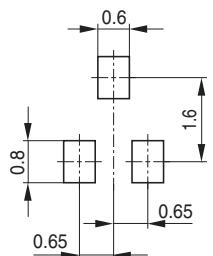
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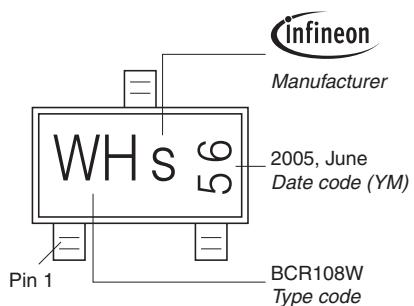
### Package Outline



### Foot Print

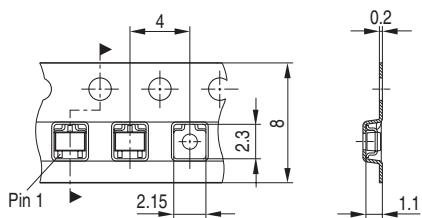


### Marking Layout (Example)

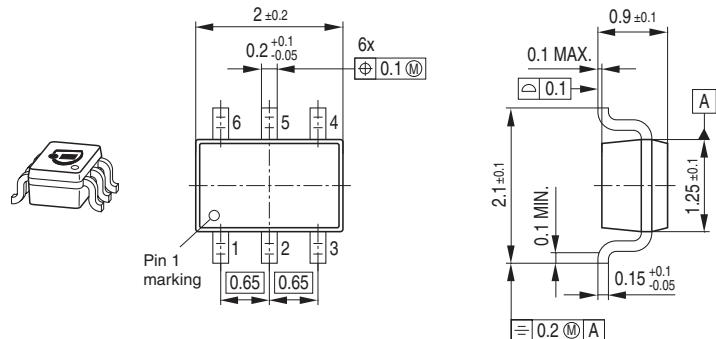


### Standard Packing

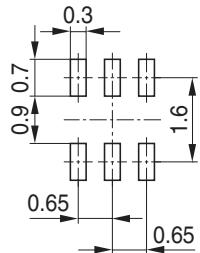
Reel ø180 mm = 3.000 Pieces/Reel  
Reel ø330 mm = 10.000 Pieces/Reel



### Package Outline

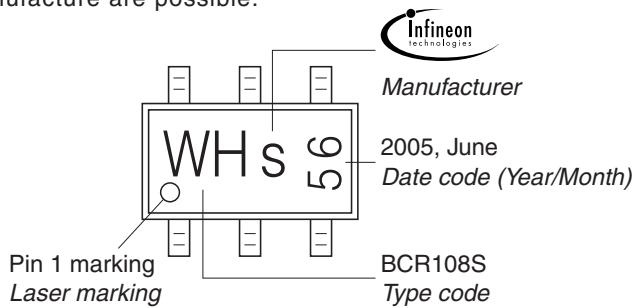


### Foot Print



### Marking Layout (Example)

Small variations in positioning of Date code, Type code and Manufacture are possible.

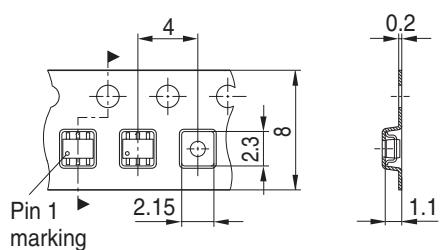


### Standard Packing

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