

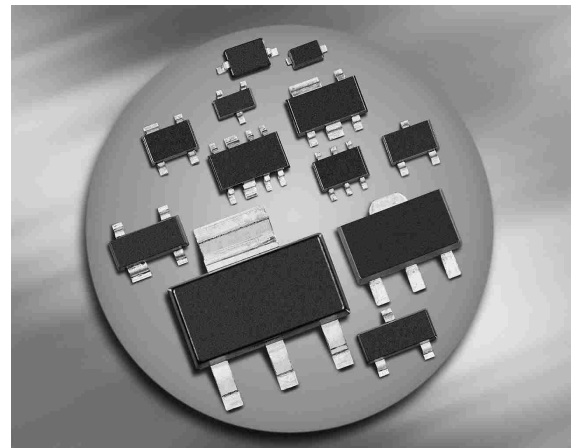


THE DATASHEET OF PIC24FV32KA301-I/SS



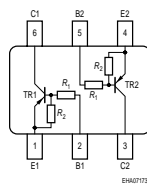
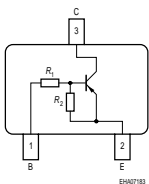
PNP Silicon Digital Transistor

- 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
		1=B	2=E	3=C	-	-	-	
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, $T_S \leq 102^\circ\text{C}$ BCR183S, $T_S \leq 115^\circ\text{C}$ BCR183U, $T_S \leq 118^\circ\text{C}$ BCR183W, $T_S \leq 124^\circ\text{C}$	P_{tot}	200 250 250 250	mW
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
BCR183		≤ 240	
BCR183S		≤ 140	
BCR183U		≤ 133	
BCR183W		≤ 105	

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

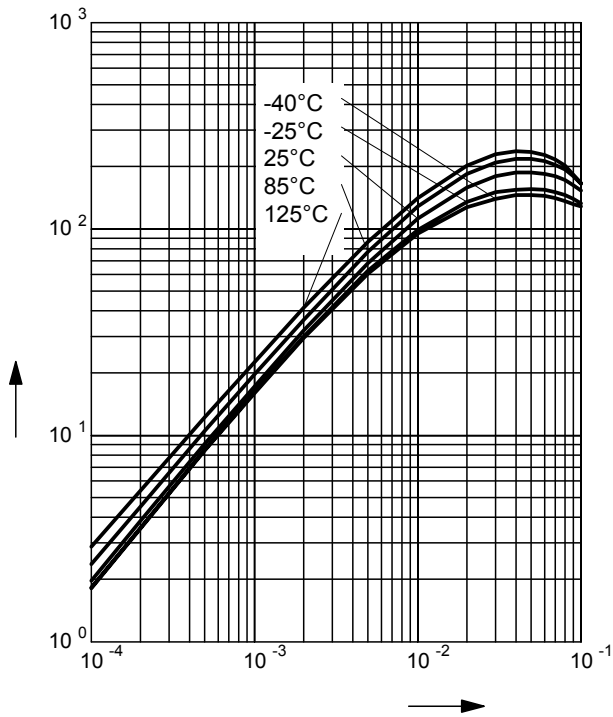
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Collector-base cutoff current $V_{CB} = 40\ \text{V}, I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 10\ \text{V}, I_C = 0$	I_{EBO}	-	-	0.75	mA
DC current gain ¹⁾ $I_C = 5\ \text{mA}, V_{CE} = 5\ \text{V}$	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 $I_C = 100\ \mu\text{A}, V_{CE} = 5\ \text{V}$	$V_{i(off)}$	0.8	-	1.8	
Input on voltage $I_C = 2\ \text{mA}, V_{CE} = 0.3\ \text{V}$	$V_{i(on)}$	1	-	2.5	
Input resistor	R_1	7	10	13	k Ω
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
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

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

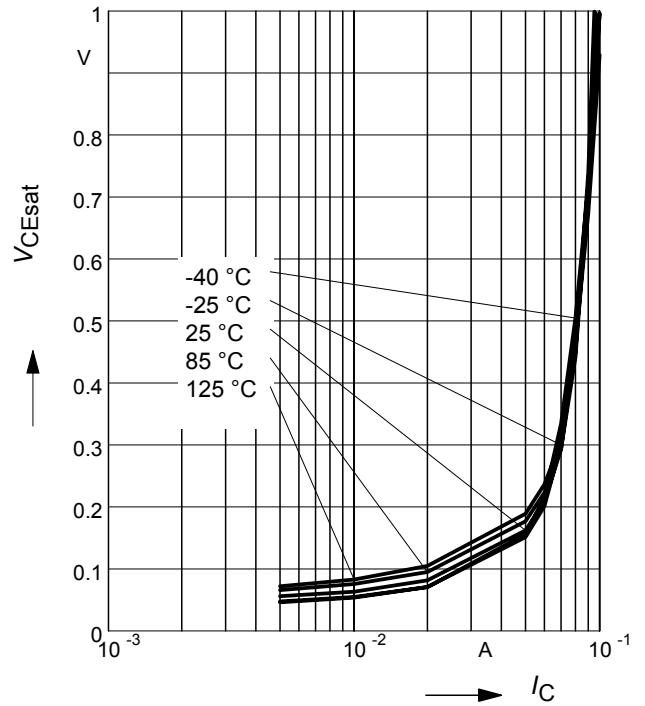
DC current gain $h_{FE} = f(I_C)$

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



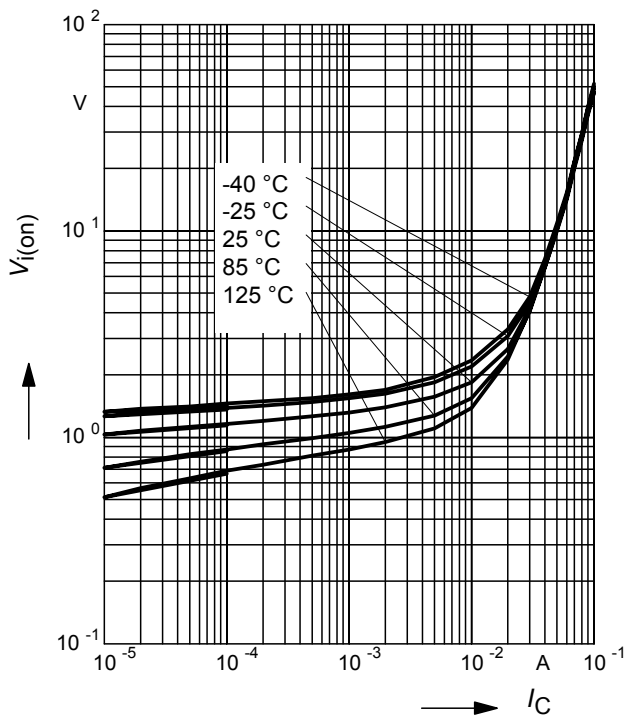
Collector-emitter saturation voltage

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



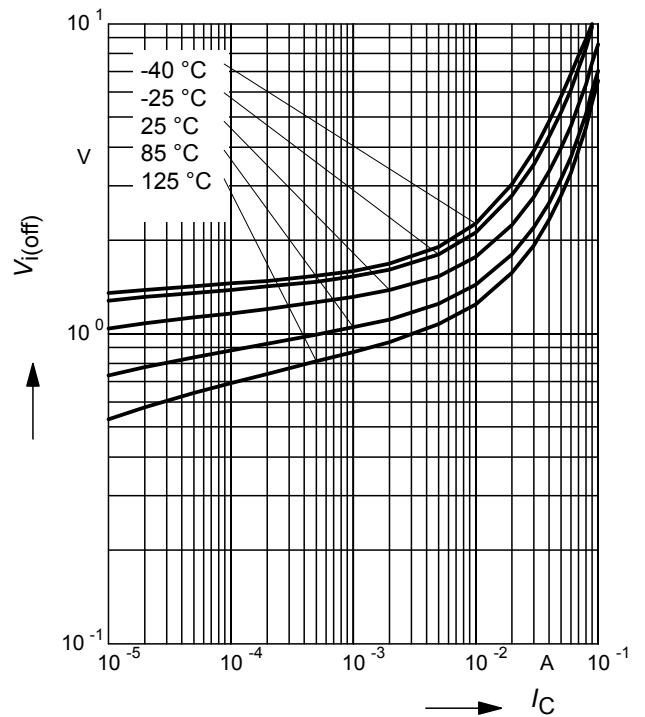
Input on Voltage $V_{i(on)} = f(I_C)$

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



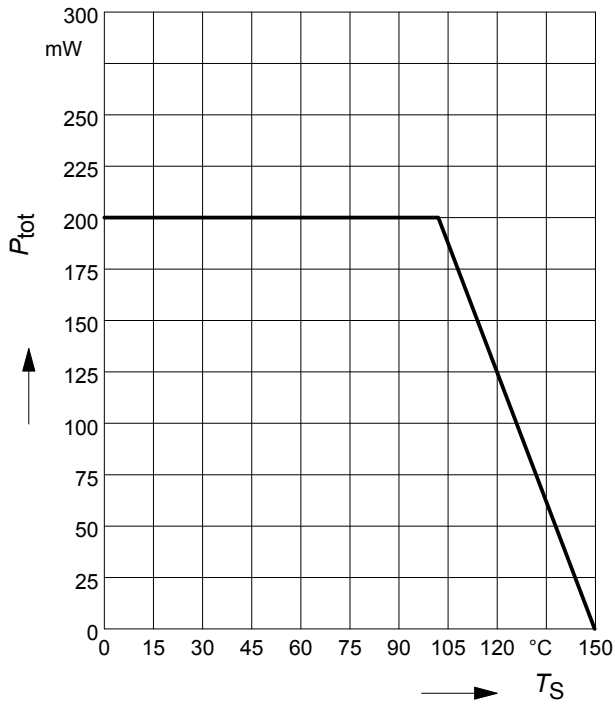
Input off voltage $V_{i(off)} = f(I_C)$

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



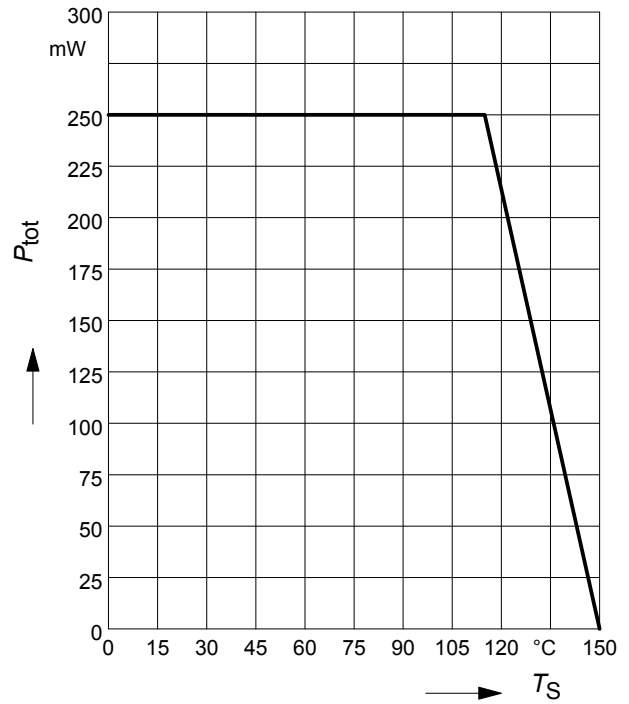
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR183



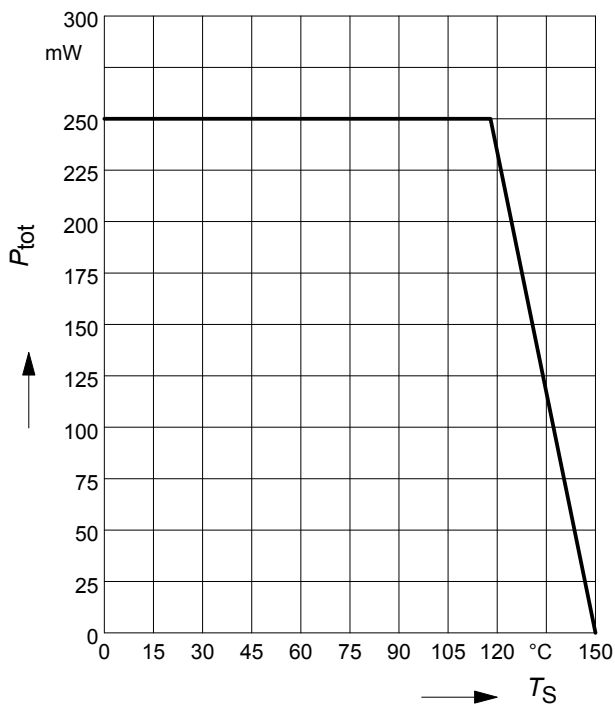
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR183S



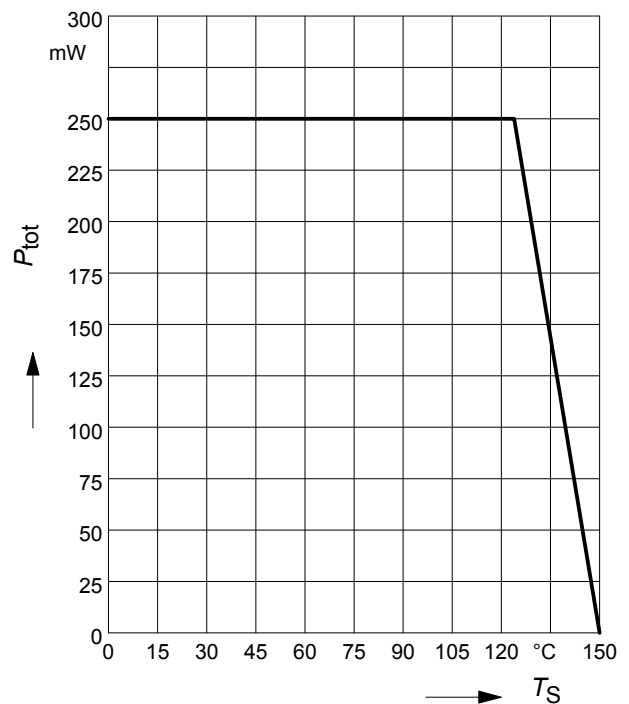
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR183U



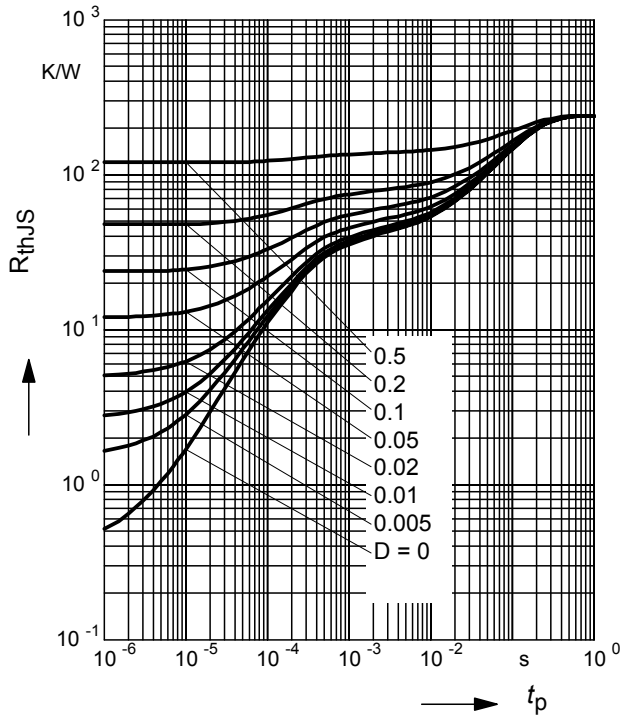
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR183W



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

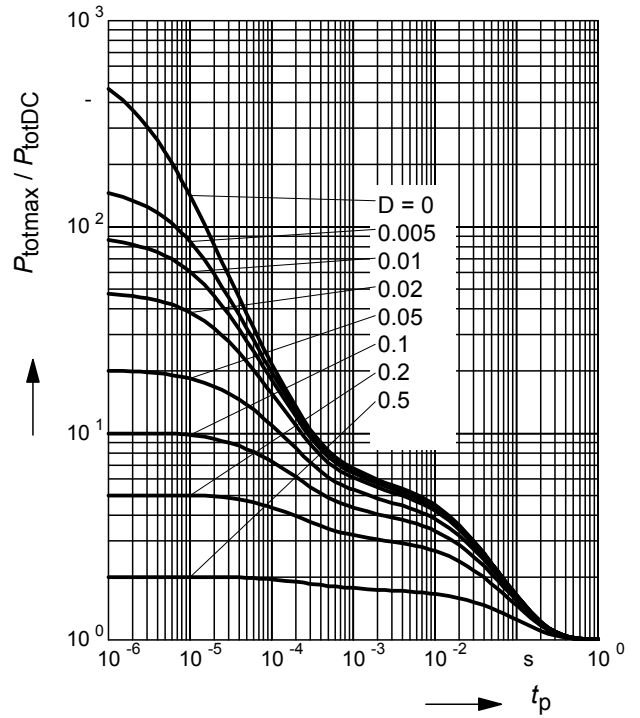
BCR183



Permissible Pulse Load

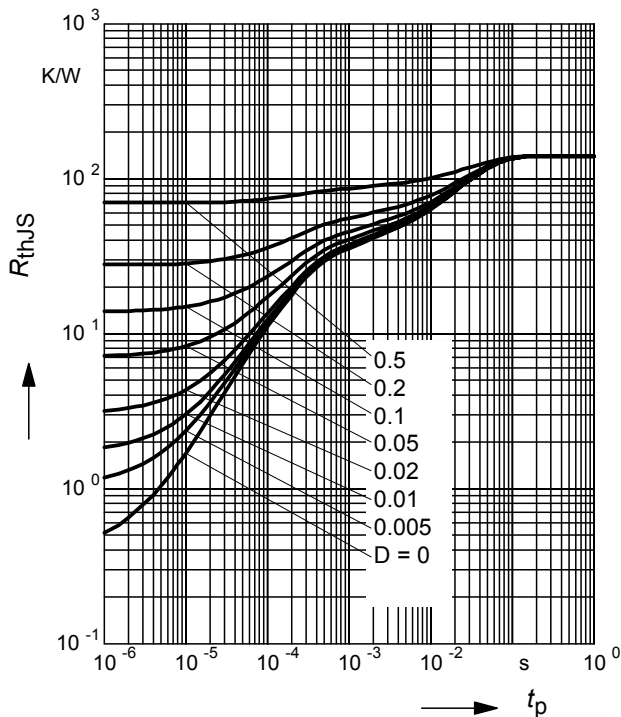
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183



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

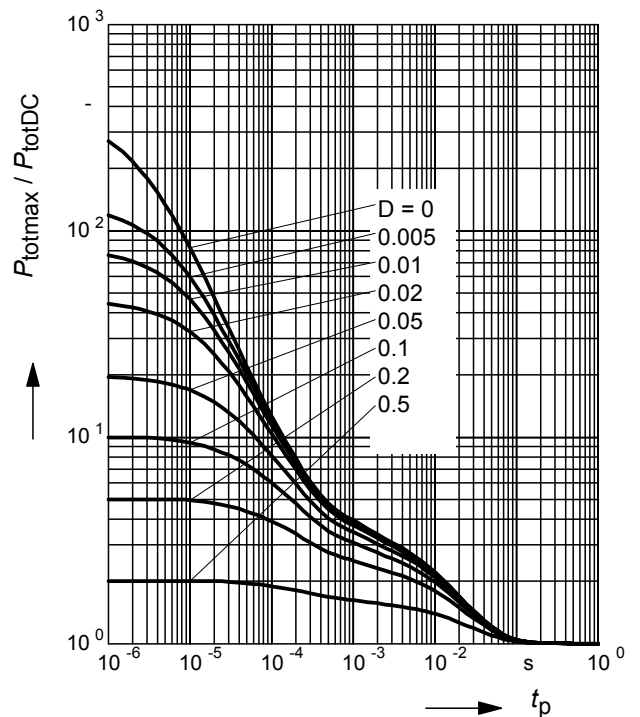
BCR183S



Permissible Pulse Load

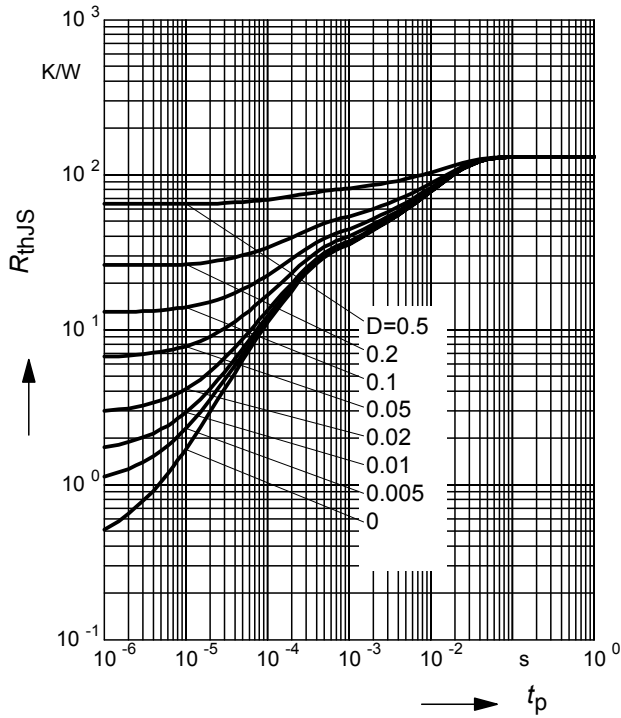
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183S



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

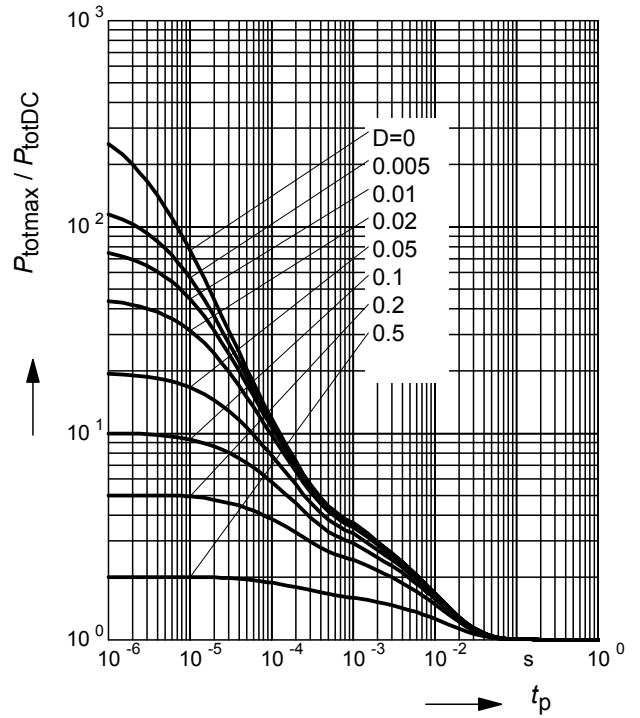
BCR183U



Permissible Pulse Load

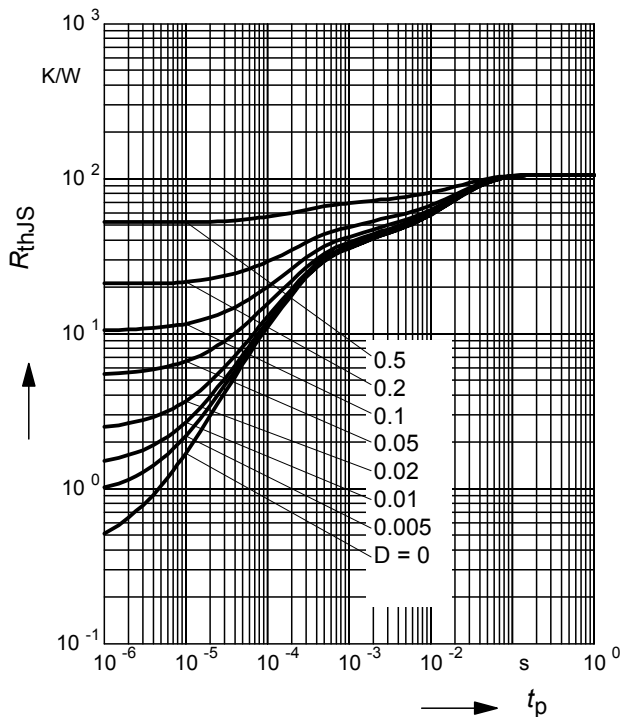
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183U



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

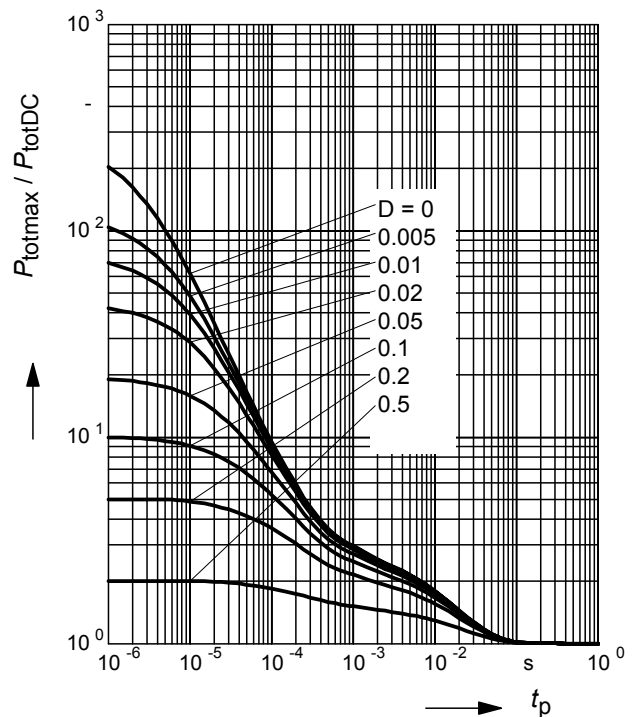
BCR183W



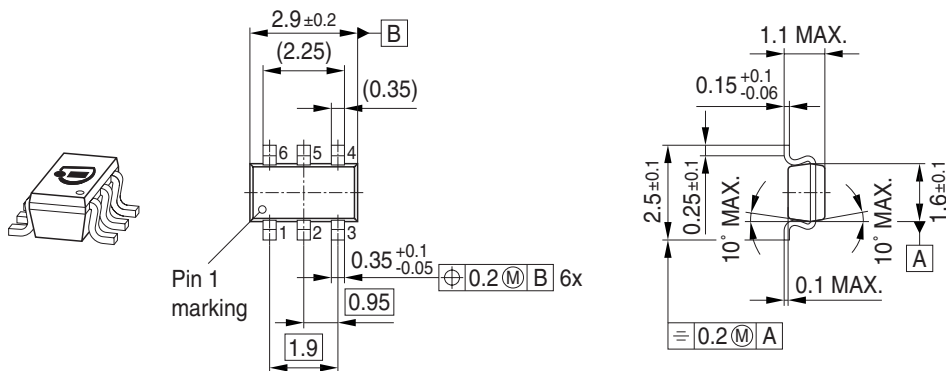
Permissible Pulse Load

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

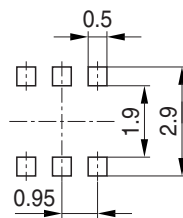
BCR183W



Package Outline



Foot Print



Marking Layout (Example)

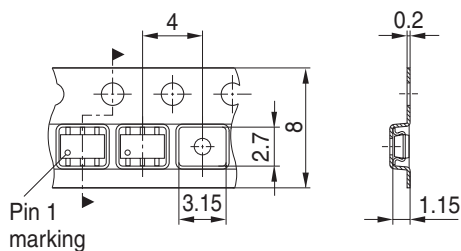
Small variations in positioning of Date code, Type code and Manufacture are possible.



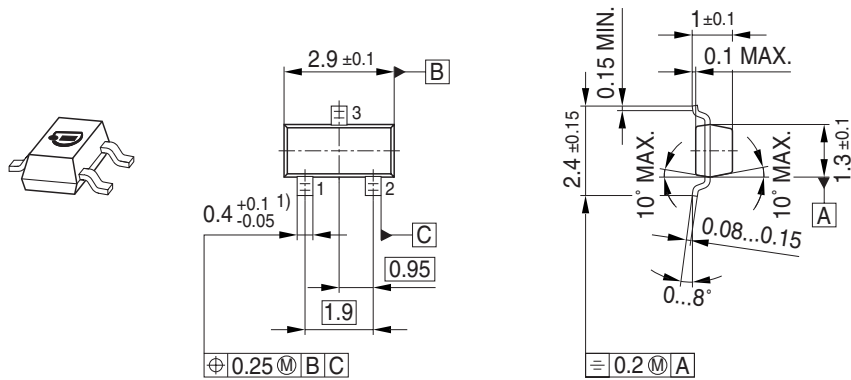
Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.

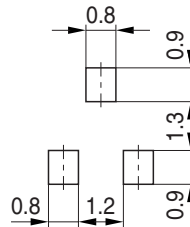


Package Outline

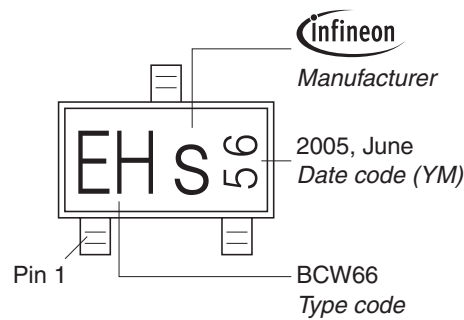


1) Lead width can be 0.6 max. in dambar area

Foot Print

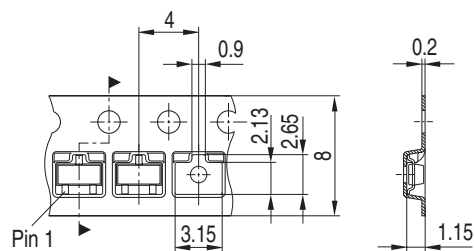


Marking Layout (Example)

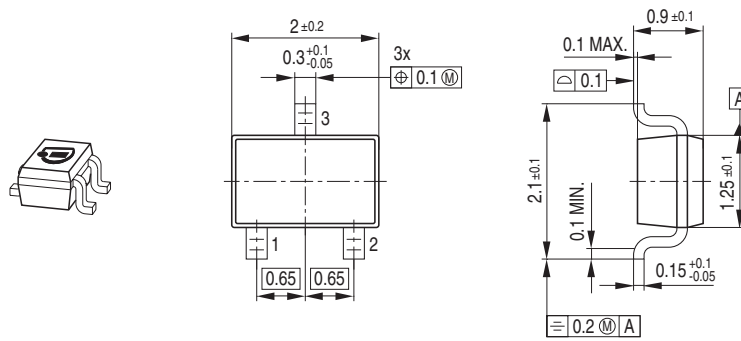


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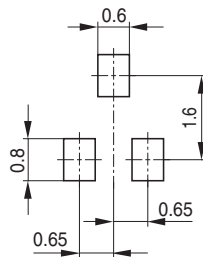
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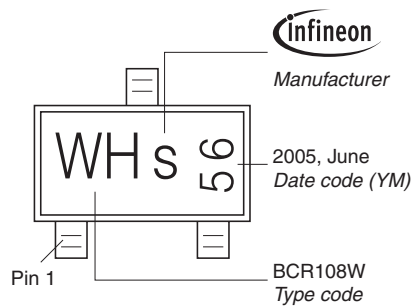
Package Outline



Foot Print

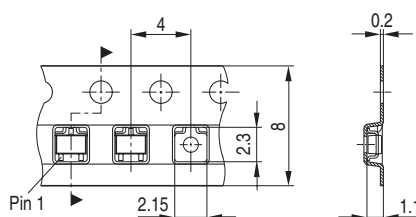


Marking Layout (Example)

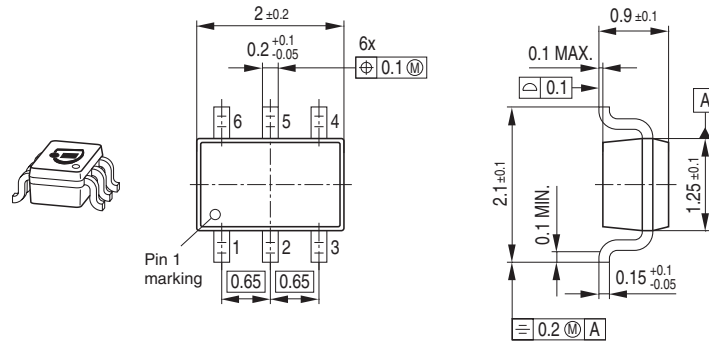


Standard Packing

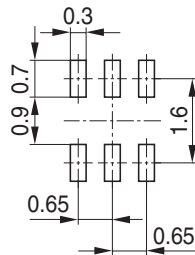
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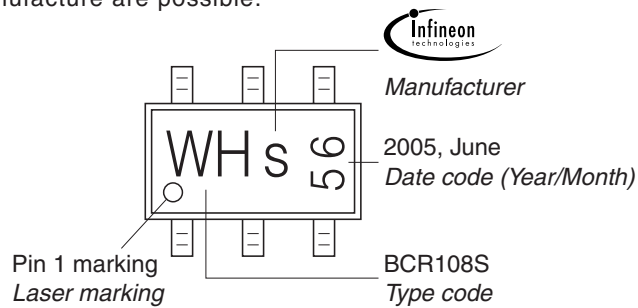


Foot Print



Marking Layout (Example)

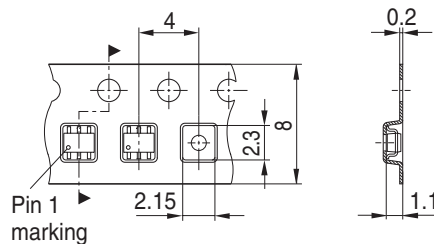
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Edition 2009-11-16

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

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