

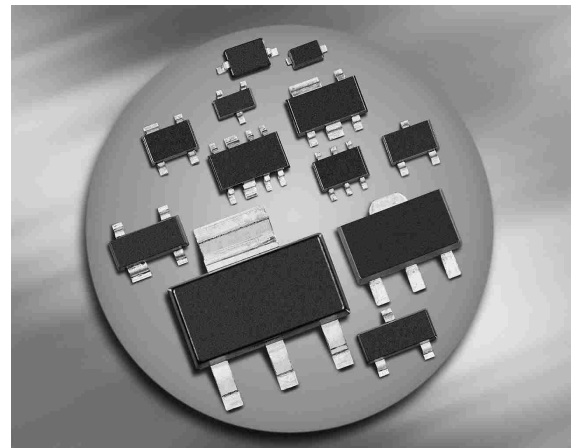


# THE DATASHEET OF PIC24FV32KA301-I/SS



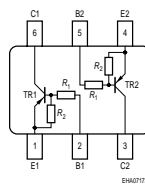
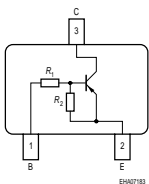
**PNP Silicon Digital Transistor**

- 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	2	3	4	5	6	
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 <sup>1)</sup>	$R_{thJS}$		K/W
BCR183		$\leq 240$	
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)

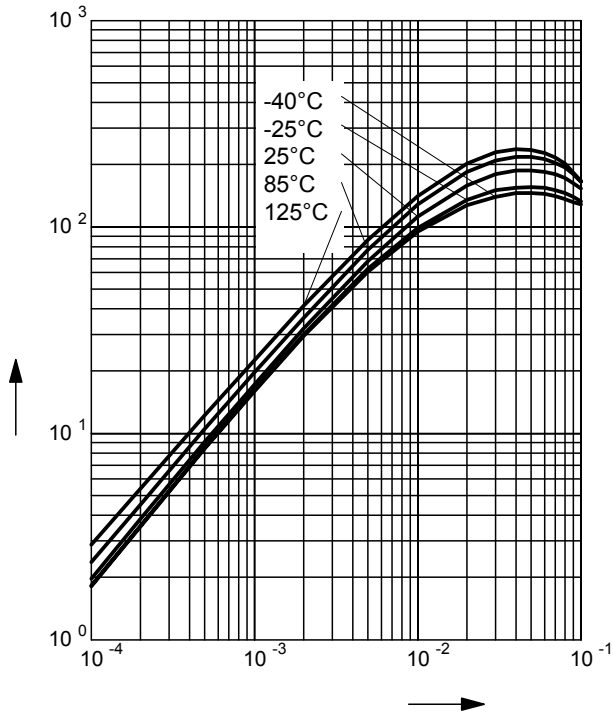
**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	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 <sup>1)</sup> $I_C = 5\ \text{mA}, V_{CE} = 5\ \text{V}$	$h_{FE}$	30	-	-	-
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 10\ \text{mA}, I_B = 0.5\ \text{mA}$	$V_{CEsat}$	-	-	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 $\Omega$
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:  $t < 300\ \mu\text{s}; D < 2\%$

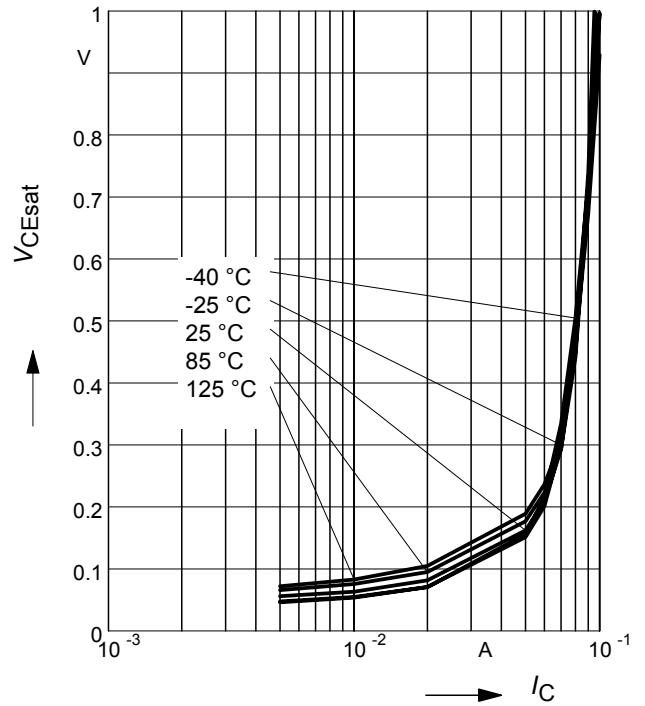
**DC current gain  $h_{FE} = f(I_C)$**

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



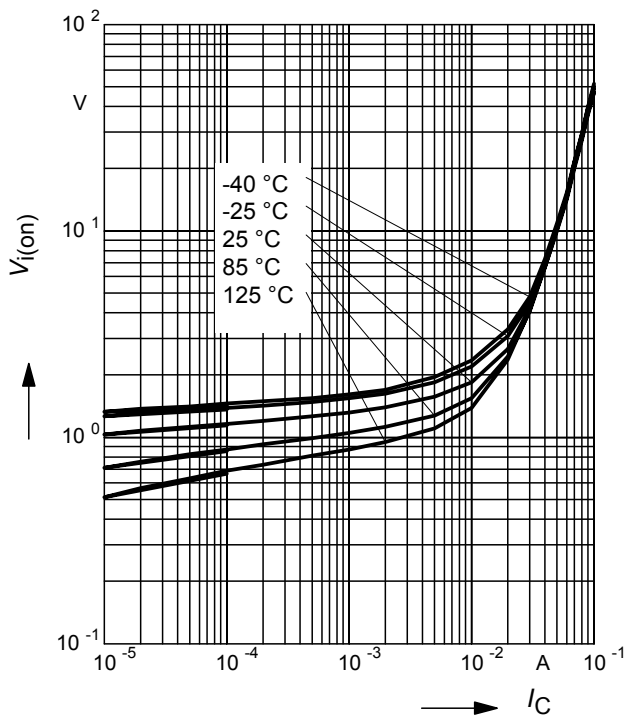
**Collector-emitter saturation voltage**

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



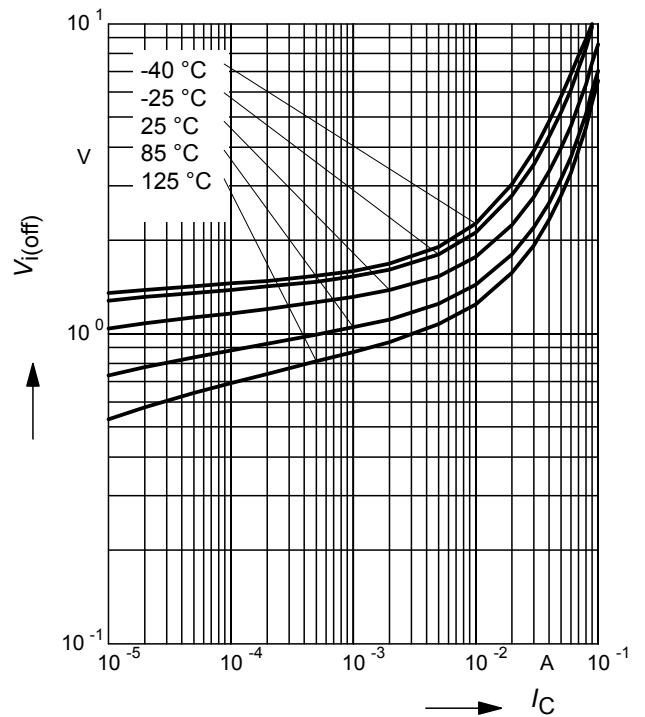
**Input on Voltage  $V_{i(on)} = f(I_C)$**

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



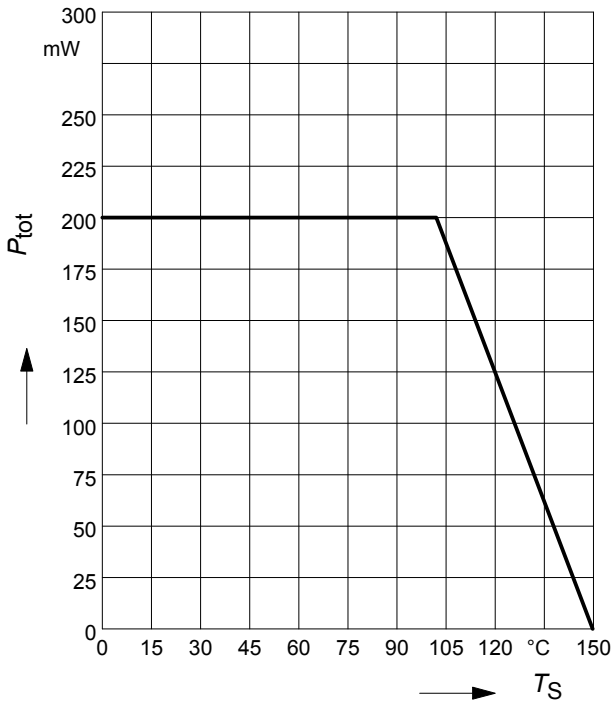
**Input off voltage  $V_{i(off)} = f(I_C)$**

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



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

BCR183



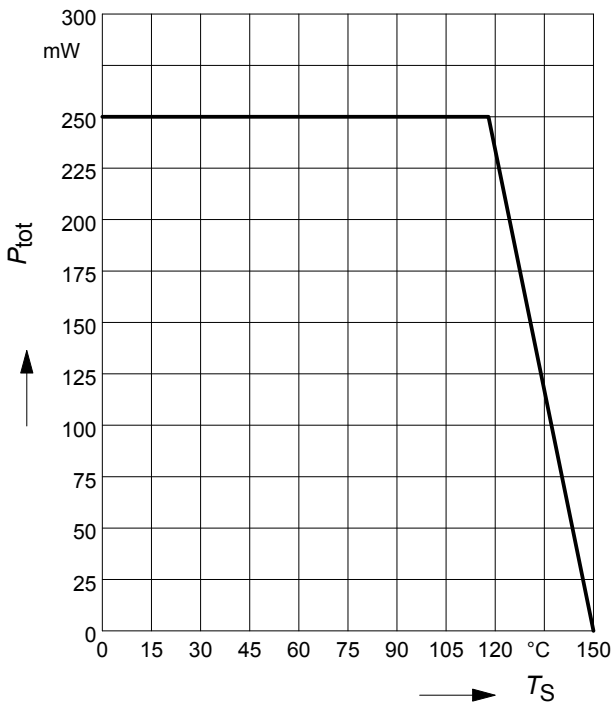
Total power dissipation  $P_{tot} = f(T_S)$

BCR183S



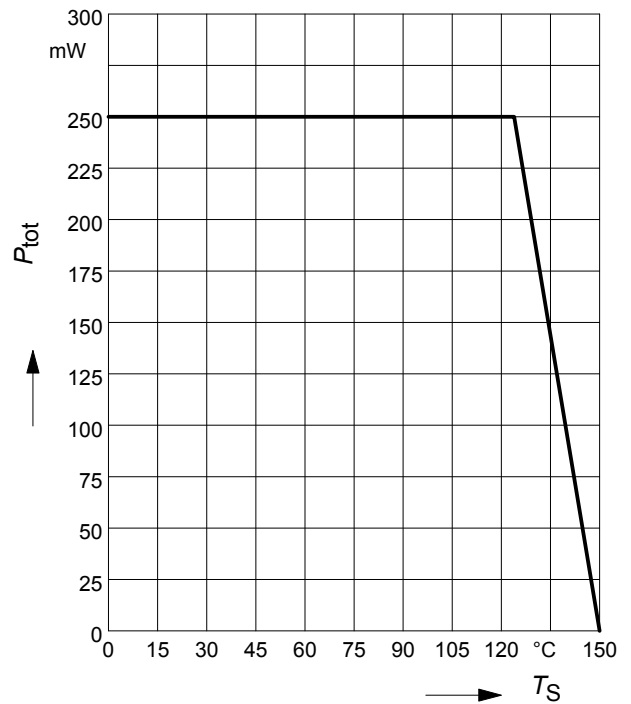
Total power dissipation  $P_{tot} = f(T_S)$

BCR183U



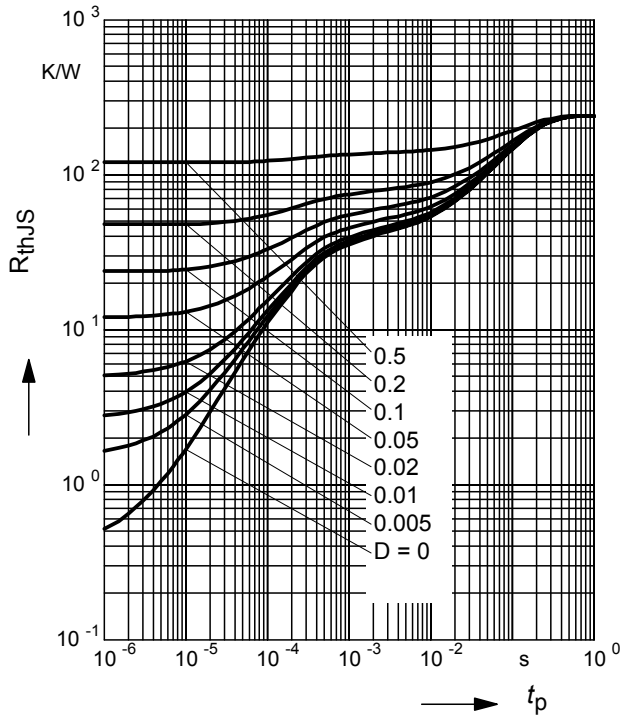
Total power dissipation  $P_{tot} = f(T_S)$

BCR183W



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

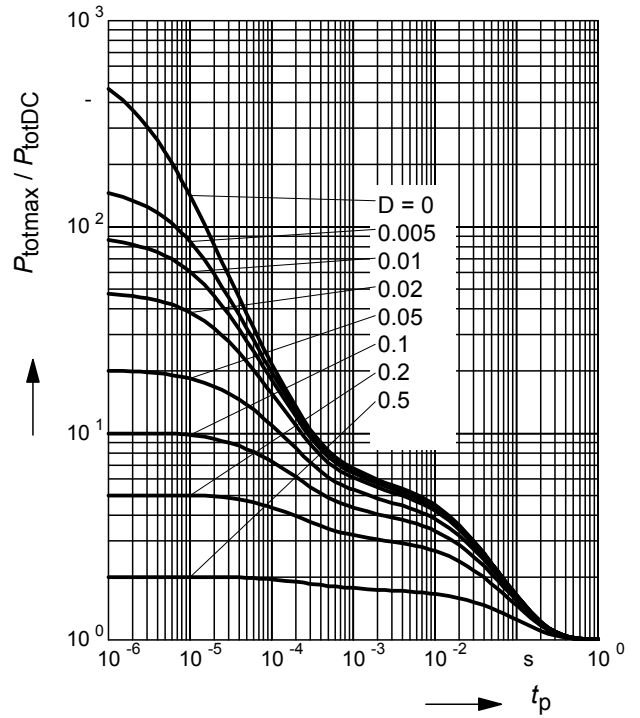
BCR183



**Permissible Pulse Load**

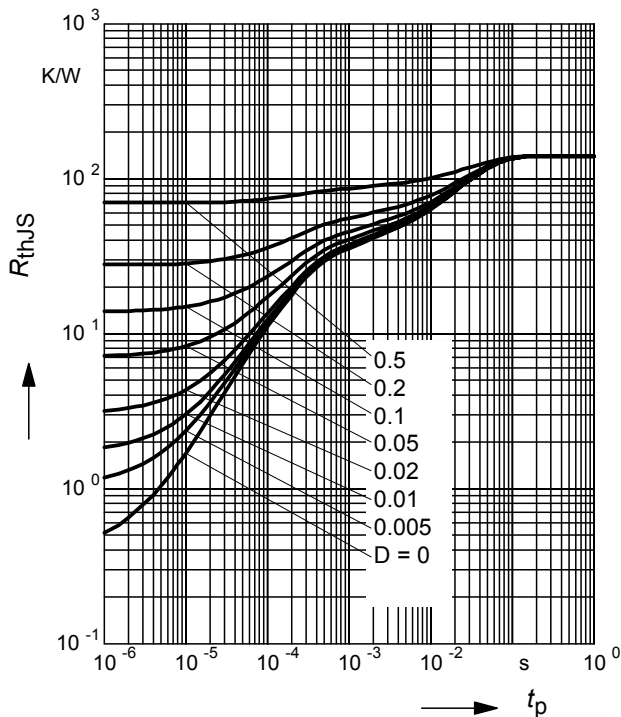
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183



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

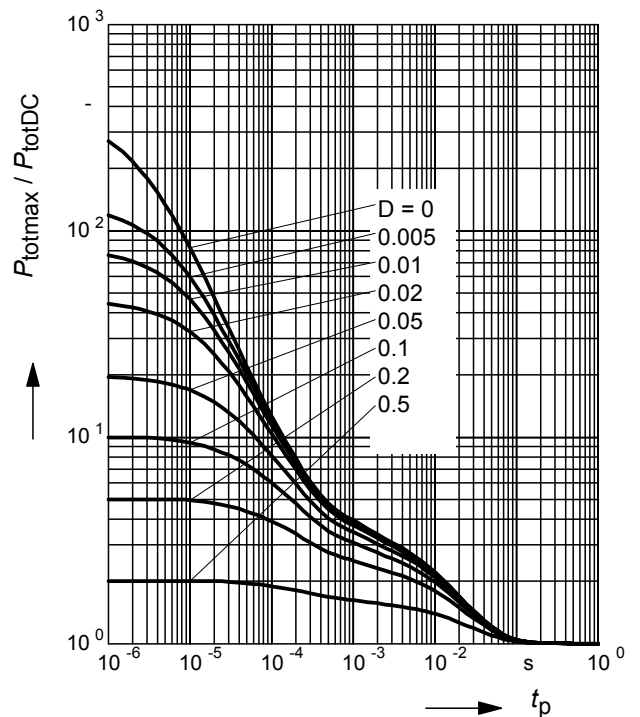
BCR183S



**Permissible Pulse Load**

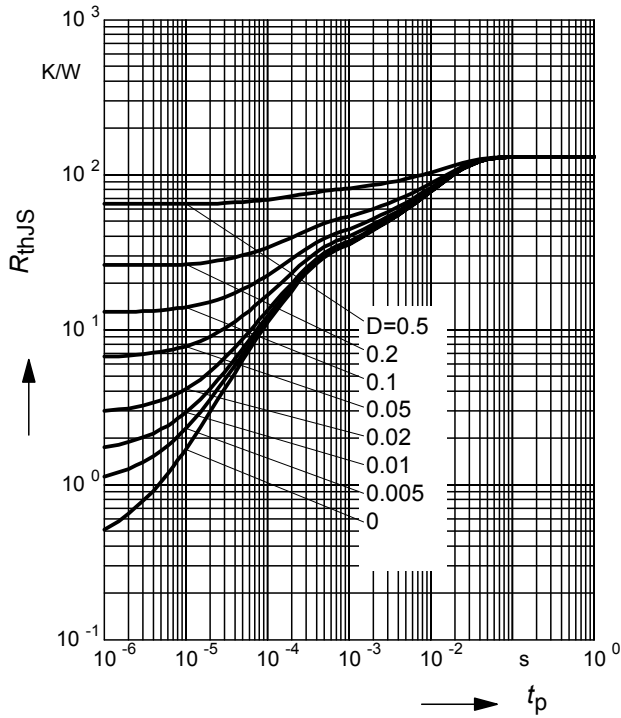
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183S



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

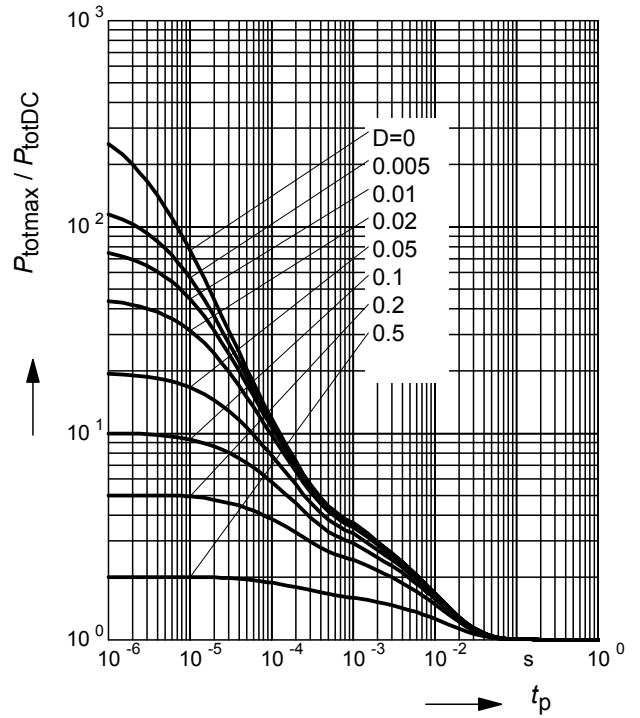
BCR183U



**Permissible Pulse Load**

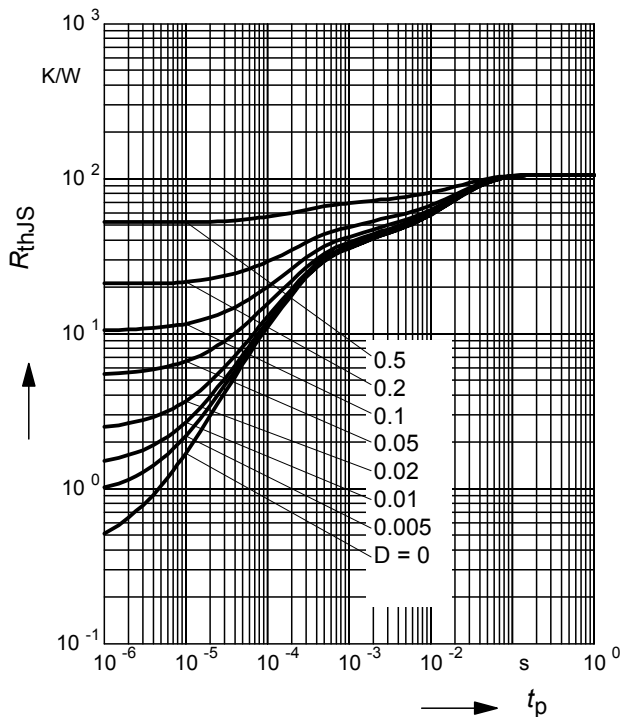
$P_{totmax}/P_{totDC} = f(t_p)$

BCR183U



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

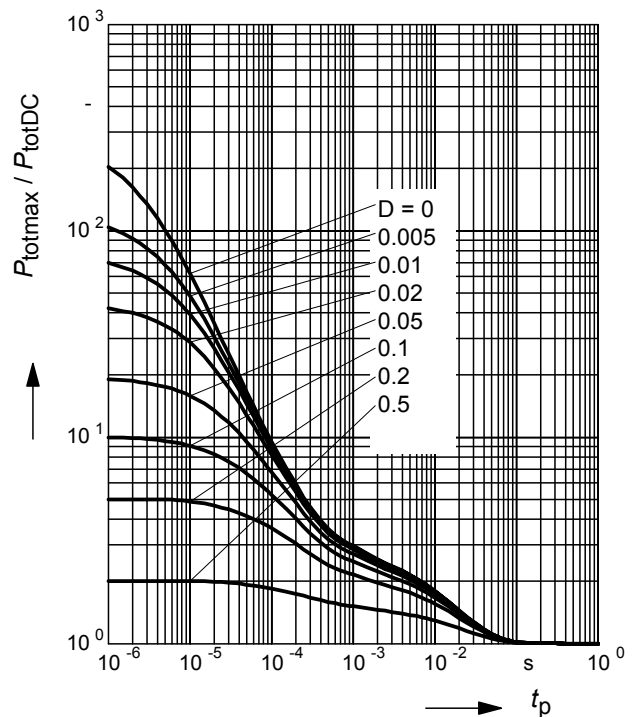
BCR183W



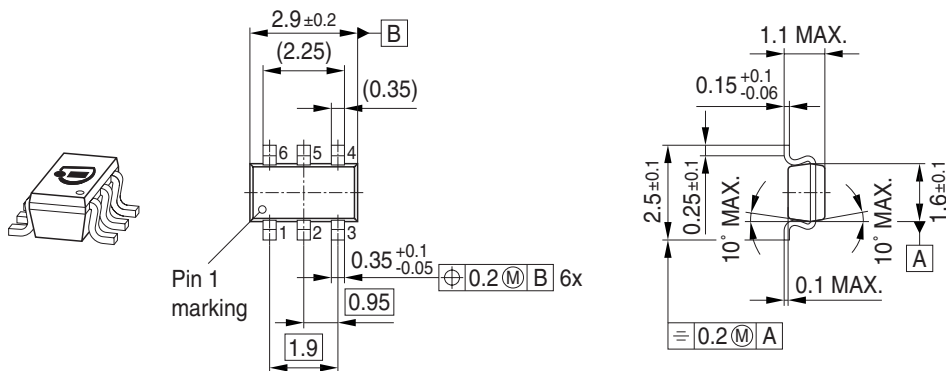
**Permissible Pulse Load**

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

BCR183W



Package Outline



Foot Print



Marking Layout (Example)

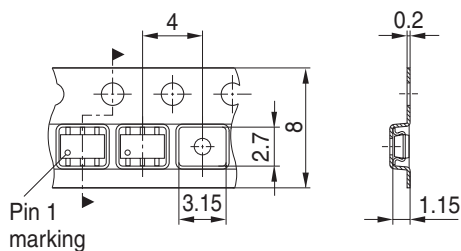
Small variations in positioning of Date code, Type code and Manufacture are possible.



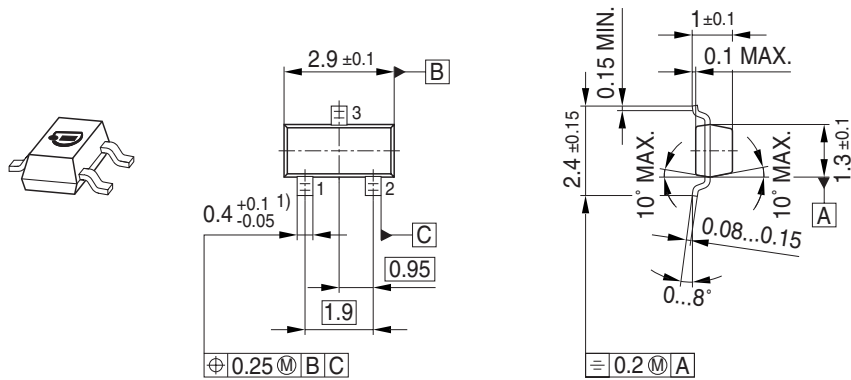
Standard Packing

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.

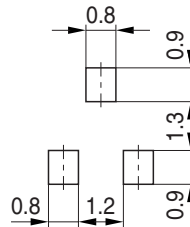


Package Outline

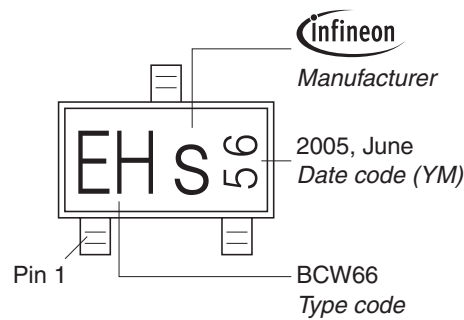


1) Lead width can be 0.6 max. in dambar area

Foot Print

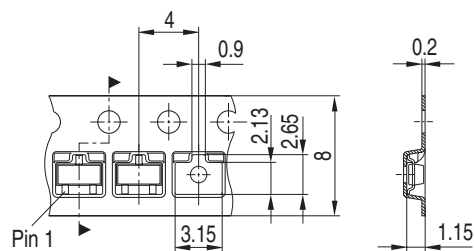


Marking Layout (Example)

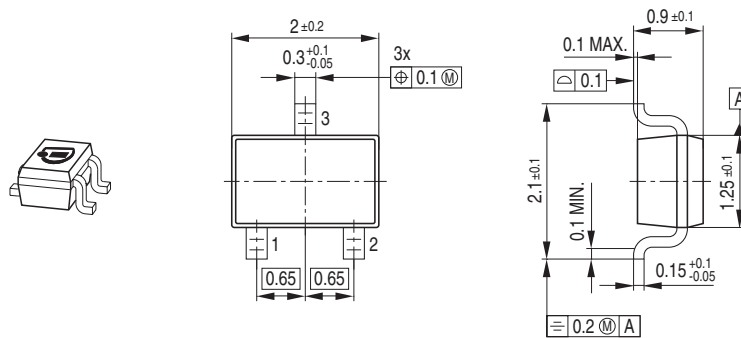


Standard Packing

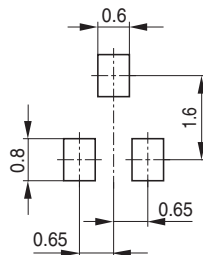
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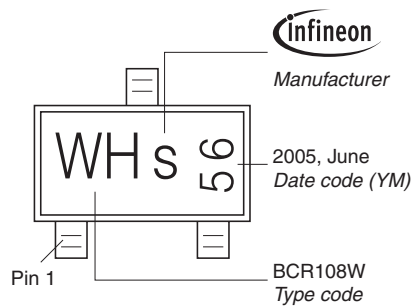
Package Outline



Foot Print

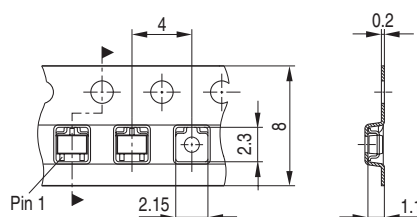


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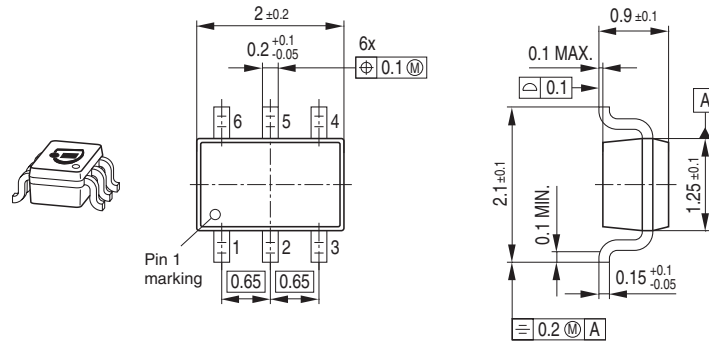


Standard Packing

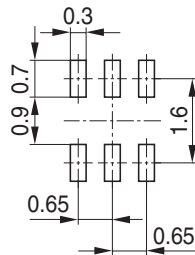
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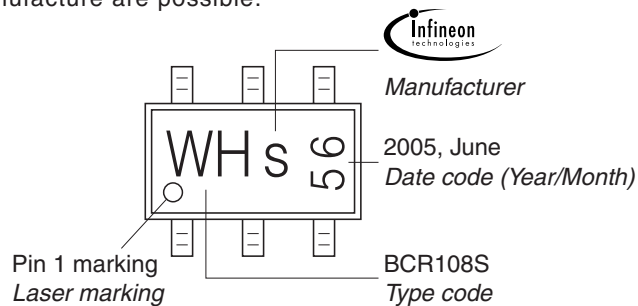


### Foot Print



### Marking Layout (Example)

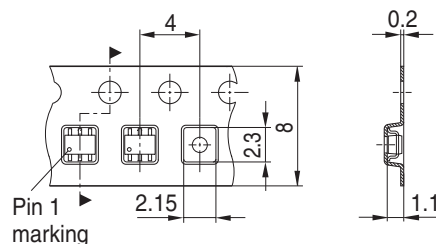
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### Standard Packing

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