

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BCR166		≤ 240	
BCR166W		≤ 105	

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 $V_{EB} = 5 \text{ V}$, $I_C = 0$	I_{EBO}	-	-	155	μA
DC current gain ²⁾ $I_C = 5 \text{ mA}$, $V_{CE} = 5 \text{ V}$	h_{FE}	70	-	-	-
Collector-emitter saturation voltage ²⁾ $I_C = 10 \text{ mA}$, $I_B = 0.5 \text{ mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100 \mu\text{A}$, $V_{CE} = 5 \text{ V}$	$V_{i(off)}$	0.4	-	0.8	
Input on voltage $I_C = 2 \text{ mA}$, $V_{CE} = 0.3 \text{ V}$	$V_{i(on)}$	0.5	-	1.4	
Input resistor	R_1	3.2	4.7	6.2	$k\Omega$
Resistor ratio	R_1/R_2	0.09	0.1	0.11	-

AC Characteristics

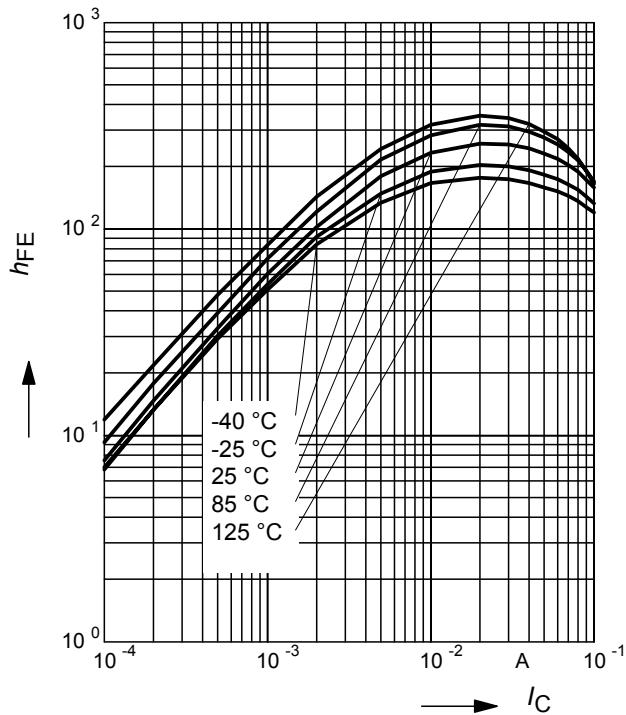
Transition frequency $I_C = 10 \text{ mA}$, $V_{CE} = 5 \text{ V}$, $f = 100 \text{ MHz}$	f_T	-	160	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}$, $f = 1 \text{ MHz}$	C_{cb}	-	3	-	pF

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

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

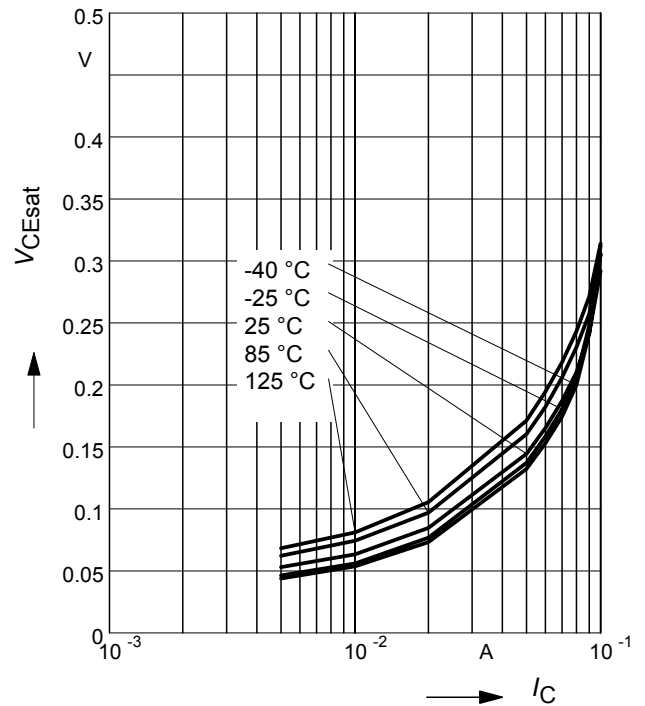
DC current gain $h_{FE} = f(I_C)$

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



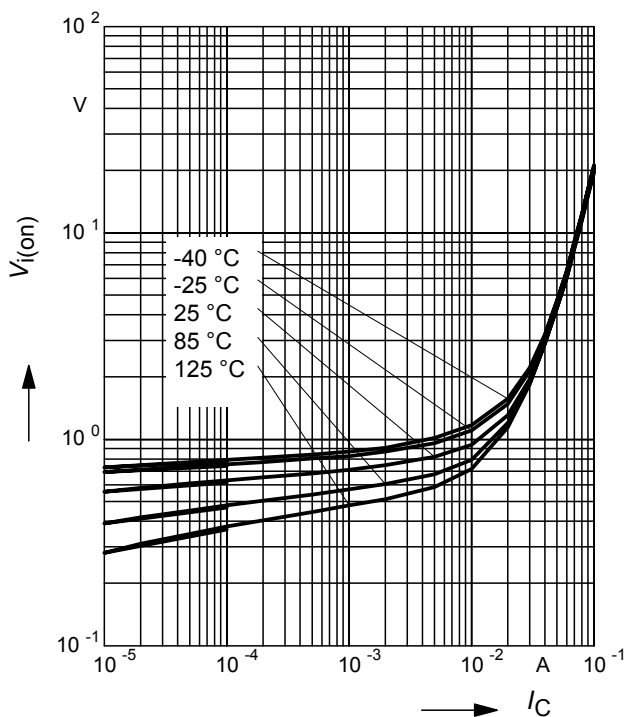
Collector-emitter saturation voltage

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



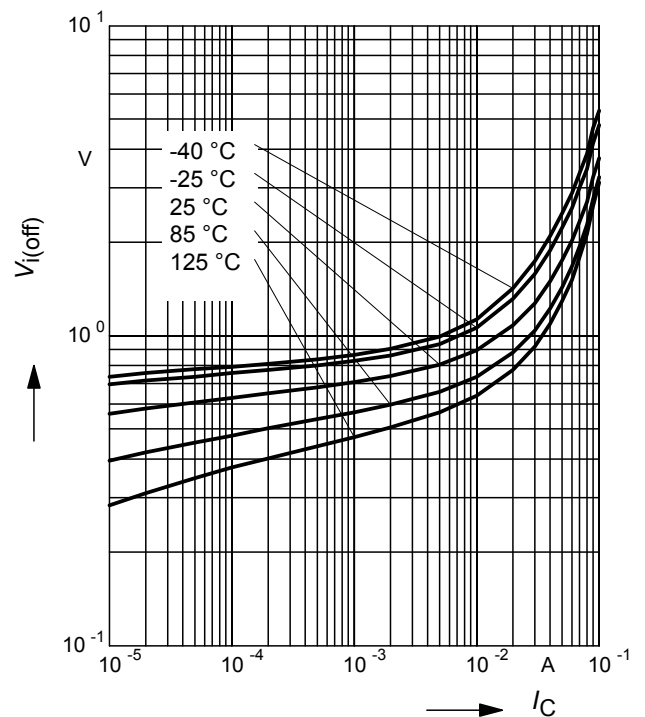
Input on Voltage $V_{i(on)} = f(I_C)$

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



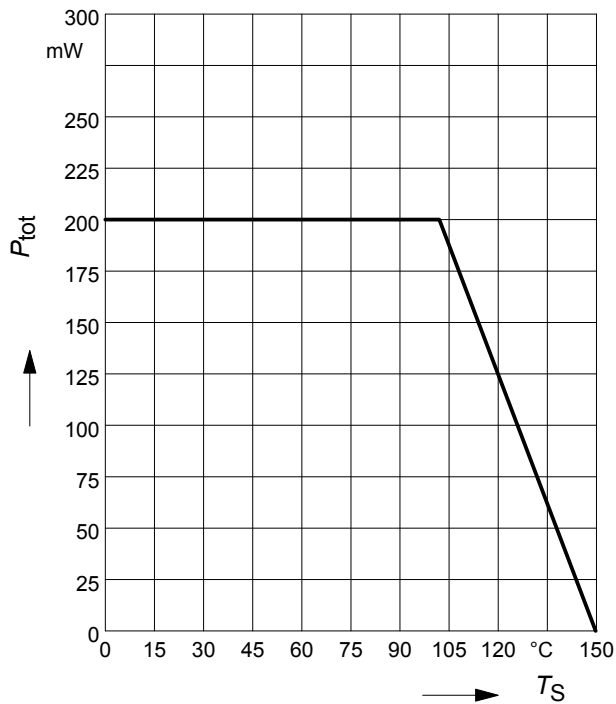
Input off voltage $V_{i(off)} = f(I_C)$

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



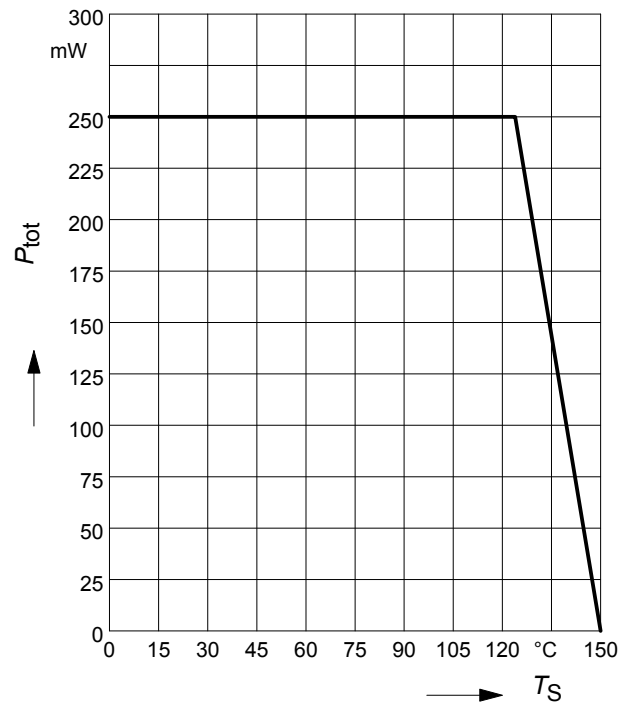
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR166



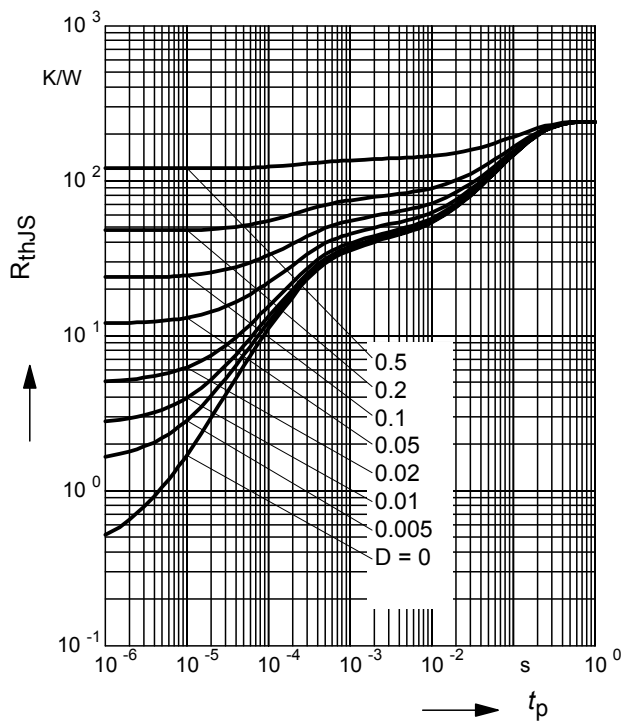
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR166W



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

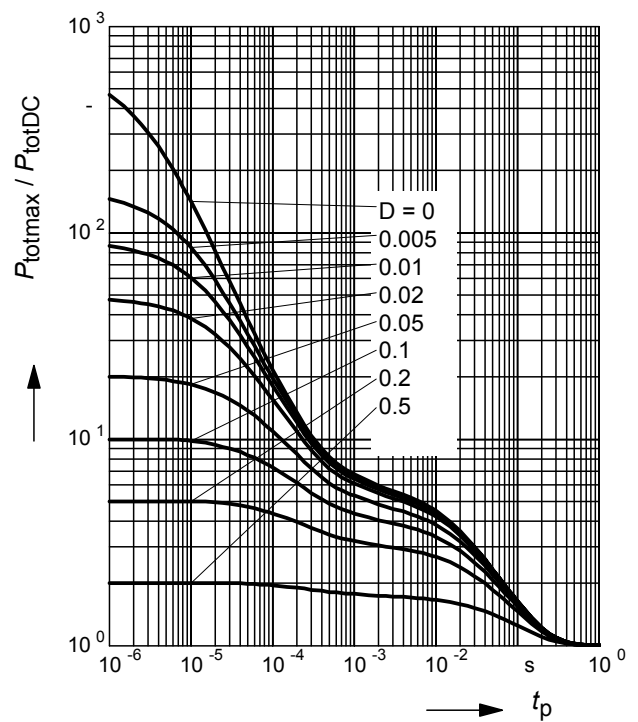
BCR166



Permissible Pulse Load

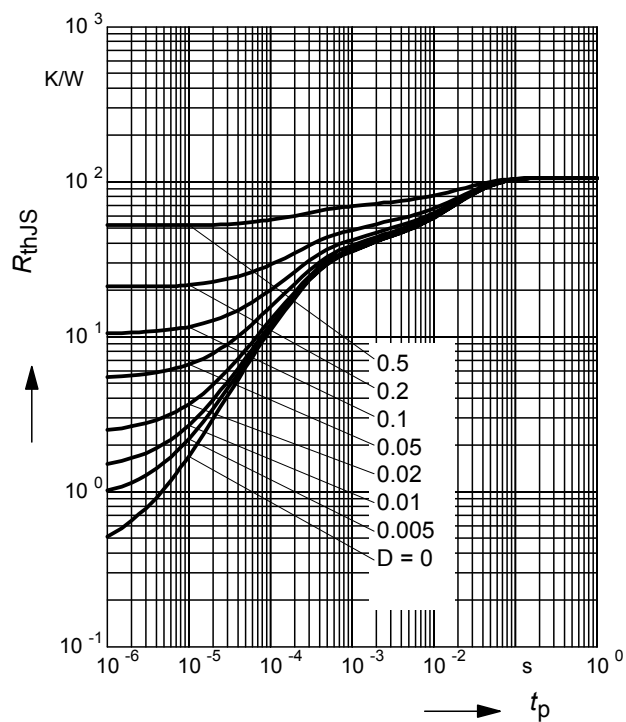
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR166



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

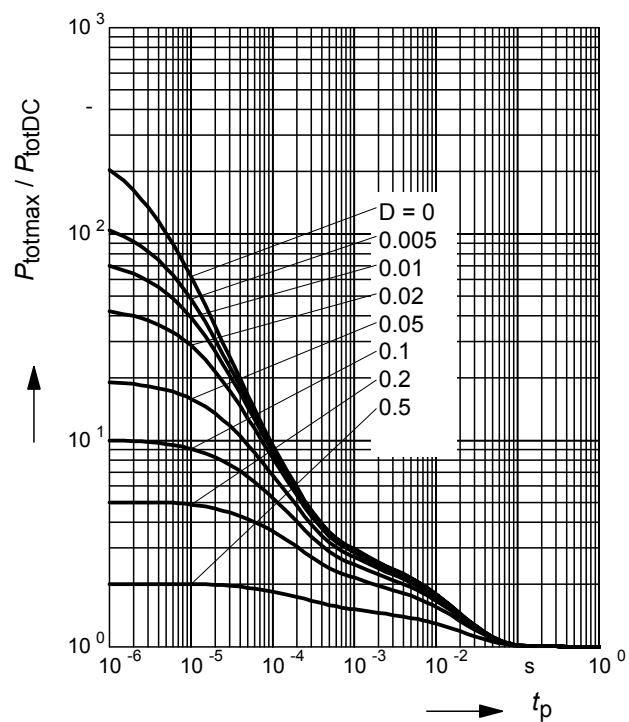
BCR166W



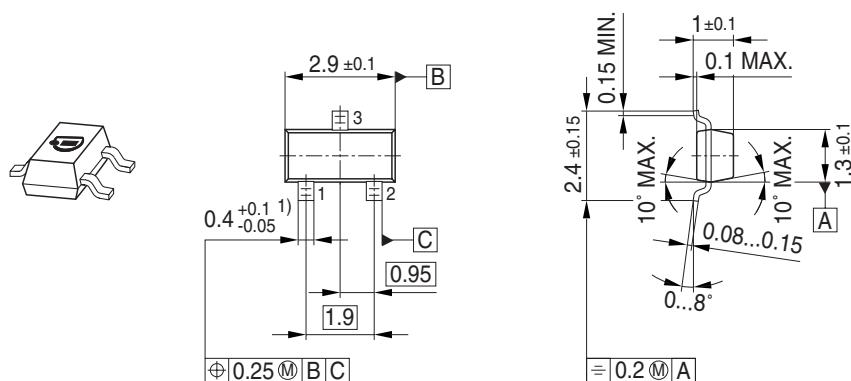
Permissible Pulse Load

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

BCR166W

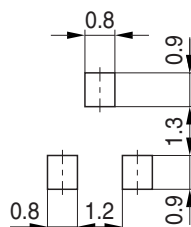


Package Outline

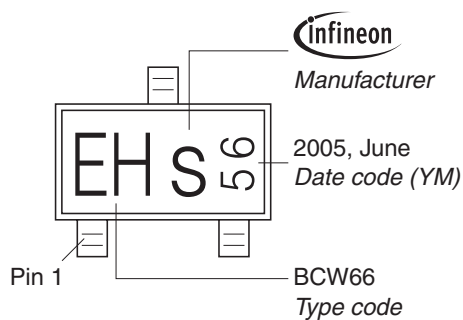


1) Lead width can be 0.6 max. in dambar area

Foot Print

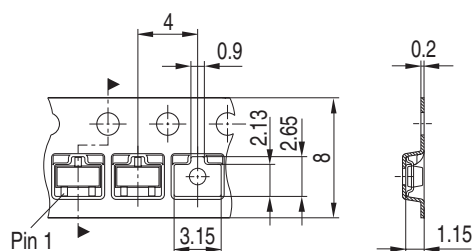


Marking Layout (Example)

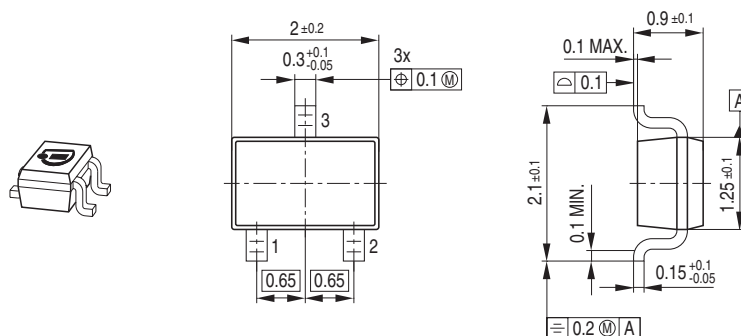


Standard Packing

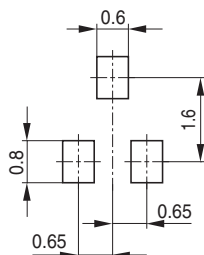
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



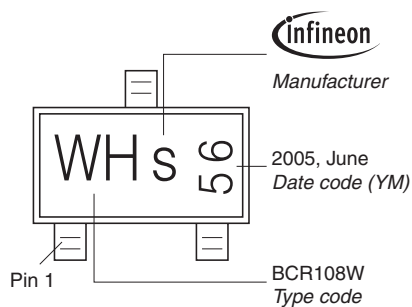
Package Outline



Foot Print

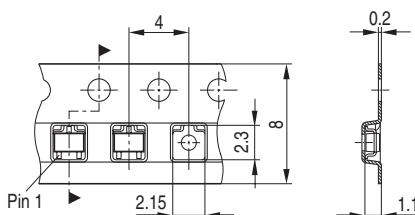


Marking Layout (Example)



Standard Packing

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



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