

NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1=22k\Omega$, $R_2=22k\Omega$)
- BCR141S : Two internally isolated transistors with good matching in one multichip package
- BCR141S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



BCR141 BCR141W



BCR141S



Type	Marking	Pin Configuration						Package
BCR141	WDs	1=B	2=E	3=C	-	-	-	SOT23
BCR141S	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR141W	WDs	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	$V_{i(fwd)}$	60	
Input reverse voltage	$V_{i(rev)}$	10	
Collector current	I_C	100	mA
Total power dissipation- BCR141, $T_S \leq 118^\circ\text{C}$ BCR141S, $T_S \leq 115^\circ\text{C}$ BCR141W, $T_S \leq 124^\circ\text{C}$	P_{tot}	250 250 250	mW
Junction temperature	T_j	150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾ BCR141 BCR141S BCR141W	R_{thJS}	≤ 130 ≤ 90 ≤ 140	K/W

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

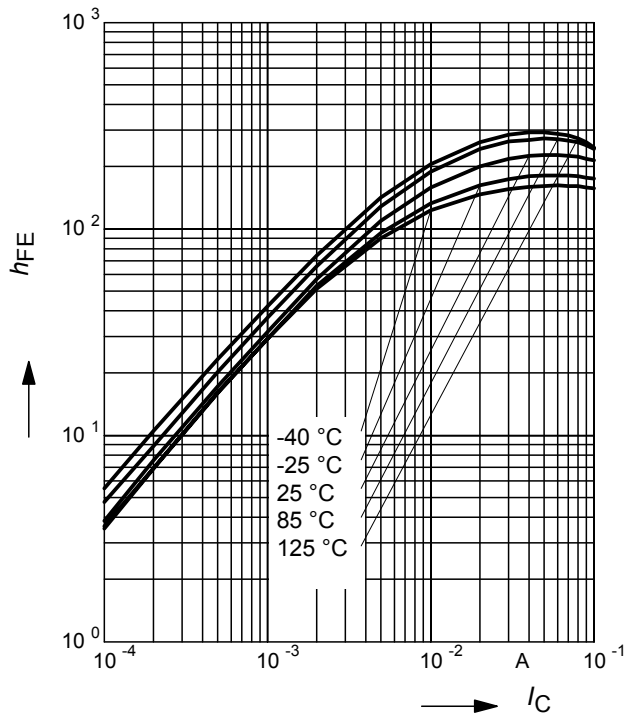
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
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 $V_{\text{CB}} = 40\ \text{V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{\text{EB}} = 10\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	350	μA
DC current gain ¹⁾ $I_C = 5\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$	h_{FE}	50	-	-	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{\text{CE}} = 5\ \text{V}$	$V_{\text{i(off)}}$	0.8	-	1.5	
Input on voltage $I_C = 2\ \text{mA}$, $V_{\text{CE}} = 0.3\ \text{V}$	$V_{\text{i(on)}}$	1	-	2.5	
Input resistor	R_1	15	22	29	k Ω
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
Transition frequency $I_C = 10\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_{T}	-	130	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

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

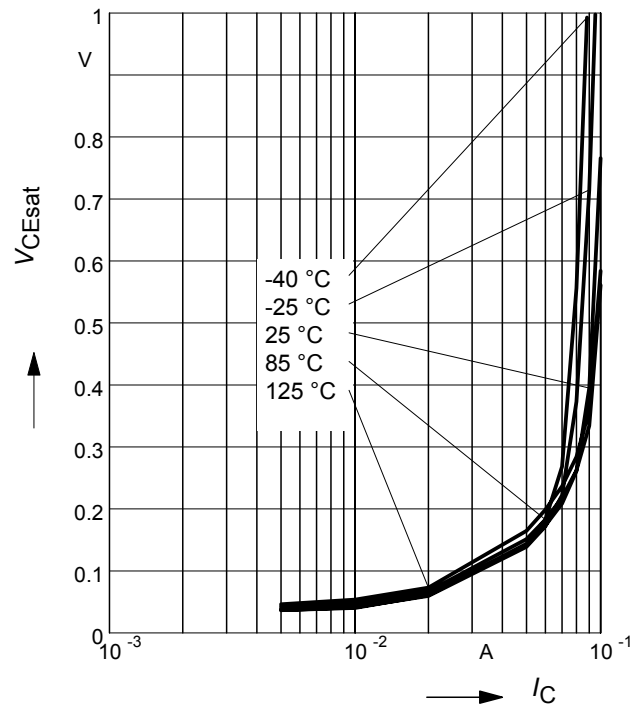
DC current gain $h_{FE} = f(I_C)$

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



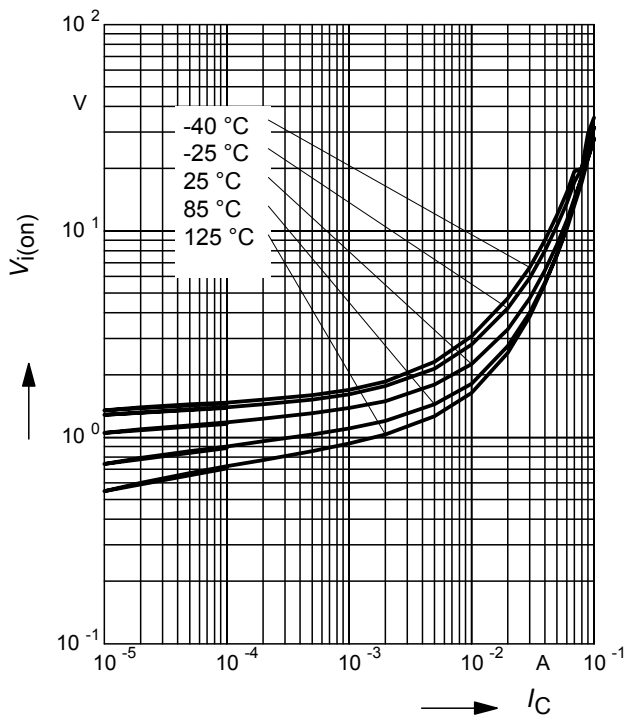
Collector-emitter saturation voltage

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



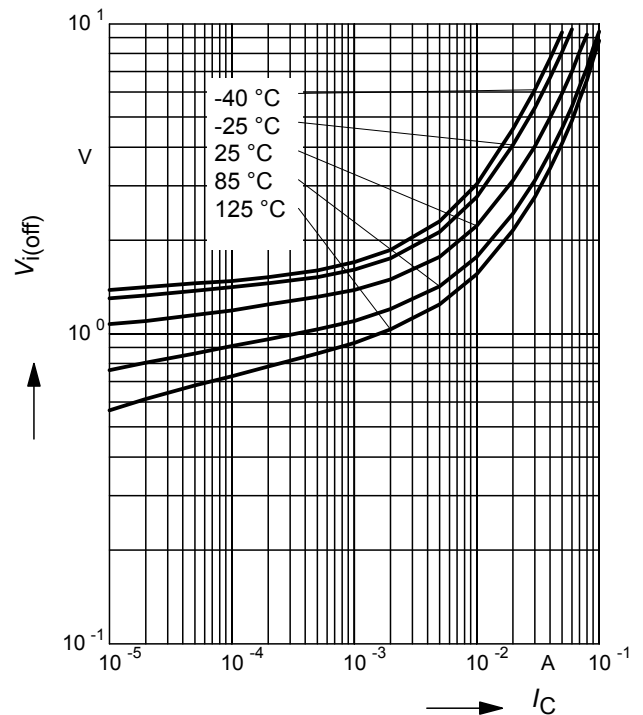
Input on Voltage $V_{i(on)} = f(I_C)$

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



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

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



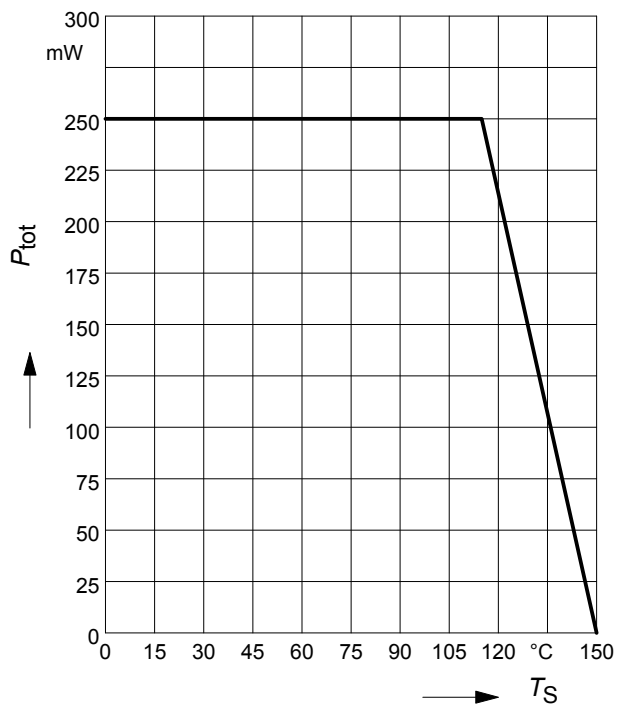
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141



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

BCR141S



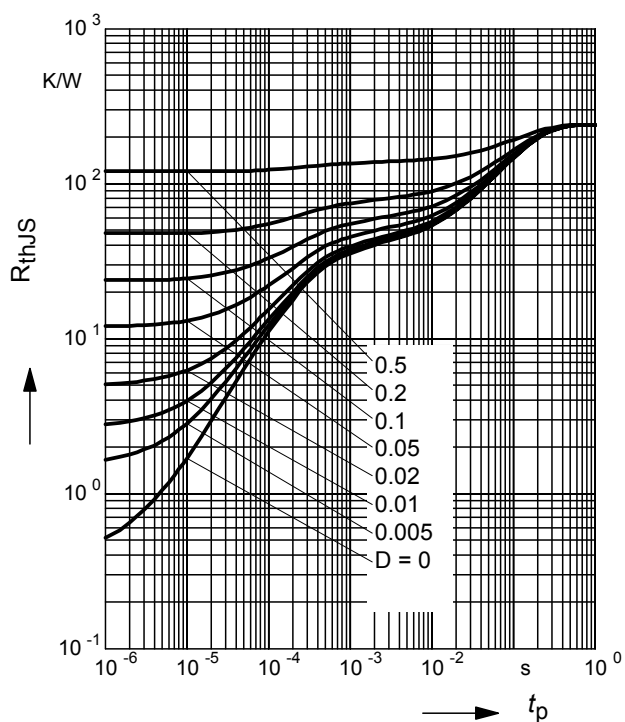
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141W



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

BCR141



Permissible Pulse Load

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

BCR141



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

BCR141S



Permissible Pulse Load

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

BCR141S



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

BCR141W

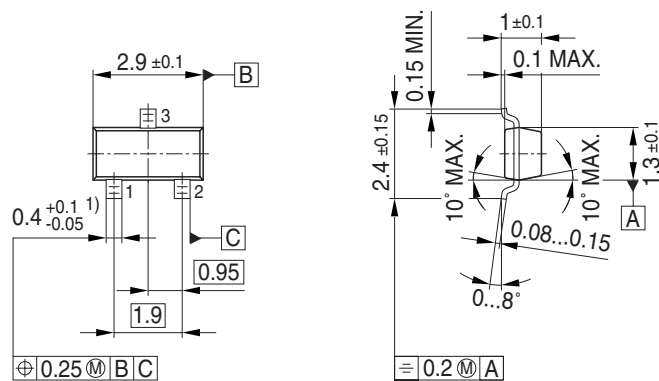


Permissible Pulse Load

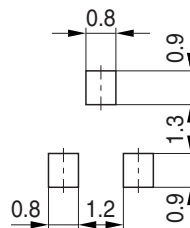
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR141W



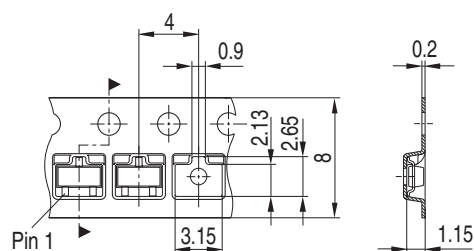


Foot Print



The diagram shows a top-down view of a BCW66 LED package. It is a rectangular component with four pins. The top pin is labeled 'Pin 1'. The package has a central rectangular area containing the text 'EHS' and '2005, June' (Date code (YM)). The Infineon logo is visible in the top right corner. The text 'BCW66' and 'Type code' are located at the bottom right.

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



Package Outline



Foot Print



Marking Layout (Example)

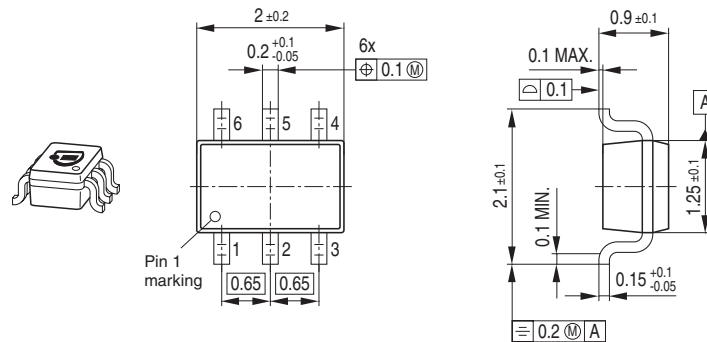


Standard Packing

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



Package Outline

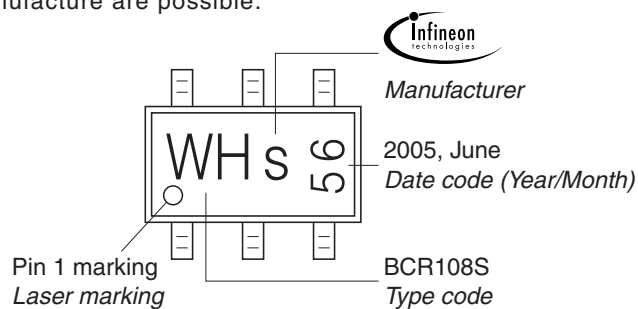


Foot Print



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.



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