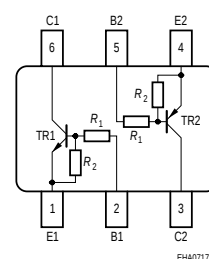
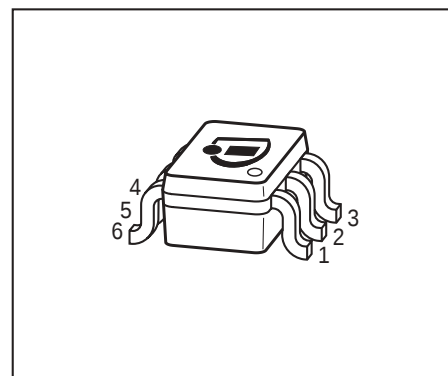
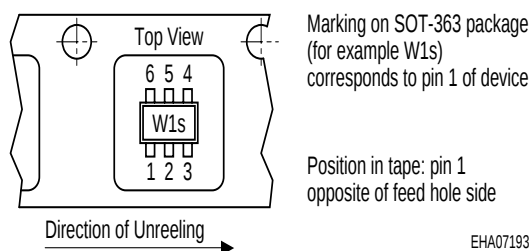


NPN/PNP Silicon Digital Transistor Array

- Switching circuit, inverter, interface circuit, driver circuit
- Two (galvanic) internal isolated NPN/PNP Transistors in one package
- Built in bias resistor NPN and PNP ($R_1=10\text{ k}\Omega$, $R_2=47\text{ k}\Omega$)
- Pb-free (ROHS compliant) package¹⁾
- Qualified according AEC Q101



Tape loading orientation



Type	Marking	Pin Configuration						Package
BCR35PN	WUs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363

Maximum Ratings for NPN and PNP Types

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	$V_{i(rev)}$	6	
DC collector current	I_C	100	mA
Total power dissipation, $T_S = 115\text{ }^\circ\text{C}$	P_{tot}	250	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Junction - soldering point ²⁾	R_{thJS}	≤ 140	K/W
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¹Pb-contain package may be available upon special request

²For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

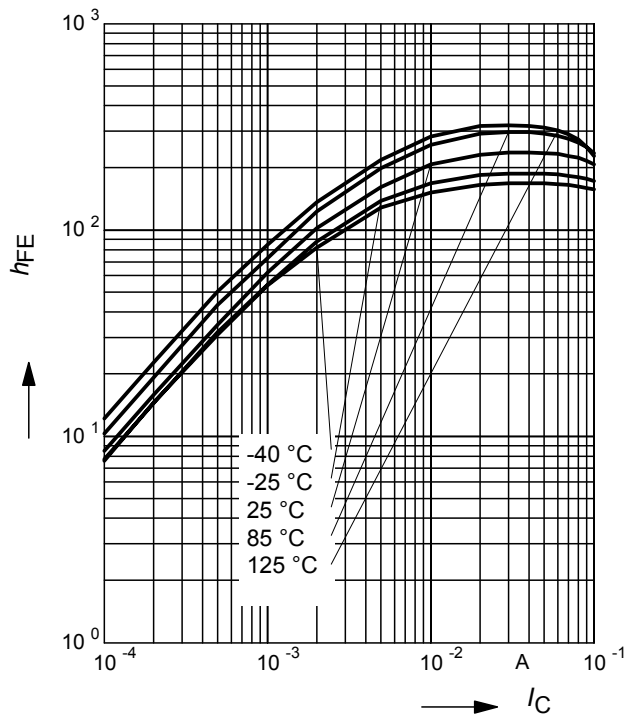
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics for NPN and PNP Types					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}$, $I_B = 0$	$V_{(\text{BR})\text{CEO}}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}$, $I_E = 0$	$V_{(\text{BR})\text{CBO}}$	50	-	-	
Collector cutoff current $V_{\text{CB}} = 40\ \text{V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Emitter cutoff current $V_{\text{EB}} = 6\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	167	μA
DC current gain 1) $I_C = 5\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$	h_{FE}	70	-	-	-
Collector-emitter saturation voltage1) $I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{\text{CE}} = 5\ \text{V}$	$V_{\text{i(off)}}$	0.5	-	1	
Input on Voltage $I_C = 2\ \text{mA}$, $V_{\text{CE}} = 0.3\ \text{V}$	$V_{\text{i(on)}}$	0.5	-	1.4	
Input resistor	R_1	7	10	13	k Ω
Resistor ratio	R_1/R_2	0.19	0.21	0.24	-
AC Characteristics for NPN and PNP Types					
Transition frequency $I_C = 10\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_{T}	-	150	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	2	-	pF

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

NPN Type

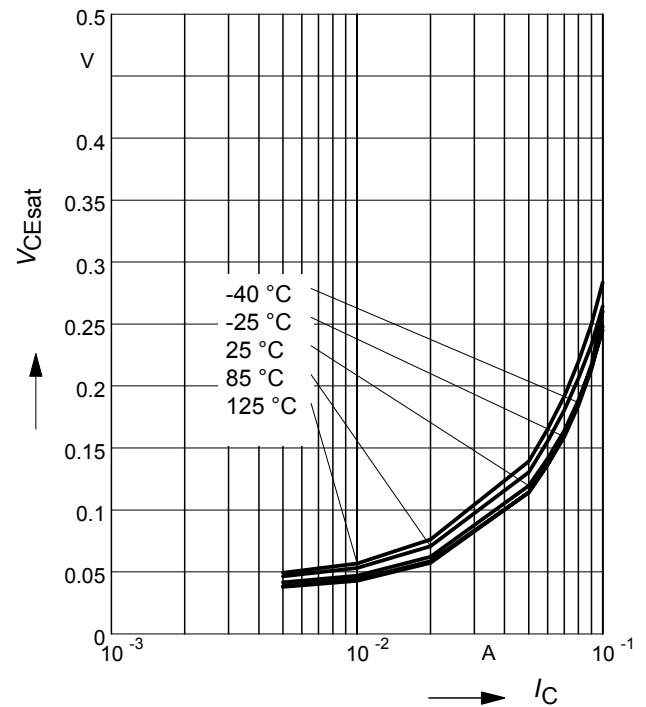
DC Current Gain $h_{FE} = f(I_C)$

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



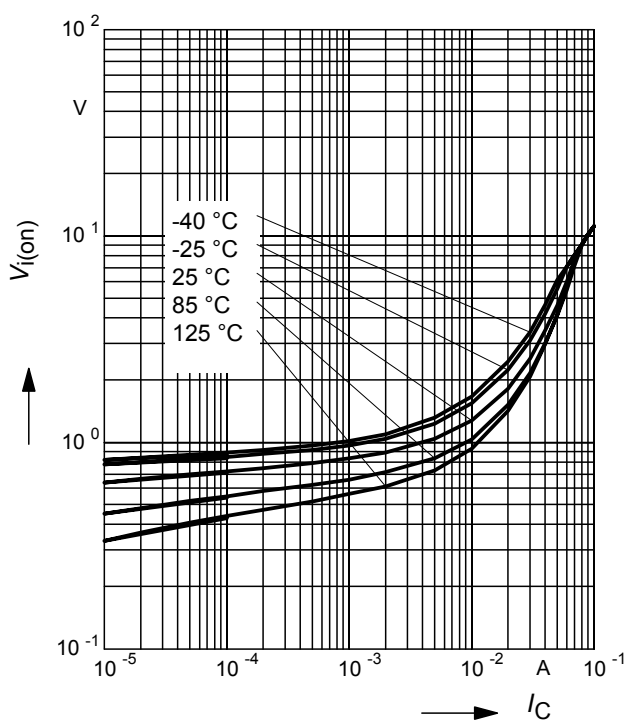
Collector-Emitter Saturation Voltage

$V_{CEsat} = f(I_C), h_{FE} = 20$



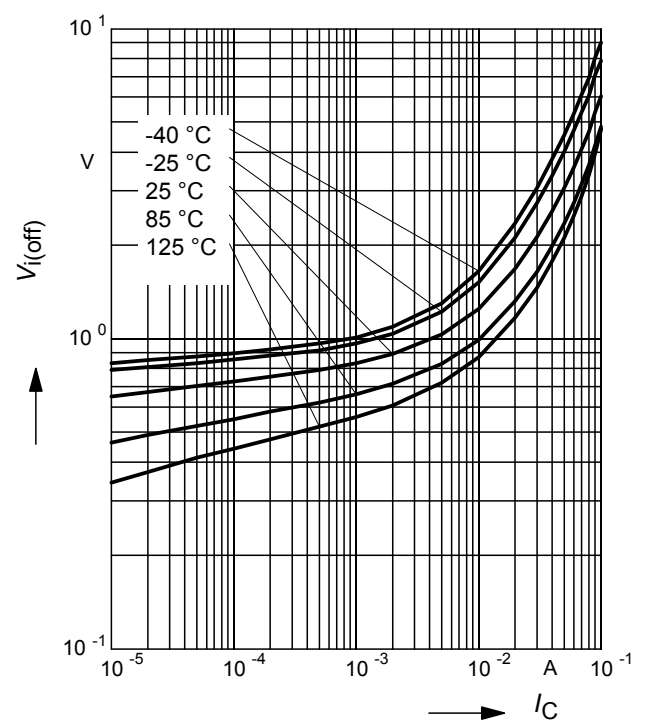
Input on Voltage $V_{i(on)} = f(I_C)$

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



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

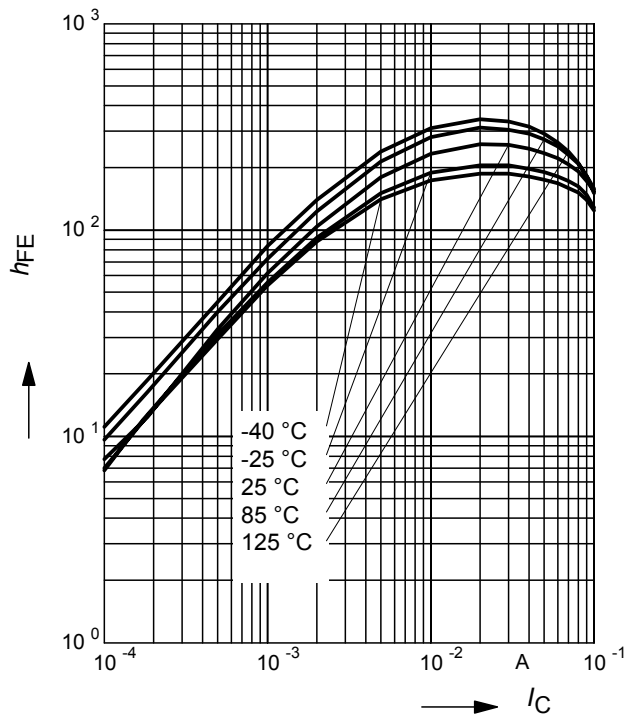
$V_{CE} = 5V$ (common emitter configuration)



PNP Type

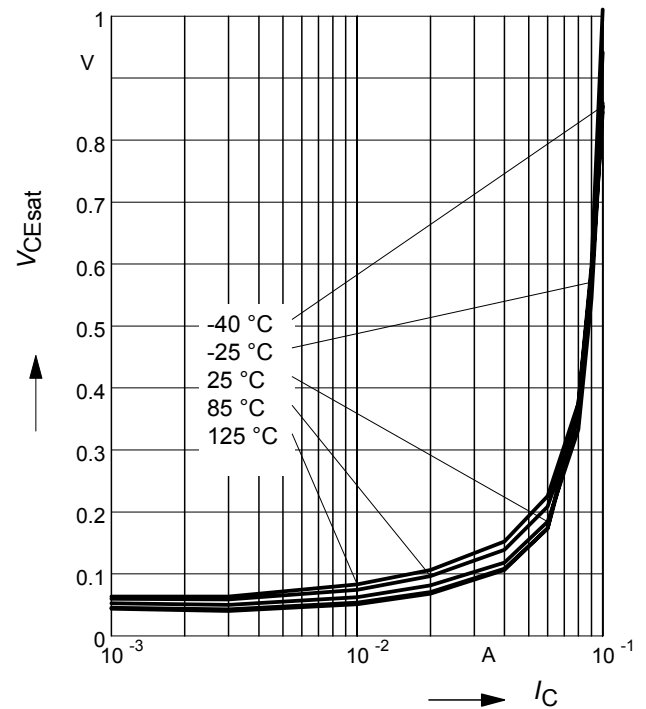
DC Current Gain $h_{FE} = f(I_C)$

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



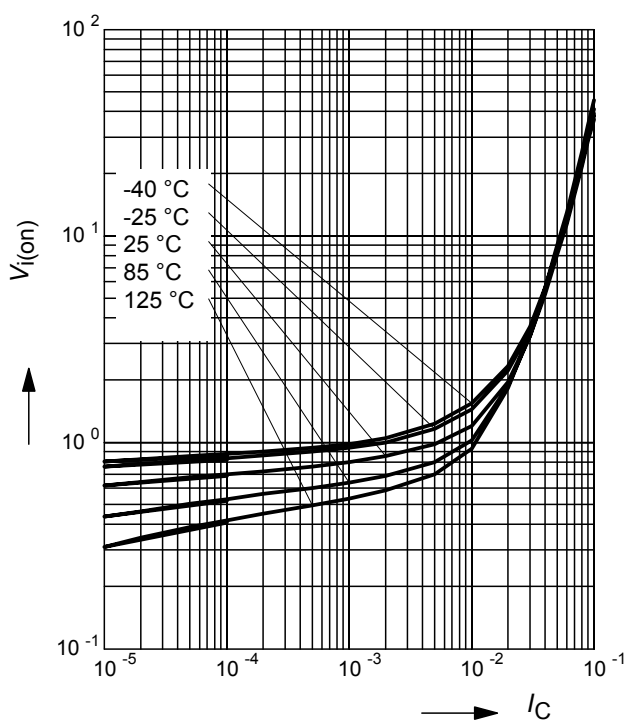
Collector-Emitter Saturation Voltage

$V_{CEsat} = f(I_C), h_{FE} = 20$



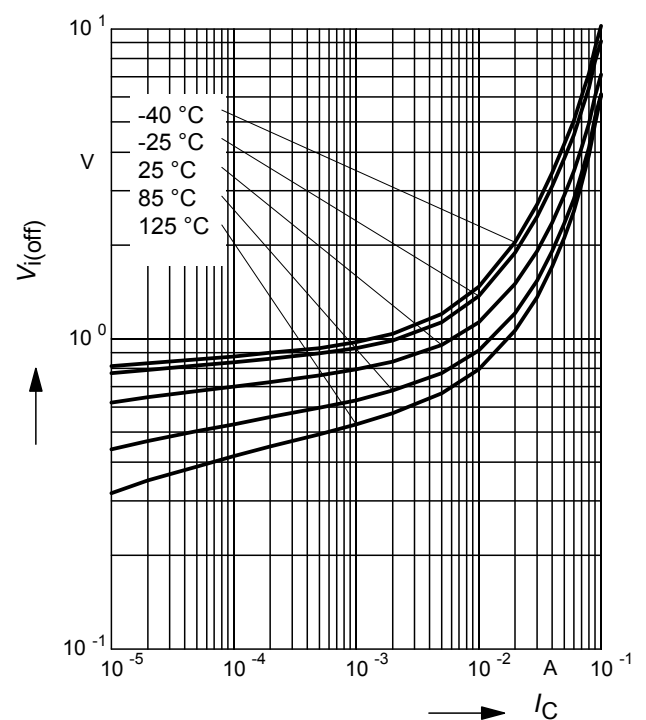
Input on Voltage $V_{i(on)} = f(I_C)$

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

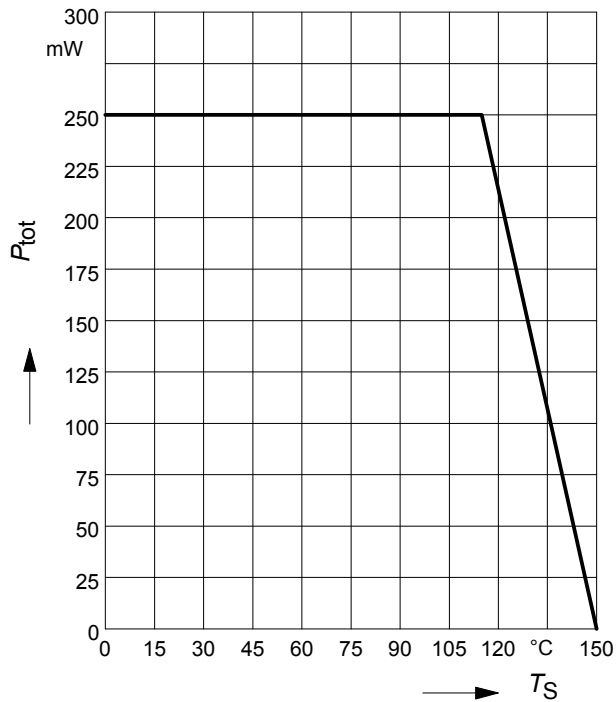


Input off voltage $V_{i(off)} = f(I_C)$

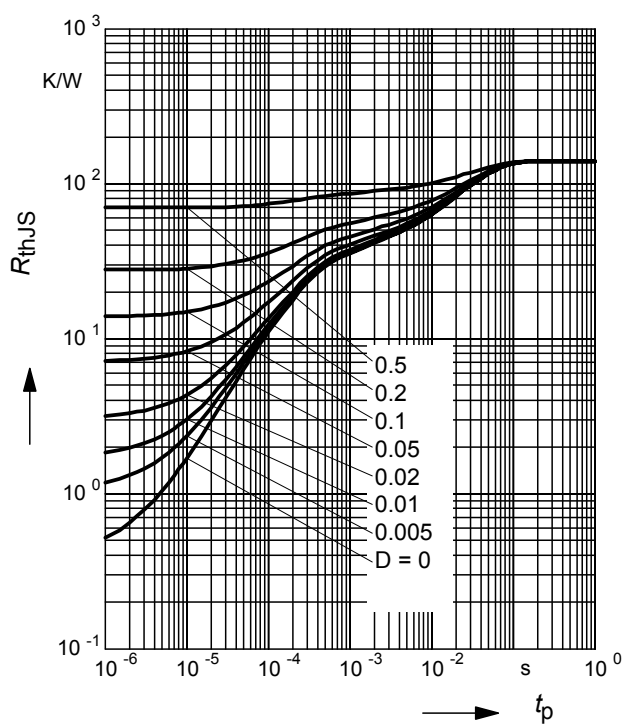
$V_{CE} = 5V$ (common emitter configuration)



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

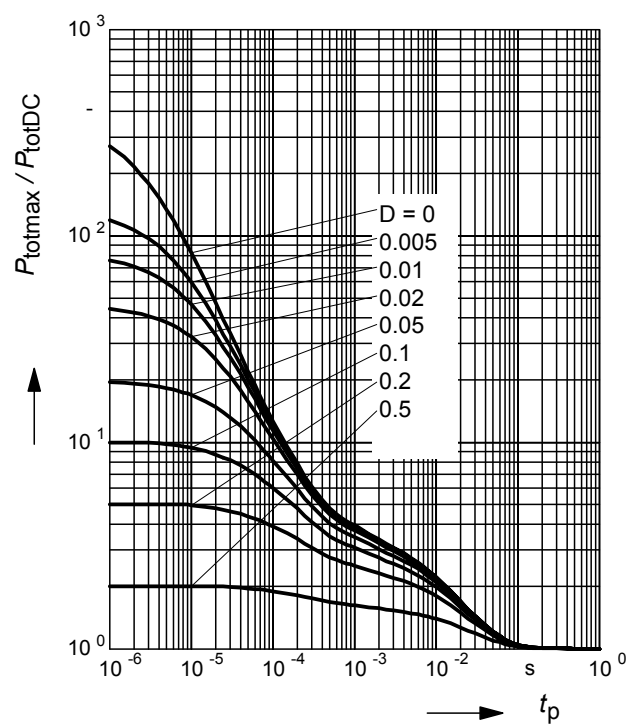


Permissible Pulse Load $R_{\text{thJS}} = f(t_p)$



Permissible Pulse Load

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



Pin 1 marking

6x $\oplus 0.1 \text{ M}$

2.1 ± 0.1

0.1 MIN.

0.15 $^{+0.1}_{-0.05}$

0.9 ± 0.1

0.1 MAX.

1.25 ± 0.1

0.1

0.65 0.65

1 2 3 4 5 6

2.0 ± 0.2

0.2 $^{+0.1}_{-0.05}$

$\text{H} 0.2 \text{ M} \text{ A}$

Diagram illustrating the marking on the BCR108S component:

- Manufacturer:** Infineon Technologies
- Date code (Year/Month):** 2005, June
- Type code:** BCR108S
- Pin 1 marking:** Laser marking (indicated by a circle on the bottom left pin)

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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
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