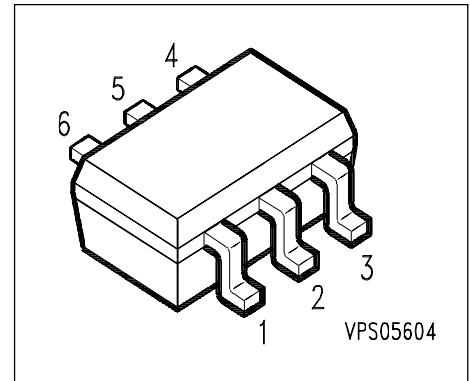
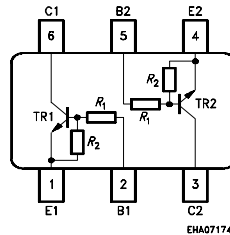


NPN Silicon Digital Transistor Array

- Switching circuit, inverter, interface circuit, driver circuit
- Two (galvanic) internal isolated Transistors in one package
- Built in bias resistors ($R_1=10k\Omega$, $R_2=10k\Omega$)



Type	Marking	Ordering Code	Pin Configuration			Package	
BCR 133S	WCs	Q62702-C2376	1=E1	2=B1	3=C2	4=E2 5=B2 6=C1	SOT-363

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CEO}	50	V
Collector-base voltage	V_{CBO}	50	
Emitter-base voltage	V_{EBO}	10	
Input on Voltage	$V_{i(on)}$	20	
DC collector current	I_C	100	mA
Total power dissipation, $T_S = 115^\circ\text{C}$	P_{tot}	250	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	- 65 ... + 150	

Thermal Resistance

Junction ambient ¹⁾	R_{thJA}	≤ 275	K/W
Junction - soldering point	R_{thJS}	≤ 140	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 0.5cm² Cu

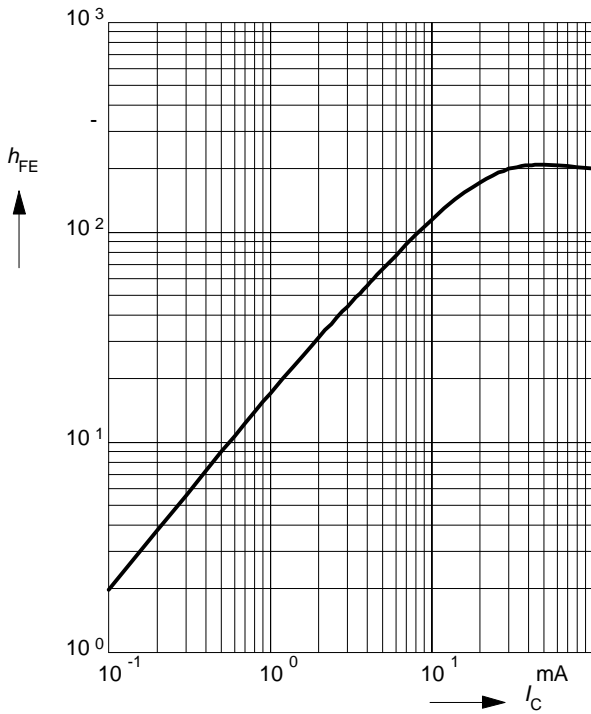
Electrical Characteristics at $T_A=25^\circ\text{C}$, unless otherwise specified

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 $I_C = 10 \mu\text{A}, I_B = 0$	$V_{(BR)CBO}$	50	-	-	
Collector cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
Emitter cutoff current $V_{EB} = 10 \text{ V}, I_C = 0$	I_{EBO}	-	-	0.75	mA
DC current gain $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	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	-	1.5	
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	-	130	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	3	-	pF

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

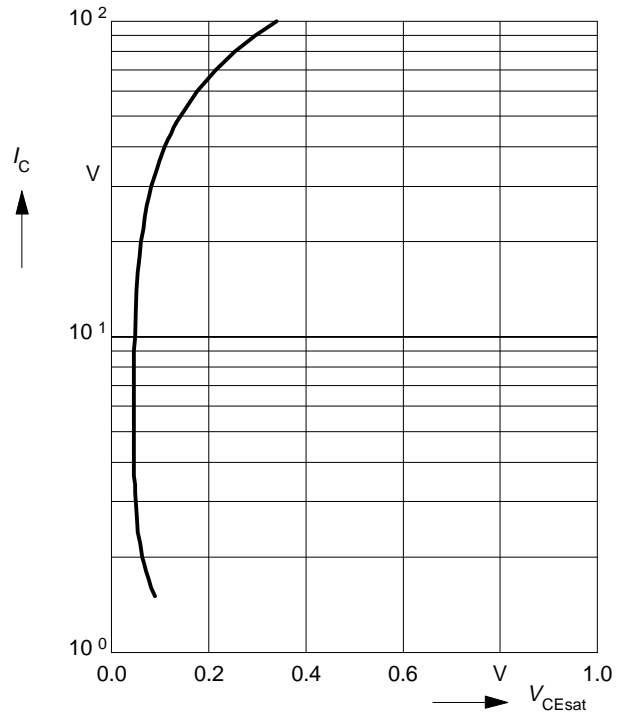
DC Current Gain $h_{FE} = f(I_C)$

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



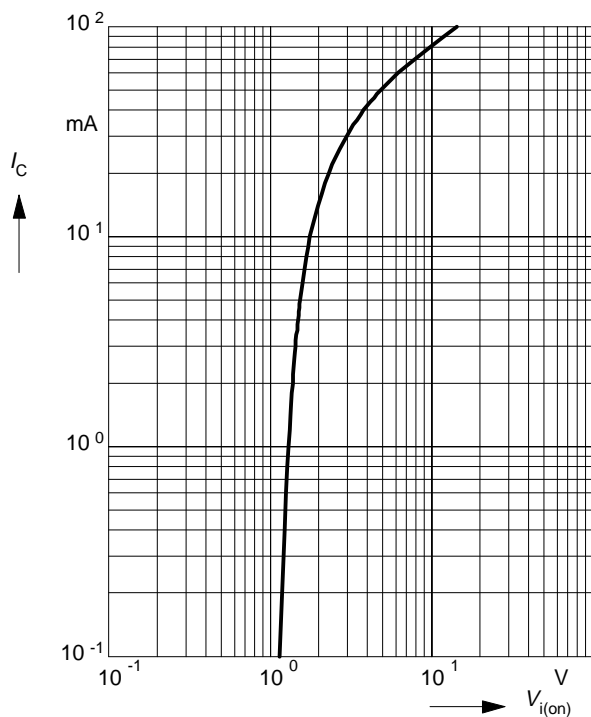
Collector-Emitter Saturation Voltage

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



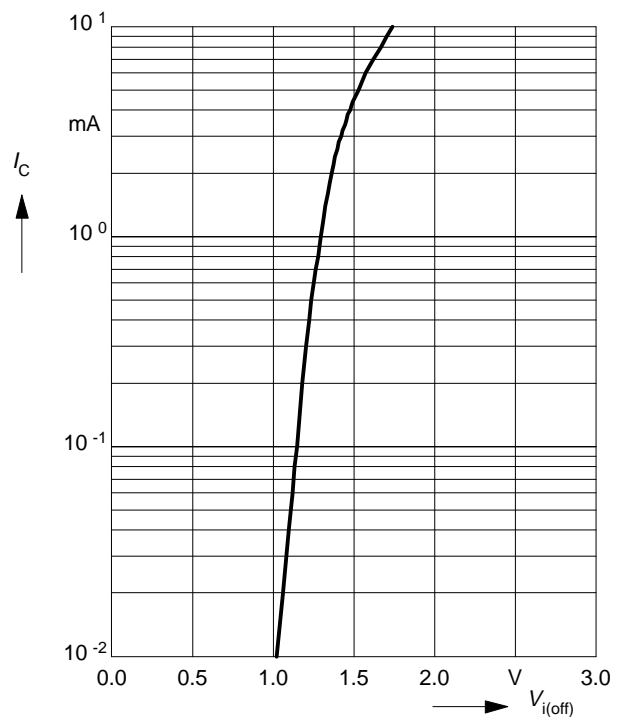
Input on Voltage $V_{i(on)} = f(I_C)$

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



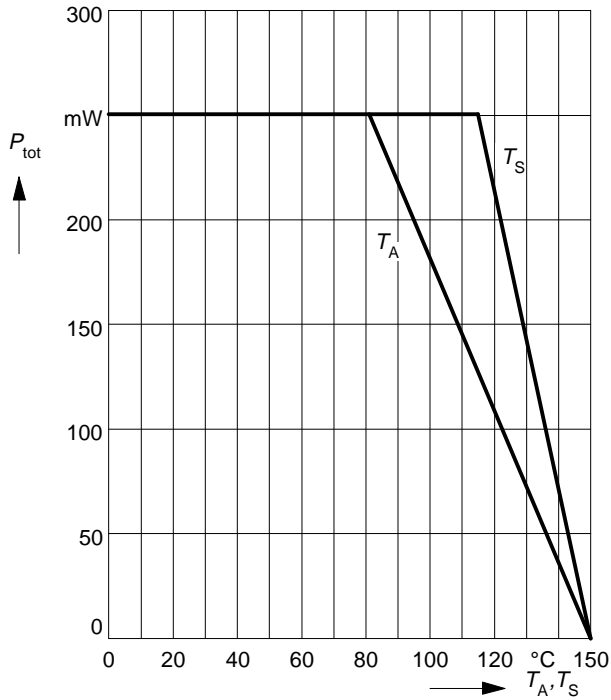
Input off voltage $V_{i(off)} = f(I_C)$

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

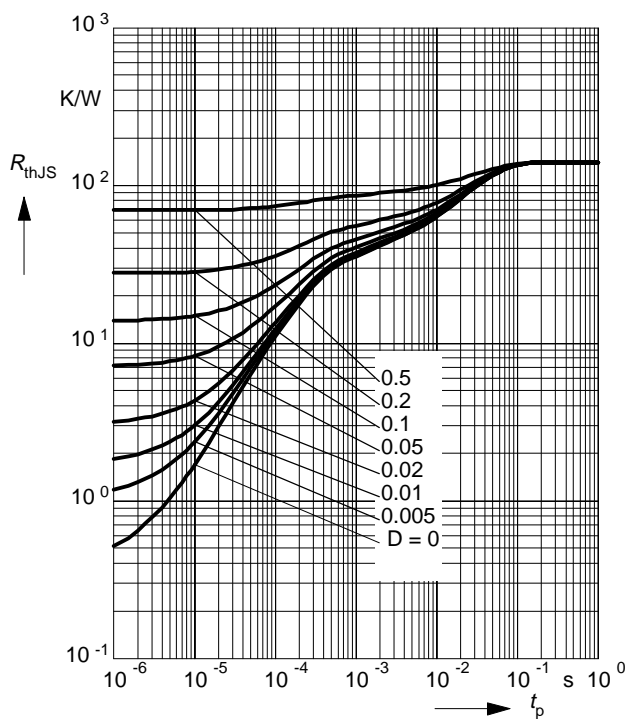


Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy



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



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

