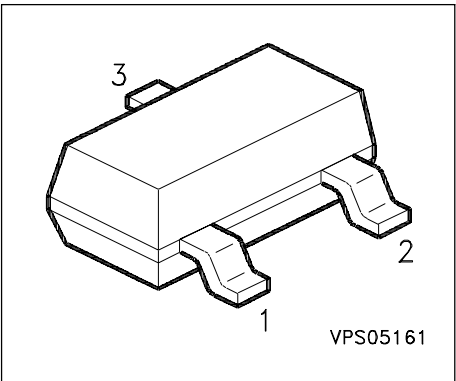
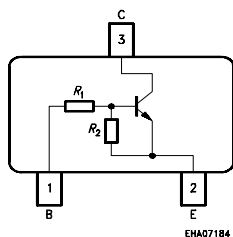


NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, drive circuit
- Built in bias resistor ($R_1=2.2k\Omega$, $R_2=2.2k\Omega$)



Type	Marking	Ordering Code	Pin Configuration			Package
BCR 503	XAs	Q62702-C2370	1 = B	2 = E	3 = C	SOT-23

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	$V_{i(on)}$	12	
DC collector current	I_C	500	mA
Total power dissipation, $T_S = 79\text{ °C}$	P_{tot}	330	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	- 65 ... + 150	

Thermal Resistance

Junction ambient ¹⁾	R_{thJA}	≤ 325	K/W
Junction - soldering point	R_{thJS}	≤ 215	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 6cm² Cu

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

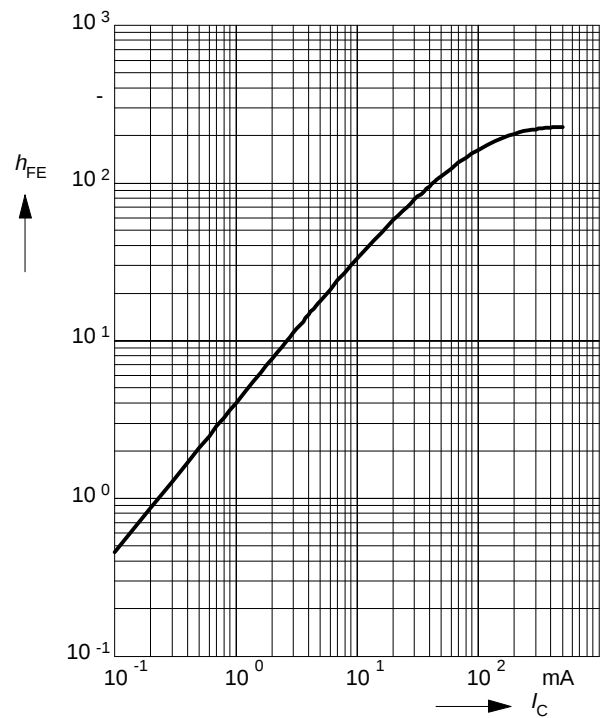
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}$, $I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}$, $I_B = 0$	$V_{(BR)CBO}$	50	-	-	
Collector cutoff current $V_{CB} = 40\ \text{V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Emitter cutoff current $V_{EB} = 10\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	3.5	mA
DC current gain $I_C = 50\ \text{mA}$, $V_{CE} = 5\ \text{V}$	h_{FE}	40	-	-	-
Collector-emitter saturation voltage 1) $I_C = 50\ \text{mA}$, $I_B = 2.5\ \text{mA}$	V_{CEsat}	-	-	0.3	mV
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{CE} = 5\ \text{V}$	$V_{i(off)}$	0.6	-	1.5	V
Input on Voltage $I_C = 10\ \text{mA}$, $V_{CE} = 0.3\ \text{V}$	$V_{i(on)}$	1	-	1.8	
Input resistor	R_1	1.5	2.2	2.9	k Ω
Resistor ratio	R_1/R_2	0.9	1	1.1	-

AC Characteristics

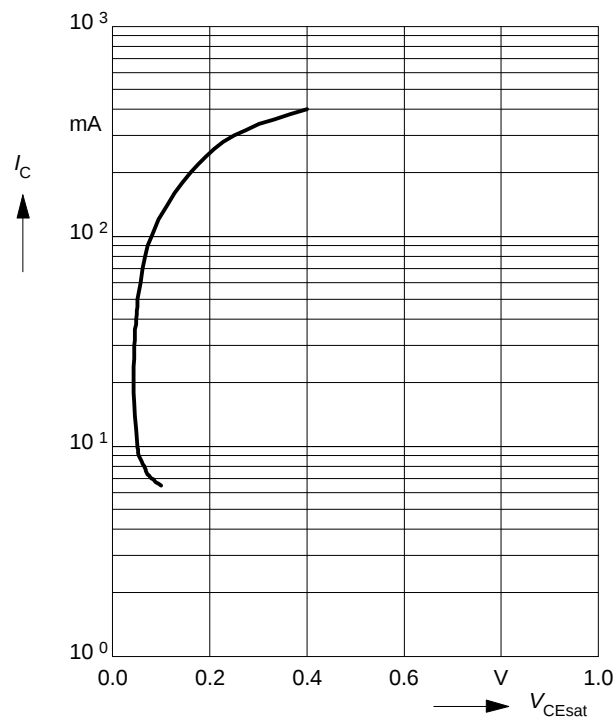
Transition frequency $I_C = 50\ \text{mA}$, $V_{CE} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_T	-	100	-	MHz
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1) Pulse test: $t < 300\ \mu\text{s}$; $D < 2\%$

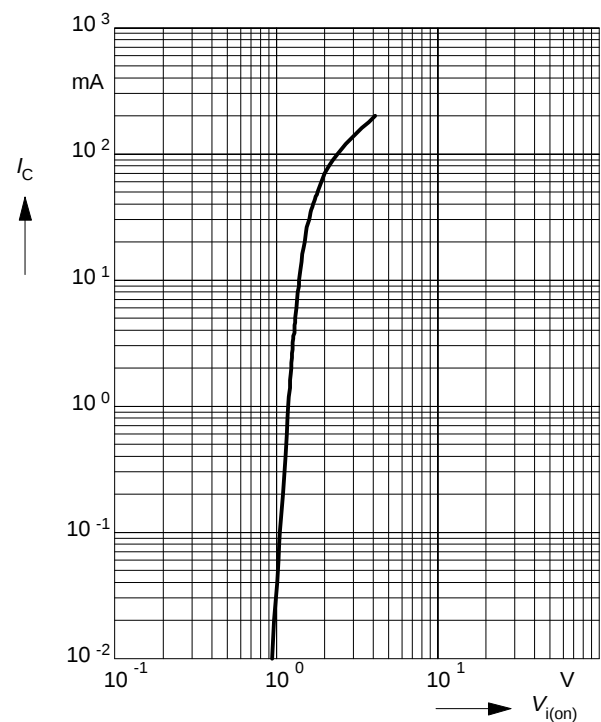
DC Current Gain $h_{FE} = f(I_C)$
 $V_{CE} = 5V$ (common emitter configuration)



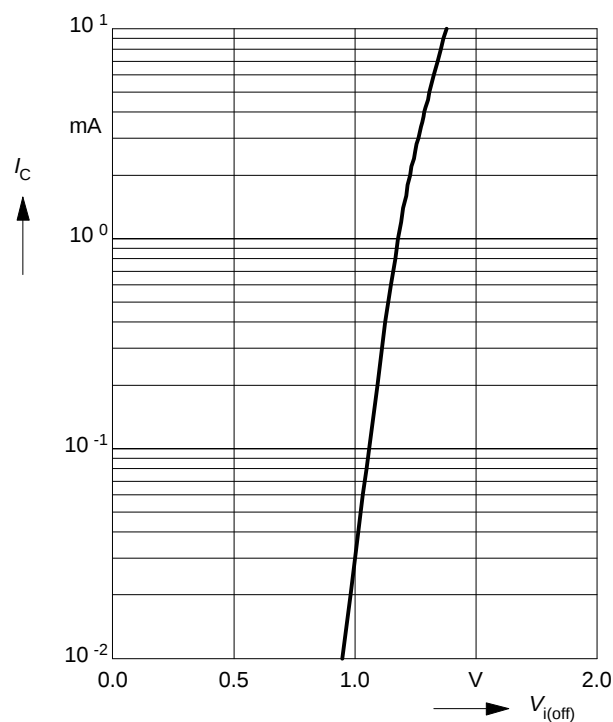
Collector-Emitter Saturation Voltage
 $V_{CEsat} = f(I_C), h_{FE} = 20$



Input on Voltage $V_{i(on)} = f(I_C)$
 $V_{CE} = 0.3V$ (common emitter configuration)

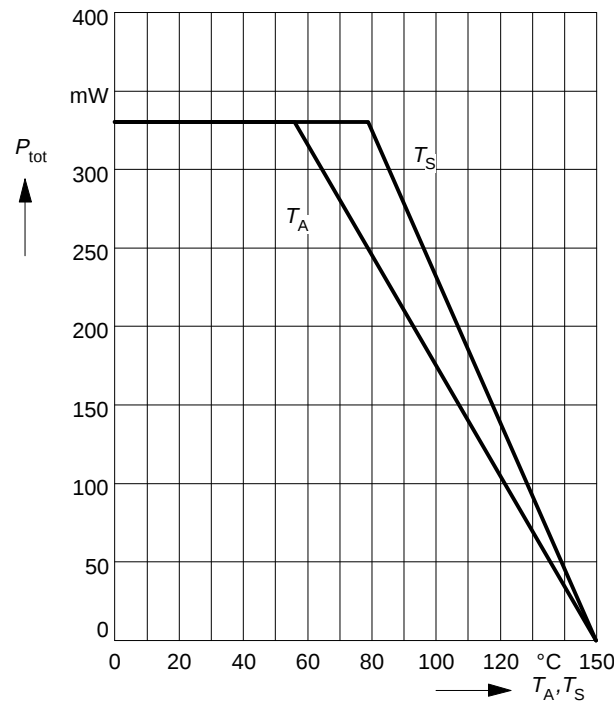


Input off voltage $V_{i(off)} = f(I_C)$
 $V_{CE} = 5V$ (common emitter configuration)

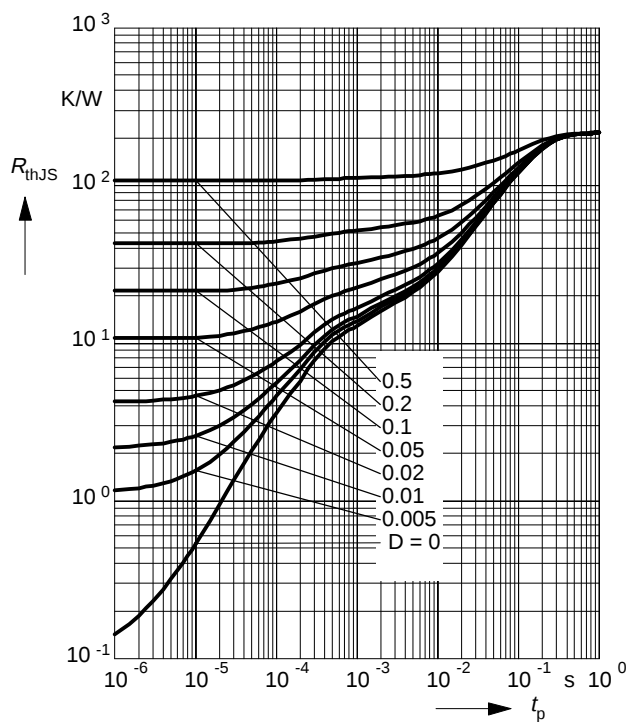


Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

* Package mounted on epoxy



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



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

