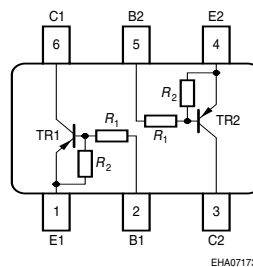
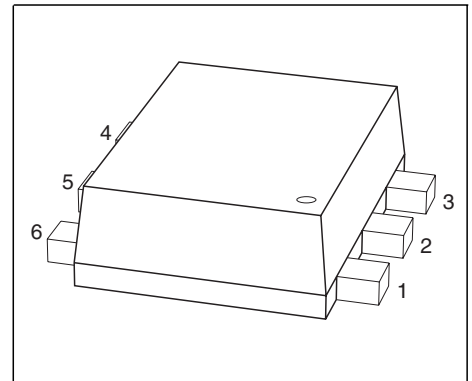


## PNP Silicon Digital Transistor Array

### Preliminary data

- Switching circuit, inverter, interface circuit, driver circuit
- Two ( galvanic) internal isolated Transistors with good matching in one package
- Built in bias resistor ( $R_1=47k\Omega$ ,  $R_2=47k\Omega$ )



Type	Marking	Pin Configuration						Package
SEMB2	WR	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT666

### Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$	50	V
Collector-base voltage	$V_{CBO}$	50	
Emitter-base voltage	$V_{EBO}$	10	
Input on Voltage	$V_{i(on)}$	50	
DC collector current	$I_C$	70	mA
Total power dissipation, $T_S = 75^\circ\text{C}$	$P_{tot}$	250	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

### Thermal Resistance

Junction - soldering point <sup>1)</sup>	$R_{thJS}$	$\leq 300$	K/W
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<sup>1)</sup>For 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					
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 $V_{\text{CB}} = 40\ \text{V}$ , $I_E = 0$	$I_{\text{CBO}}$	-	-	100	nA
Emitter cutoff current $V_{\text{EB}} = 10\ \text{V}$ , $I_C = 0$	$I_{\text{EBO}}$	-	-	164	$\mu\text{A}$
DC current gain 1) $I_C = 5\ \text{mA}$ , $V_{\text{CE}} = 5\ \text{V}$	$h_{\text{FE}}$	70	-	-	-
Collector-emitter saturation voltage1) $I_C = 10\ \text{mA}$ , $I_B = 0.5\ \text{mA}$	$V_{\text{CEsat}}$	-	-	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	-	3	
Input resistor	$R_1$	32	47	62	k $\Omega$
Resistor ratio	$R_1/R_2$	0.9	1	1.1	-

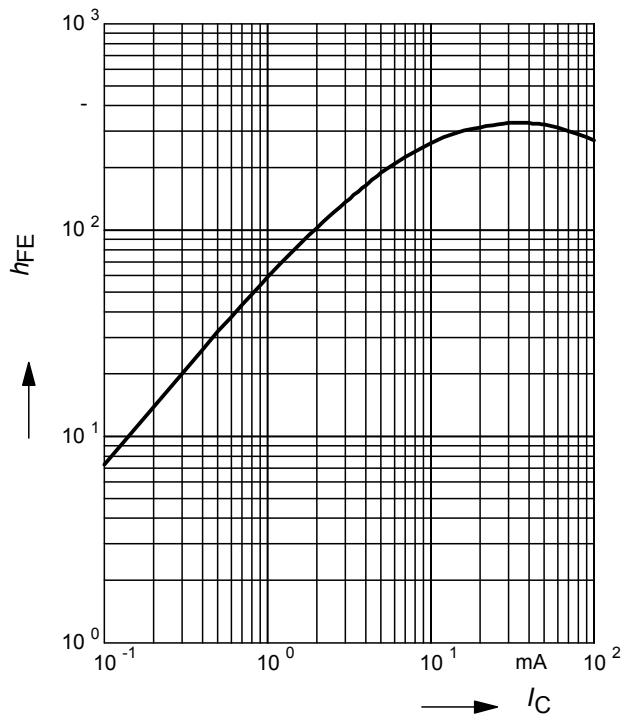
**AC Characteristics**

Transition frequency $I_C = 10\ \text{mA}$ , $V_{CE} = 5\ \text{V}$ , $f = 100\ \text{MHz}$	$f_T$	-	190	-	MHz
Collector-base capacitance $V_{CB} = 10\ \text{V}$ , $f = 1\ \text{MHz}$	$C_{cb}$	-	3	-	pF

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

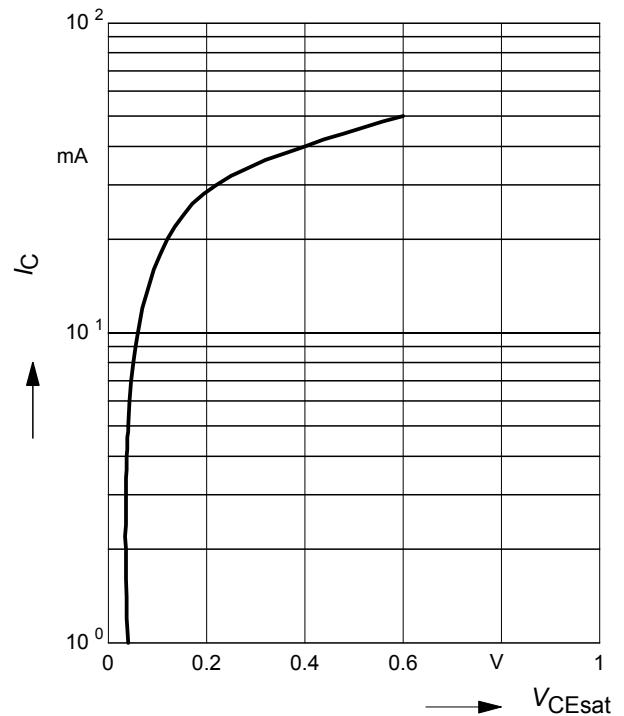
### DC Current Gain $h_{FE} = f(I_C)$

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



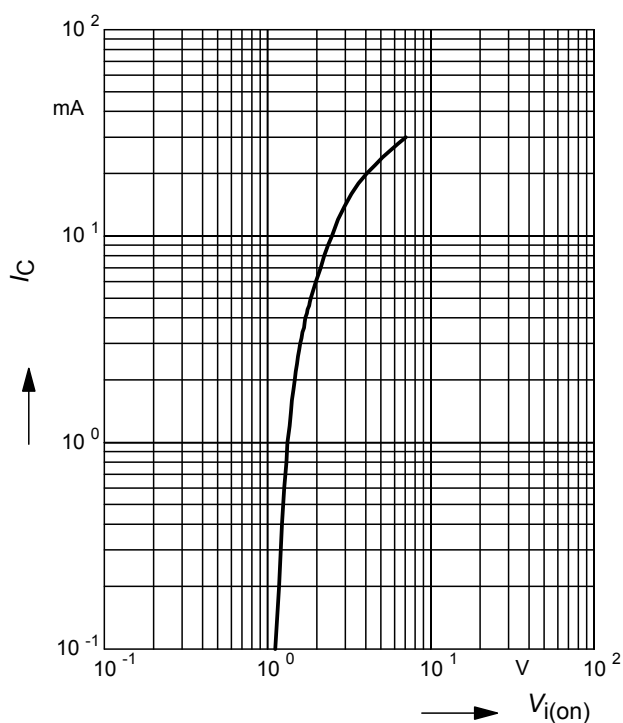
### Collector-Emitter Saturation Voltage

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



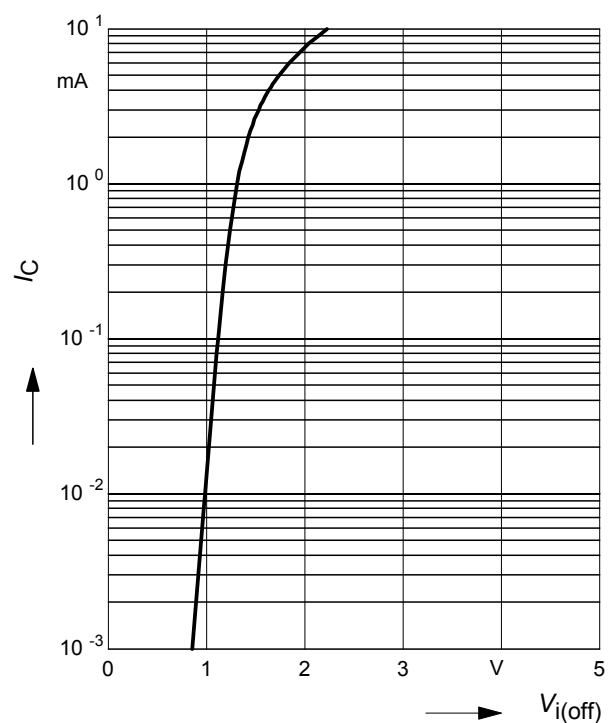
### Input on Voltage $V_{i(on)} = f(I_C)$

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

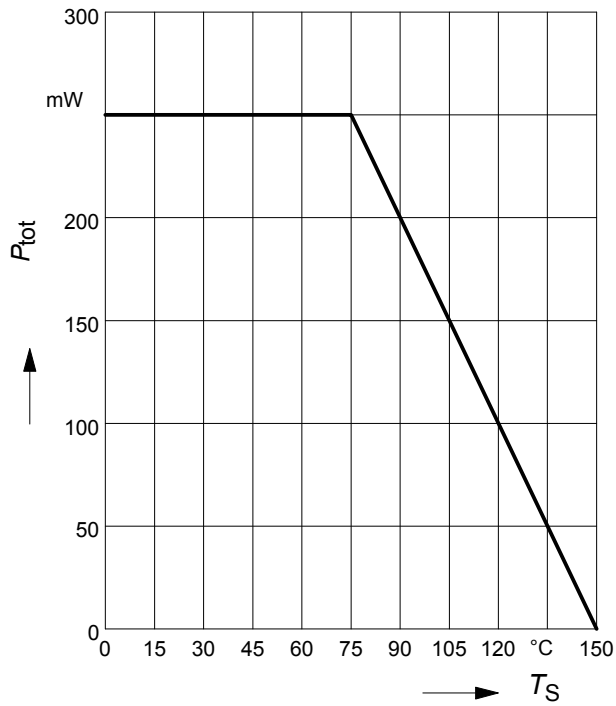


### Input off voltage $V_{i(off)} = f(I_C)$

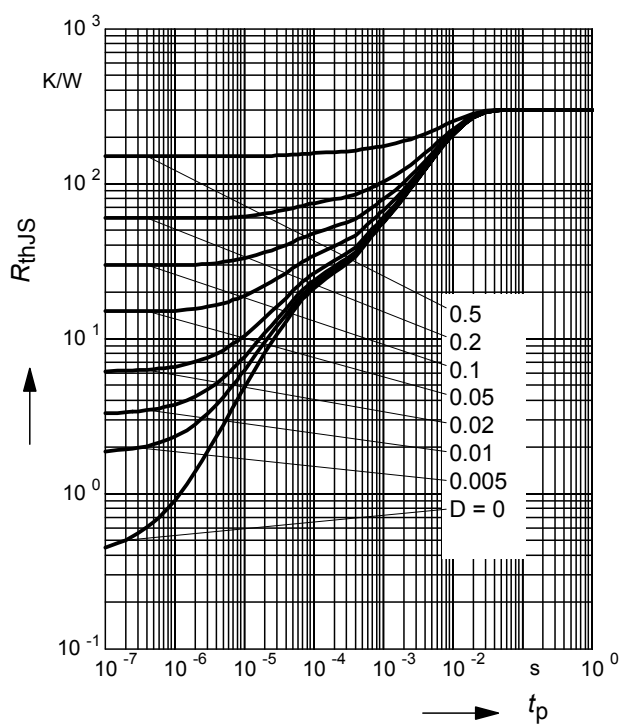
$V_{CE} = 5V$  (common emitter configuration)



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



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



**Permissible Pulse Load**

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

