

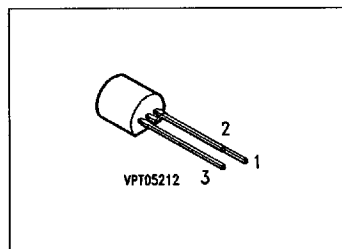
SIEMENS

SIEMENS AKTIENGESELLSCHAFT

T-29-21

NPN Silicon AF Transistors**BC 182****BC 183**

- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BC 212, BC 213 (PNP)



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BC 182	—	Q62702-C455	C	B	E	TO-92
BC 182 A		Q62702-C372				
BC 182 B		Q62702-C373				
BC 183		Q62702-C833				
BC 183 A		Q62702-C388				
BC 183 B		Q62702-C387				
BC 183 C		Q62702-C524				

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values		Unit
		BC 182	BC 183	
Collector-emitter voltage	V_{CE0}	50	30	V
Collector-base voltage	V_{CB0}	60	45	
Emitter-base voltage	V_{EB0}	6		
Collector current	I_C	100		mA
Peak collector current	I_{CM}	200		
Peak base current	I_{BM}	200		
Peak emitter current	I_{EM}	200		
Total power dissipation, $T_C = 70\text{ }^{\circ}\text{C}$	P_{tot}	500		mW
Junction temperature	T_j	150		$^{\circ}\text{C}$
Storage temperature range	T_{stg}	− 65 ... + 150		

Thermal Resistance

Junction - ambient	$R_{th JA}$	≤ 250	K/W
Junction - case ¹⁾	$R_{th JC}$	≤ 160	

¹⁾ Mounted on Al-heat sink 15 mm × 25 mm × 0.5 mm.

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Collector-emitter breakdown voltage $I_C = 2\text{ mA}$	$V_{(BR)CEO}$				V
BC 182		50	—	—	
BC 183		30	—	—	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CB0}$				
BC 182		60	—	—	
BC 183		45	—	—	
Emitter-base breakdown voltage $I_E = 1\text{ }\mu\text{A}$	$V_{(BR)EB0}$	6	—	—	
Collector cutoff current $V_{CB} = 50\text{ V}$ $V_{CB} = 50\text{ V}, T_A = 150^\circ\text{C}$	I_{CB0}	— —	— —	15 4	nA μA
DC current gain $I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	h_{FE}				—
BC 182 A, BC 183 A		—	90	—	
BC 182 B, BC 183 B		—	150	—	
BC 183 C		—	270	—	
$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$					
BC 182 A, BC 183 A		110	180	220	
BC 182 B, BC 183 B		200	290	450	
BC 183 C		420	520	800	
Collector-emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}; I_B = 5\text{ mA}$	V_{CEsat}	— —	75 200	250 600	mV
Base-emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}; I_B = 5\text{ mA}$	V_{BEsat}	— —	700 900	— —	
Base-emitter voltage $I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$ $I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	$V_{BE(on)}$	580 —	660 —	700 770	

¹⁾ Pulse test: $t \leq 300\text{ }\mu\text{s}, D \leq 2\%$.

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

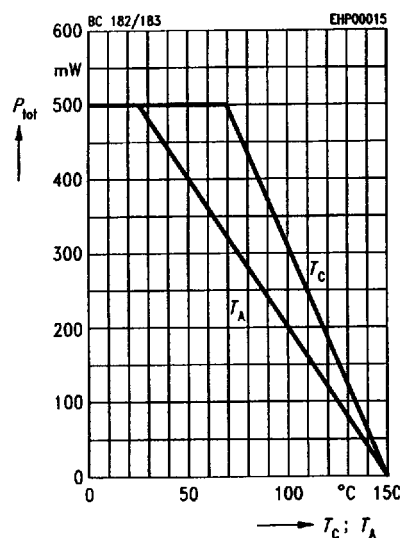
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

AC characteristics

Transition frequency $I_C = 20\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 100\text{ MHz}$	f_T	—	200	—	MHz
Output capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{obo}	—	3	—	pF
Input capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{ibo}	—	8	—	
Short-circuit input impedance $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$ BC 182 A, BC 183 A BC 182 B, BC 183 B BC 183 C	h_{11e}	— — —	2.7 4.5 8.7	— — —	k Ω
Open-circuit reverse voltage transfer ratio $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$ BC 182 A, BC 183 A BC 182 B, BC 183 B BC 183 C	h_{12e}	— — —	1.5 2 3	— — —	10^{-4}
Short-circuit forward current transfer ratio $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$ BC 182 A, BC 183 A BC 182 B, BC 183 B BC 183 C	h_{21e}	— — —	200 330 600	— — —	—
Open-circuit output admittance $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$ BC 182 A, BC 183 A BC 182 B, BC 183 B BC 183 C	h_{22e}	— — —	18 30 60	— — —	μS
Noise figure $I_C = 0.2\text{ mA}$, $V_{CE} = 5\text{ V}$, $R_S = 2\text{ k}\Omega$ $f = 1\text{ kHz}$, $\Delta f = 200\text{ Hz}$	F	—	2	—	dB

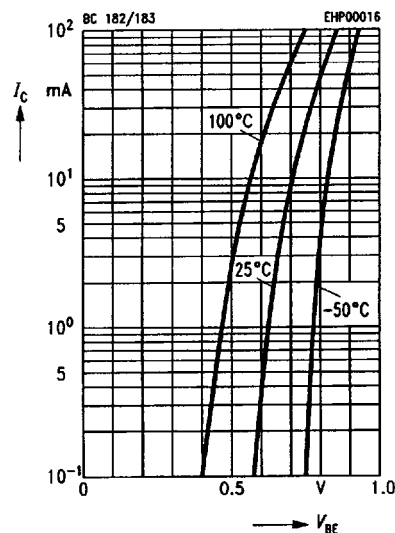
For characteristic curves refer to BC 546 ... BC 550

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

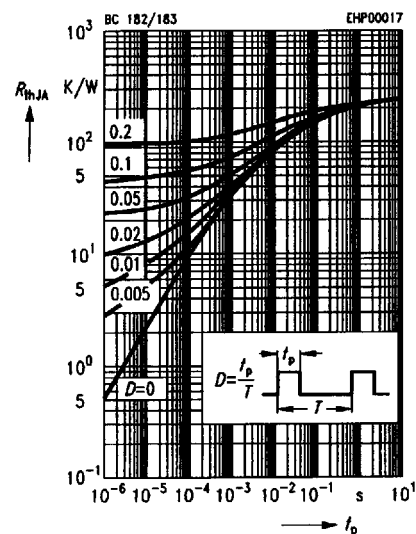


Collector current $I_C = f(V_{BE})$

$V_{CE} = 5 \text{ V}$

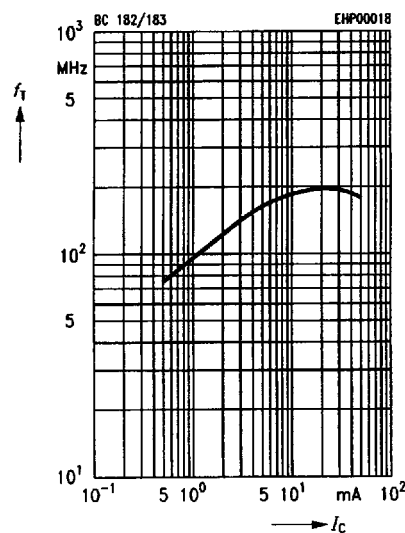


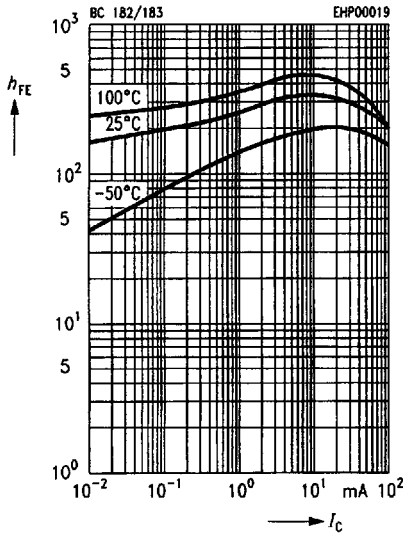
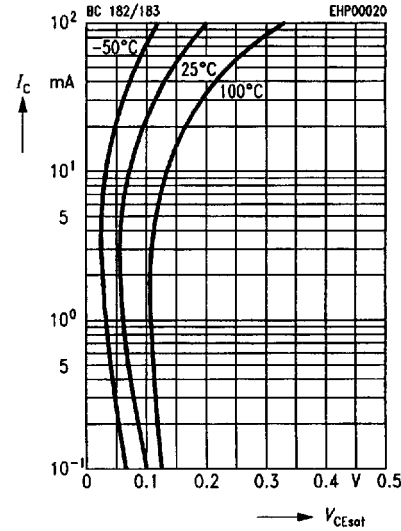
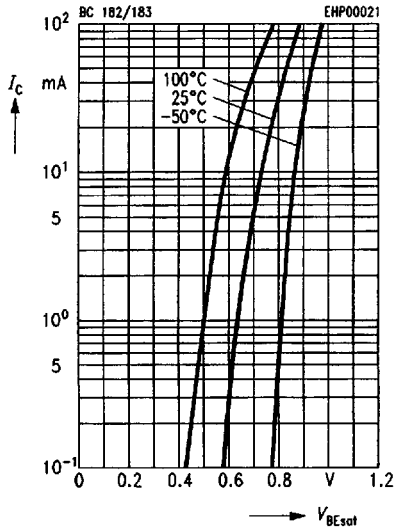
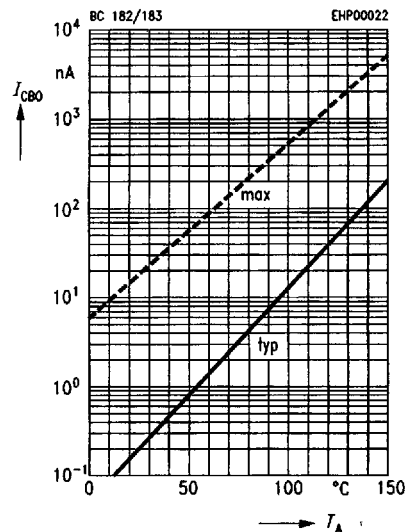
Permissible pulse load $R_{\text{thJA}} = f(t_p)$

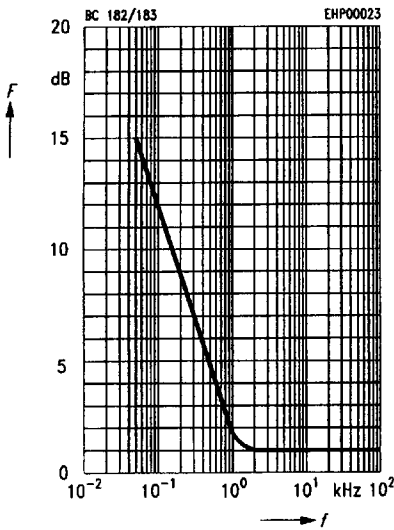
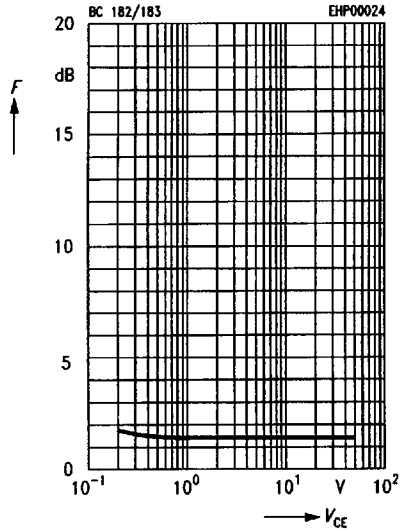
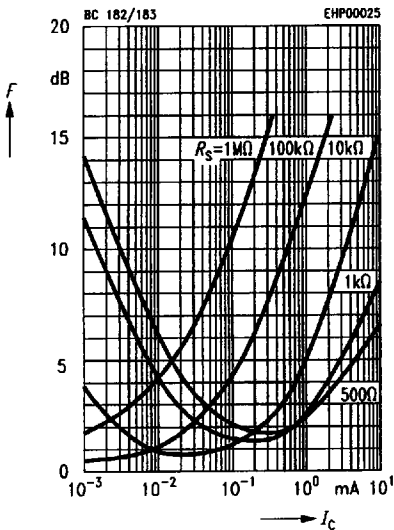
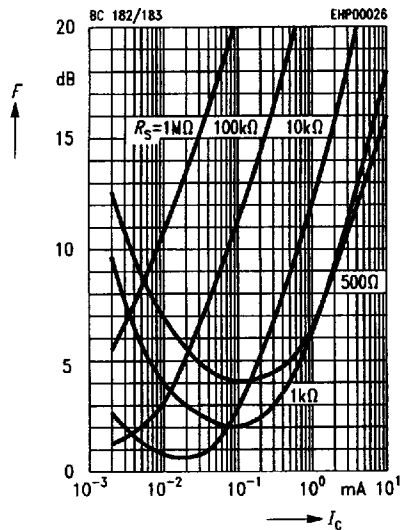


Transition frequency $f_T = f(I_C)$

$V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$



DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 5 \text{ V}$ (common emitter configuration)

Collector-emitter saturation voltage
 $V_{CEsat} = f(I_C)$
 $h_{FE} = 20$

Base-emitter saturation voltage
 $V_{BEsat} = f(I_C)$
 $h_{FE} = 20$

Collector cutoff current $I_{CB0} = f(T_A)$
 $V_{CB} = 30 \text{ V}$


Noise figure $F = f(f)$
 $I_C = 0.2 \text{ mA}$, $f = 1 \text{ kHz}$, $R_S = 2 \text{ k}\Omega$

Noise figure $F = f(V_{CE})$
 $I_C = 0.2 \text{ mA}$, $R_S = 2 \text{ k}\Omega$, $f = 1 \text{ kHz}$
 $\Delta f = 200 \text{ Hz}$, $T_A = 25^\circ \text{C}$

Noise figure $F = f(I_C)$
 $V_{CE} = 5 \text{ V}$, $f = 120 \text{ kHz}$

Noise figure $F = f(I_C)$
 $V_{CE} = 5 \text{ V}$, $f = 1 \text{ Hz}$


h parameter $h_o = f(I_C)$

Capacitance $C = f(V_{CB}, V_{EB})$

