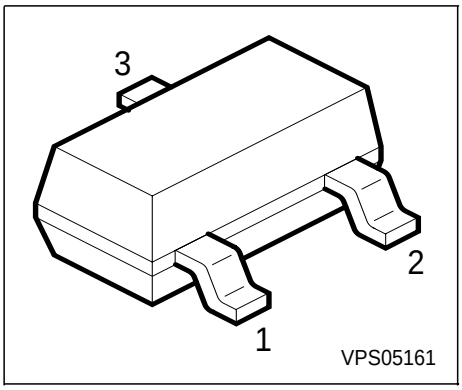
PNP Silicon AF Transistor

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary type: SMBTA 06 (NPN)



Type	Marking	Ordering Code	Pin Configuration			Package
SMBTA 56	s2G	Q68000-A2882	1=B	2=E	3=C	SOT-23

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	80	V
Collector-base voltage	V_{CBO}	80	
Emitter-base voltage	V_{EBO}	4	
DC collector current	I_C	500	mA
Peak collector current	I_{CM}	1	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation, T_S = 79 °C	P_{tot}	330	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... +150	

Thermal Resistance

Junction ambient 1)	R_{thJA}	≤285	K/W
Junction - soldering point	R_{thJS}	≤215	

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 6cm^2 Cu

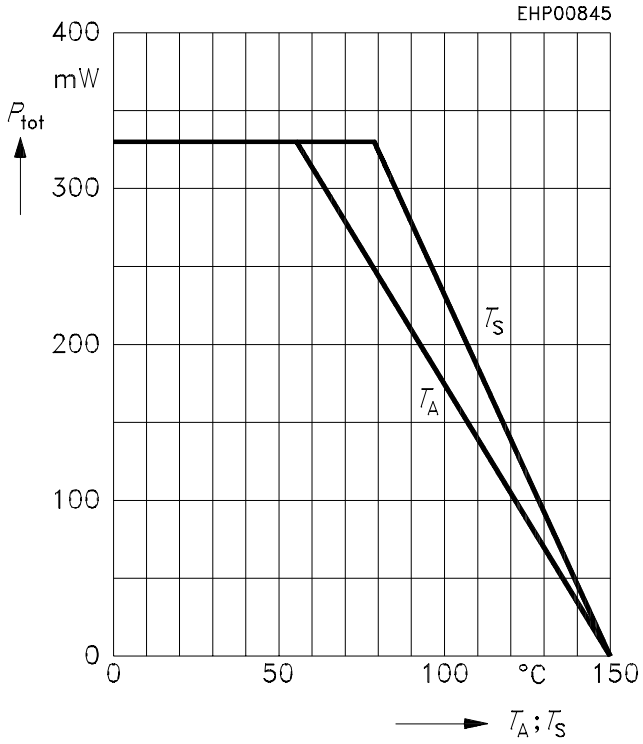
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CEO}$	80	-	-	V
Collector-base breakdown voltage I_C = 100 µA, I_B = 0	$V_{(BR)CBO}$	80	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	4	-	-	
Collector cutoff current V_{CB} = 80 V, I_E = 0	I_{CBO}	-	-	100	nA
Collector cutoff current V_{CB} = 80 V, I_E = 0 , T_A = 150 °C	I_{CBO}	-	-	20	µA
Collector cutoff current V_{CE} = 60 V, I_B = 0	I_{CEO}	-	-	100	nA
DC current gain 1) I_C = 10 mA, V_{CE} = 1 V I_C = 100 mA, V_{CE} = 1 V	h_{FE}	 100 100	 - 130	 - 170	-
Collector-emitter saturation voltage1) I_C = 100 mA, I_B = 10 mA	V_{CEsat}	-	-	0.25	V
Base-emitter voltage 1) I_C = 100 mA, V_{CE} = 1 V	$V_{BE(ON)}$	-	-	1.2	
AC Characteristics					
Transition frequency I_C = 20 mA, V_{CE} = 5 V, f = 20 MHz	f_T	-	100	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	12	-	pF

1) Pulse test: t ≤ 300µs, D = 2%

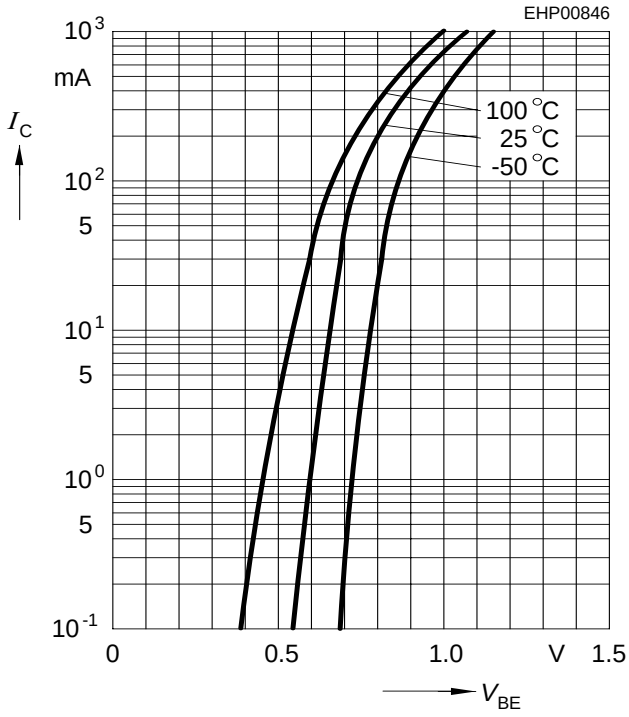
Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy



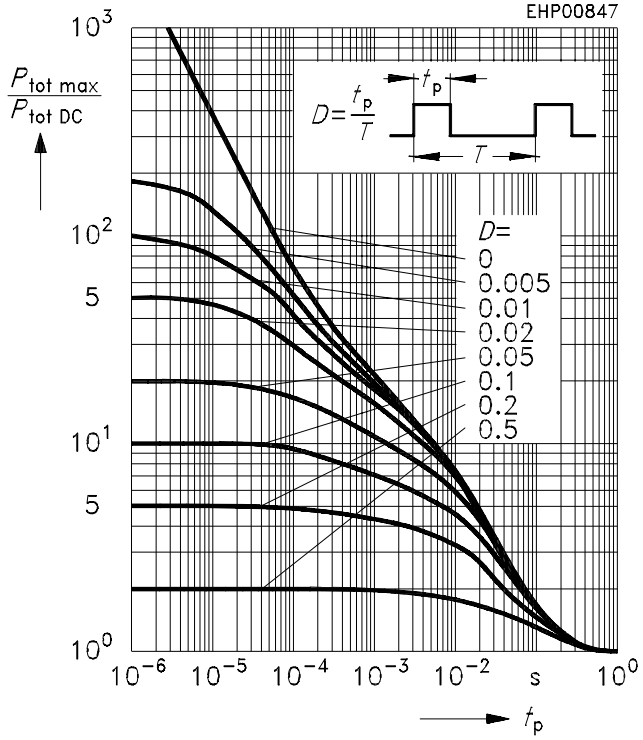
Collector current $I_C = f(V_{BE})$

V_{CE} = 1V



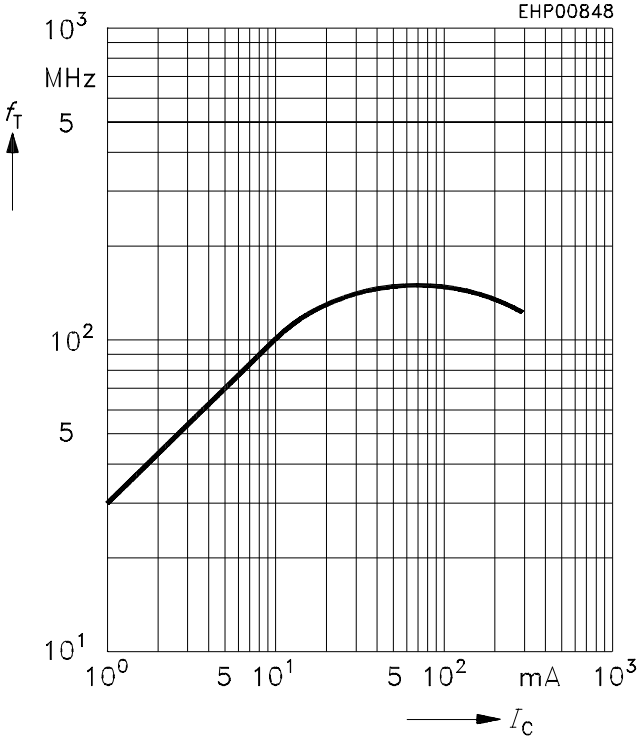
Permissible pulse load

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



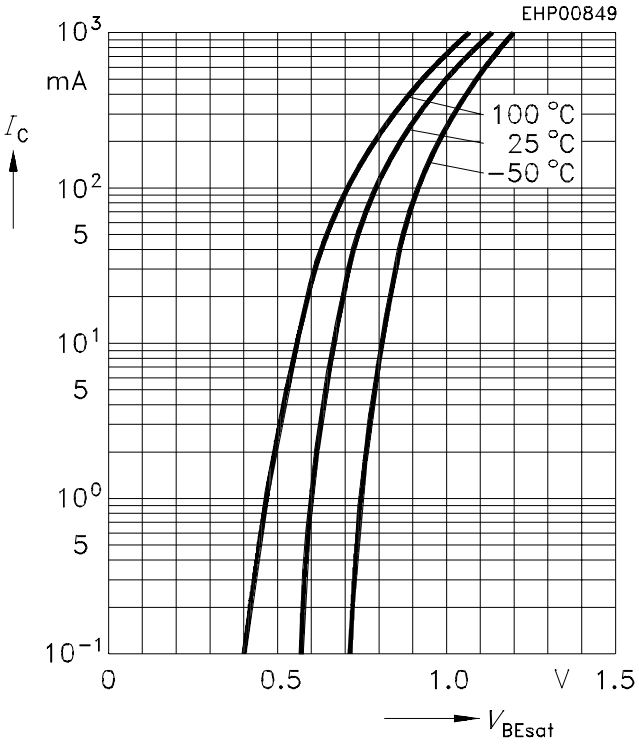
Transition frequency $f_T = f(I_C)$

V_{CE} = 5V



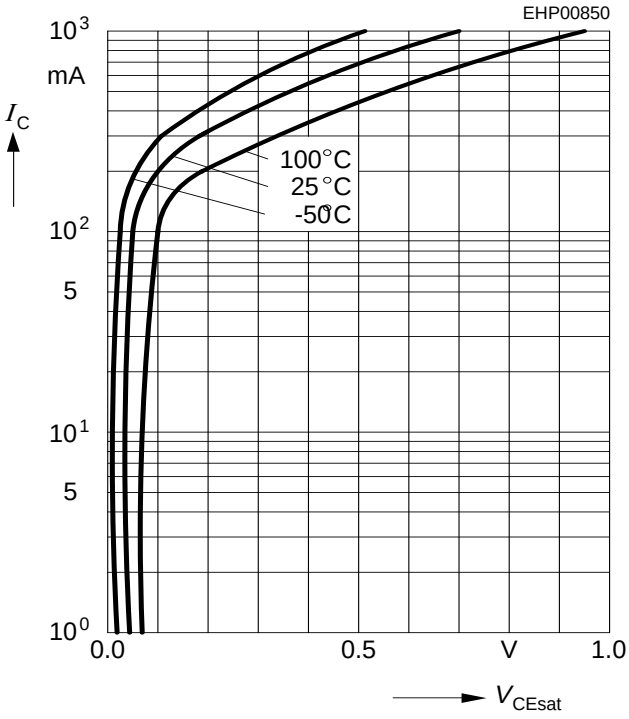
Base-emitter saturation voltage

$I_C = f(V_{BEsat})$, $h_{FE} = 10$



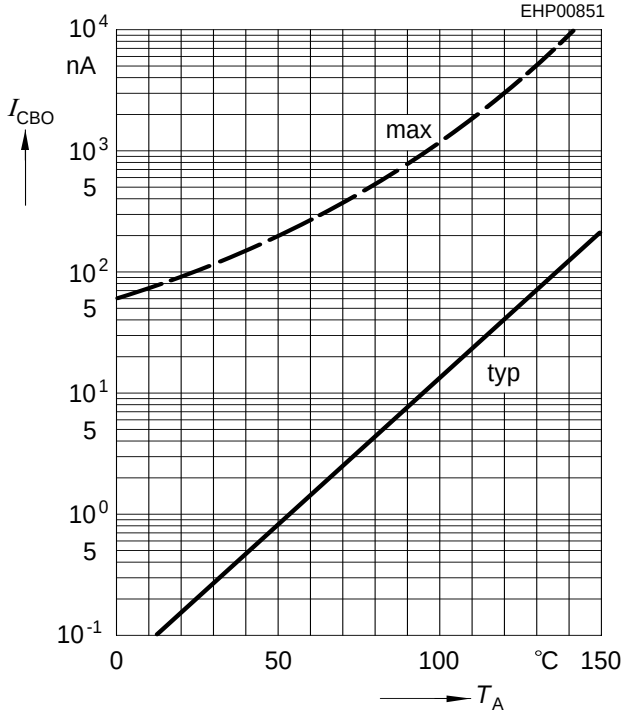
Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$, $h_{FE} = 10$



Collector cutoff current $I_{CBO} = f(T_A)$

V_{CB} = 80V



DC current gain $h_{FE} = f(I_C)$

V_{CE} = 1V