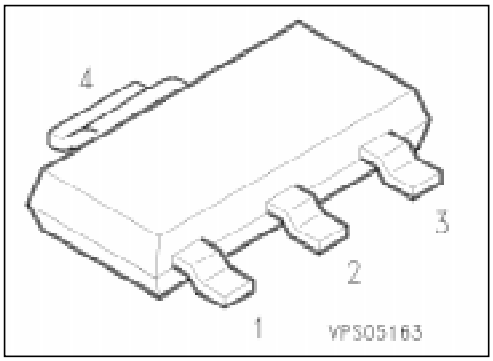
SIEMENS

NPN Silicon AF Transistor

BCP 68

- For general AF application
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary type: BCP 69 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	4	Package[1]
BCP 68 BCP 68-10 BCP 68-16 BCP 68-25	BCP 68 BCP 68-10 BCP 68-16 BCP 68-25	Q62702-C2126 Q62702-C2127 Q62702-C2128 Q62702-C2129	B	C	E	C	SOT-223

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0} V_{CES}	20 25	V
Collector-base voltage	V_{CB0}	25	
Emitter-base voltage	V_{EB0}	5	
Collector current	I_C	1	A
Peak collector current	I_{CM}	2	
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation, T_S = 124 ˚C[2]	P_{tot}	1.5	W
Junction temperature	T_j	150	˚C
Storage temperature range	T_{stg}	– 65 … + 150	

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 72	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 17	

1) For detailed information see chapter Package Outlines.

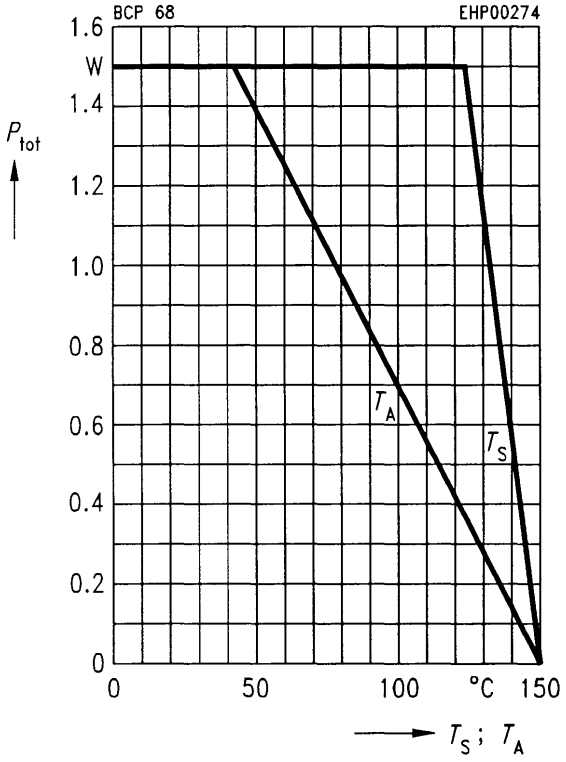
2) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

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

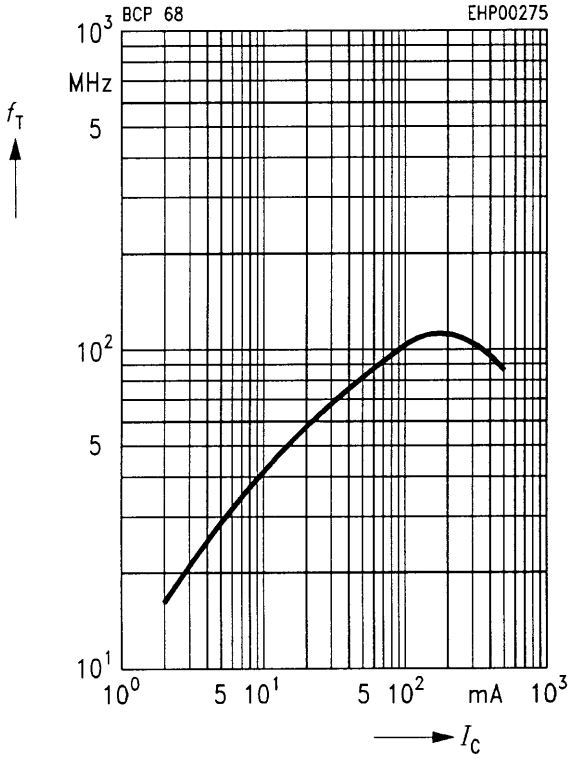
Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC characteristics						
Collector-emitter breakdown voltage I_C = 30 mA, I_B = 0		$V_{(BR)CE0}$	20	–	–	V
Collector-emitter breakdown voltage I_C = 10 µA, V_{BE} = 0		$V_{(BR)CES}$	25	–	–	
Collector-base breakdown voltage I_C = 10 µA, I_B = 0		$V_{(BR)CB0}$	25	–	–	
Emitter-base breakdown voltage I_E = 10 µA, I_B = 0		$V_{(BR)EB0}$	5	–	–	
Collector-base cutoff current V_{CB} = 25 V V_{CB} = 25 V, T_A = 150 °C		I_{CB0}	 – –	 – –	 100 100	 nA µA
Emitter-base cutoff current V_{EB} = 5 V, I_C = 0		I_{EB0}	–	–	100	nA
DC current gain[1] I_C = 5 mA, V_{CE} = 10 V I_C = 500 mA, V_{CE} = 1 V I_C = 1 A, V_{CE} = 1 V	 BCP 68 BCP 68-10 BCP 68-16 BCP 68-25 	h_{FE}	 50 85 85 100 160 60	 – – 100 160 250 –	 – 375 160 250 375 –	–
Collector-emitter saturation voltage[1] I_C = 1 A, I_B = 100 mA		V_{CEsat}	–	–	0.5	V
Base-emitter voltage[1] I_C = 5 mA, V_{CE} = 10 V I_C = 1 A, V_{CE} = 1 V		V_{BE}	 – –	 0.6 –	 – 1	
AC characteristics						
Transition frequency I_C = 100 mA, V_{CE} = 5 V, f = 100 MHz		f_T	–	100	–	MHz

[1] Pulse test conditions: $t \leq 300$ µs, D = 2 %.

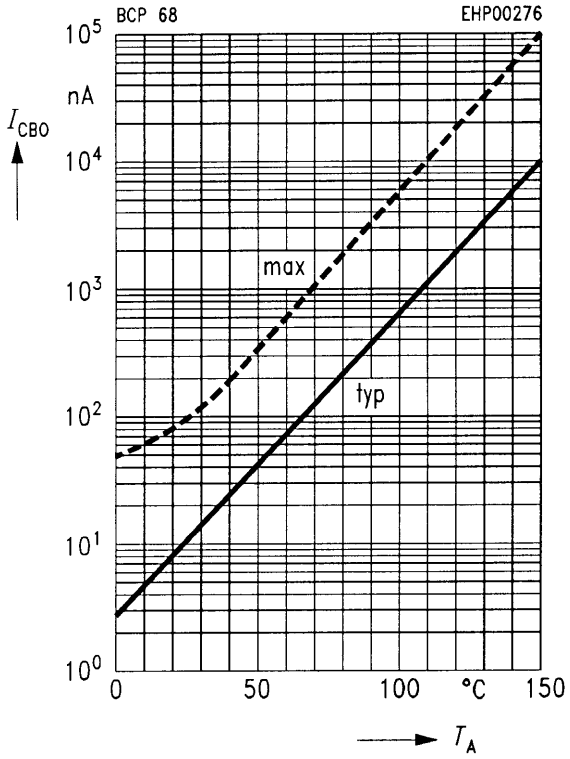
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



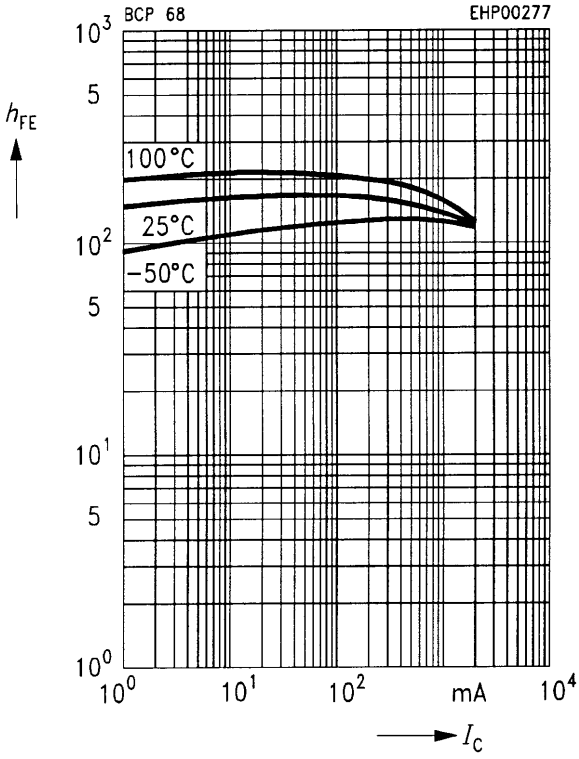
Transition frequency $f_T = f(I_C)$
V_{CE} = 5 V, f = 100 MHz



Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 25 V



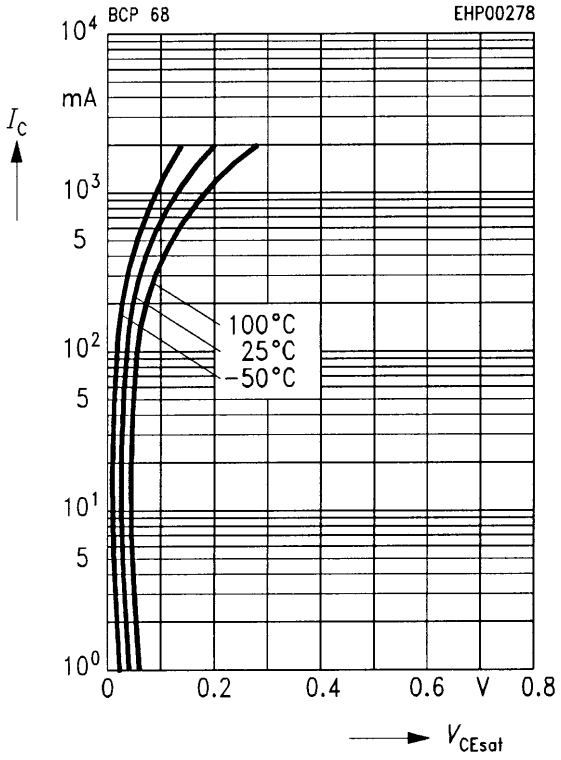
DC current gain $h_{FE} = f(I_C)$
V_{CB} = 1 V



Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$

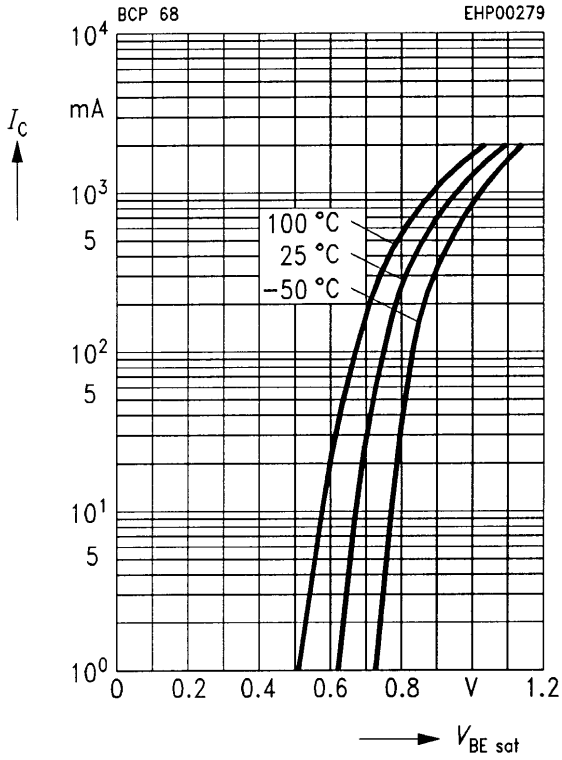
$h_{FE} = 10$



Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

$h_{FE} = 10$



Permissible pulse load $P_{tot\ max}/P_{tot\ DC} = f(t_p)$