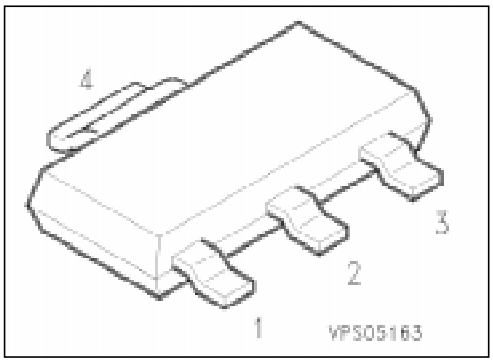
SIEMENS

PNP Silicon AF Transistors

BCP 51
... BCP 53

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP 54 … BCP 56 (NPN)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	4	Package[1)]
BCP 51	BCP 51	Q62702-C2107	B	C	E	C	SOT-223
BCP 51-10	BCP 51-10	Q62702-C2109					
BCP 51-16	BCP 51-16	Q62702-C2110					
BCP 52	BCP 52	Q62702-C2146					
BCP 52-10	BCP 52-10	Q62702-C2112					
BCP 52-16	BCP 52-16	Q62702-C2113					
BCP 53	BCP 53	Q62702-C2147					
BCP 53-10	BCP 53-10	Q62702-C2115					
BCP 53-16	BCP 53-16	Q62702-C2116					

1) For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values			Unit
		BCP 51	BCP 52	BCP 53	
Collector-emitter voltage $R_{BE} \leq 1$ kΩ	V_{CE0} V_{CER}	45 45	60 60	80 100	V
Collector-base voltage	V_{CB0}	45	60	100	
Emitter-base voltage	V_{EB0}	5			
Collector current	I_C	1			A
Peak collector current	I_{CM}	1.5			
Base current	I_B	100			mA
Peak base current	I_{BM}	200			
Total power dissipation, T_S = 124 °C[1)]	P_{tot}	1.5			W
Junction temperature	T_j	150			°C
Storage temperature range	T_{stg}	– 65 ... + 150			

Thermal Resistance

Junction - ambient[1)]	$R_{th\ JA}$	≤ 72	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 17	

1) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm^2 Cu.

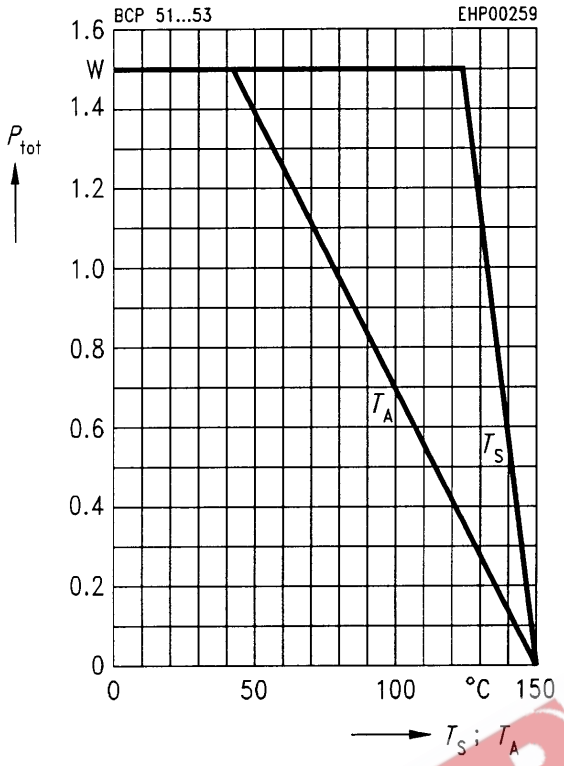
Electrical Characteristics

at T_A = 25 °C, unless otherwise specified.

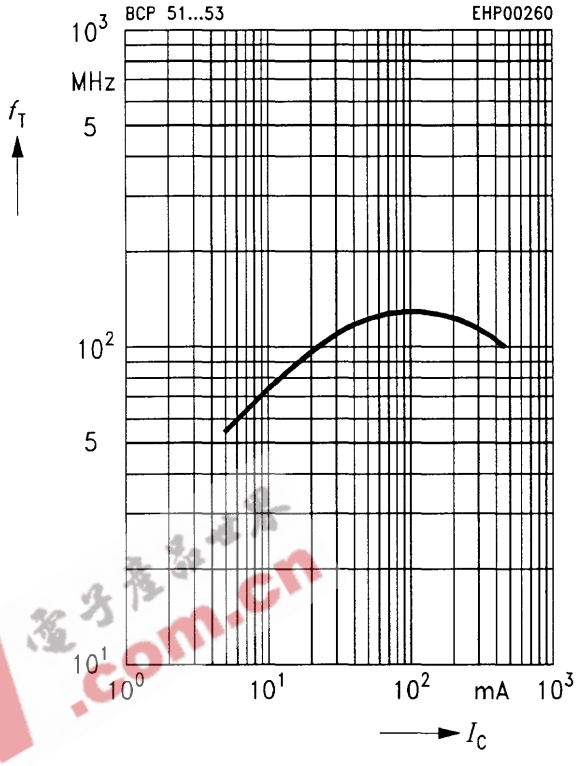
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage	$V_{(BR)CE0}$				V
I_C = 10 mA, I_B = 0 BCP 51		45	–	–	
BCP 52		60	–	–	
BCP 53		80	–	–	
Collector-base breakdown voltage	$V_{(BR)CB0}$				
I_C = 100 µA, I_B = 0 BCP 51		45	–	–	
BCP 52		60	–	–	
BCP 53		100	–	–	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EB0}$	5	–	–	
Collector-base cutoff current	I_{CB0}				
V_{CB} = 30 V, I_E = 0		–	–	100	nA
V_{CB} = 30 V, I_E = 0, T_A = 150 °C		–	–	20	µA
Emitter-base cutoff current V_{EB} = 5 V, I_C = 0	I_{EB0}	–	–	10	µA
DC current gain[1)]	h_{FE}				–
I_C = 5 mA, V_{CE} = 2 V		25	–	–	
I_C = 150 mA, V_{CE} = 2 V					
BCP 51/BCP 52/BCP 53		40	–	250	
BCP 51/BCP 52/BCP 53-10		63	100	160	
BCP 51/BCP 52/BCP 53-16		100	160	250	
I_C = 500 mA, V_{CE} = 2 V		25	–	–	
Collector-emitter saturation voltage[1)] I_C = 500 mA, I_B = 50 mA	V_{CEsat}	–	–	0.5	V
Base-emitter voltage[1)] I_C = 500 mA, V_{CE} = 2 V	V_{BE}	–	–	1	
AC characteristics					
Transition frequency I_C = 50 mA, V_{CE} = 10 V, f = 100 MHz	f_T	–	125	–	MHz

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

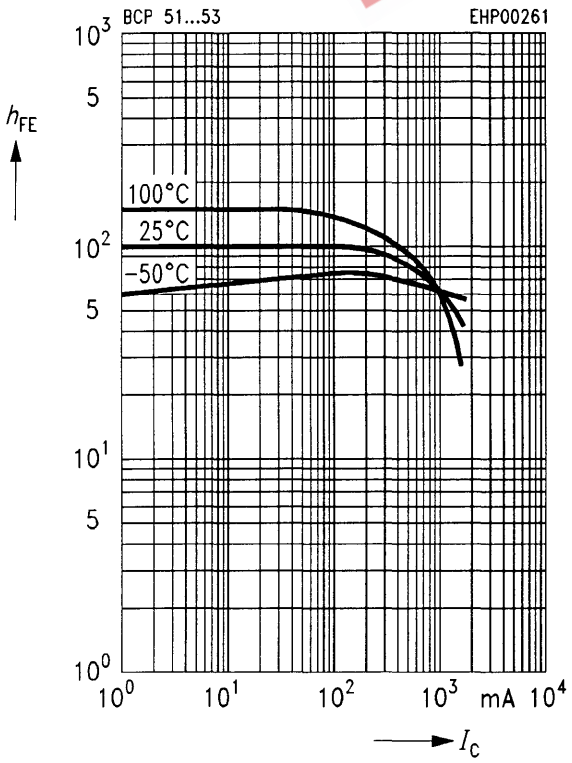
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



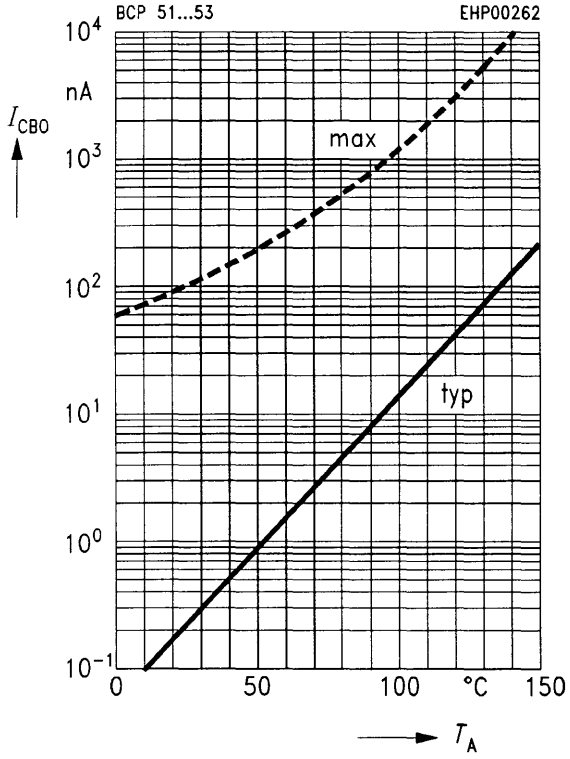
Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V



DC current gain $h_{FE} = f(I_C)$
V_{CE} = 2 V



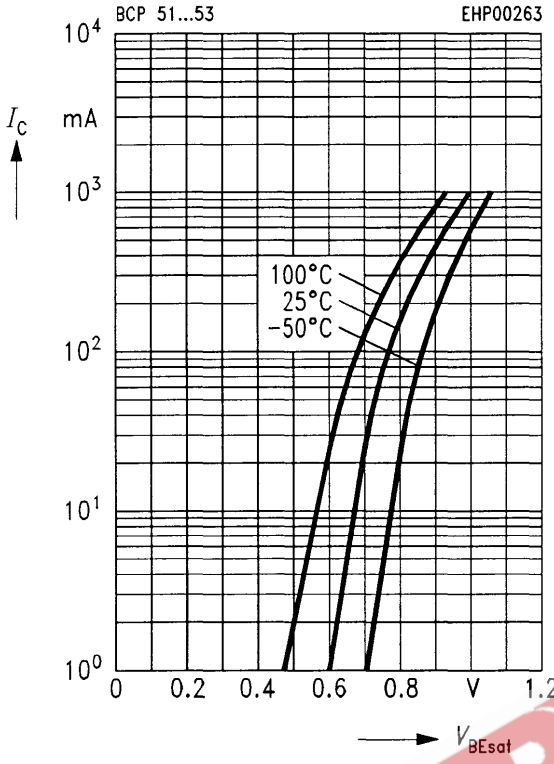
Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 30 V



Base-emitter saturation voltage

$I_C = f(V_{BEsat})$

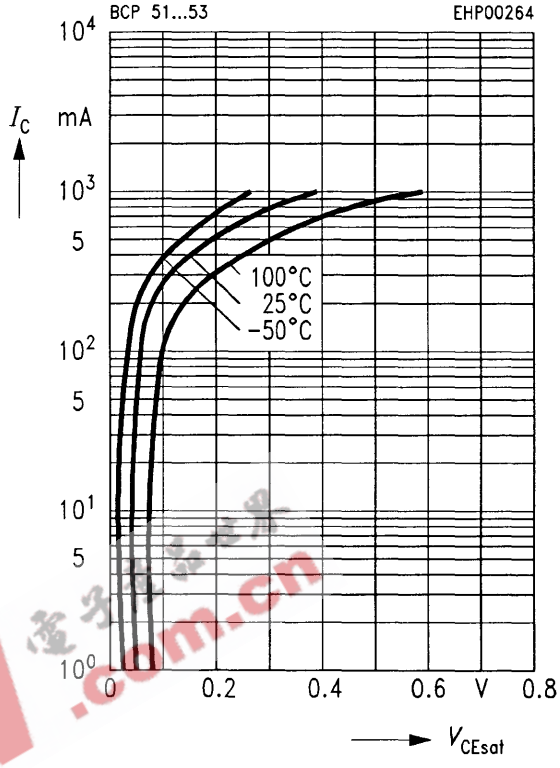
$h_{FE} = 10$



Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$

$h_{FE} = 10$



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