SIEMENS

NPN Silicon AF Transistors   BCX 68

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary type: BCX 69 (PNP)
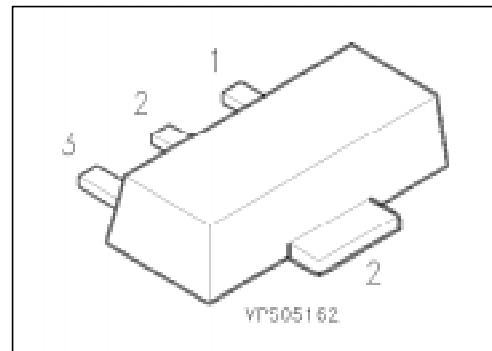
Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package[1]
			1	2	3	
BCX 68	–	Q62702-C1572	B	C	E	SOT-89
BCX 68-10	CB	Q62702-C1864				
BCX 68-16	CC	Q62702-C1865				
BCX 68-25	CD	Q62702-C1866				

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	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, $T_S = 130\ °C$	P_{tot}	1	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	− 65 … + 150	

Thermal Resistance

Junction - ambient [2]	$R_{th\ JA}$	≤ 75	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 20	

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[1] For detailed information see chapter Package Outlines.
[2] Package mounted on epoxy pcb 40 mm $\times$ 40 mm $\times$ 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

Parameter	Symbol	min.	typ.	max.	Unit
Collector-emitter breakdown voltage I_C = 30 mA	$V_{(BR)CE0}$	20	–	–	V
Collector-base breakdown voltage I_C = 10 μA	$V_{(BR)CB0}$	25	–	–	
Emitter-base breakdown voltage I_E = 1 μA	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current V_{CB} = 25 V V_{CB} = 25 V, T_A = 150 $°$C	I_{CB0}	 – –	 – –	 100 100	 nA μA
Emitter cutoff current V_{EB} = 5 V	I_{EB0}	–	–	10	μA

DC current gain[1]
I_C =   5 mA, V_{CE} = 10 V
I_C = 500 mA, V_{CE} = 1 V
               BCX 68
               BCX 68-10
               BCX 68-16
               BCX 68-25
I_C = 1 A, V_{CE} = 1 V
	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

Parameter	Symbol	min.	typ.	max.	Unit
Transition frequency I_C = 100 mA, V_{CE} = 5 V, f = 20 MHz	f_T	–	100	–	MHz

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

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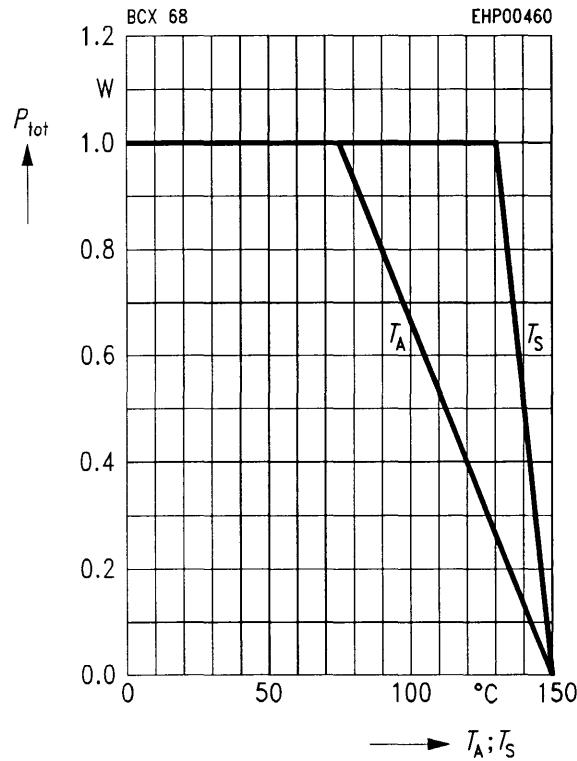

Collector current $I_C = f(V_{BE})$
$V_{CE} = 1$ V
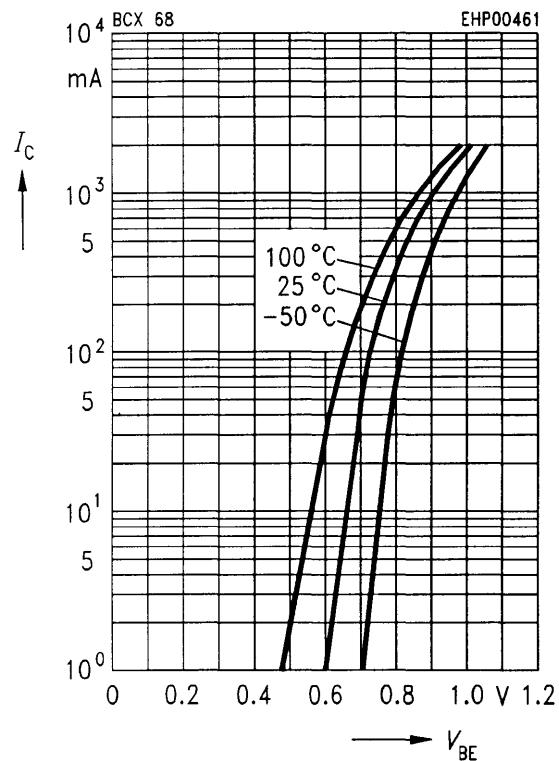
**Permissible pulse load** $P_{tot\ max}/P_{tot\ DC} = f(t_p)$
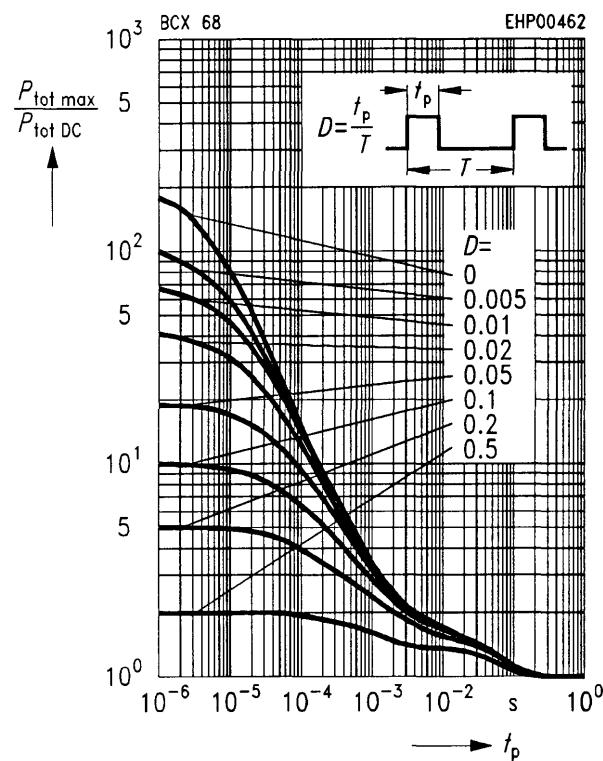
Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V

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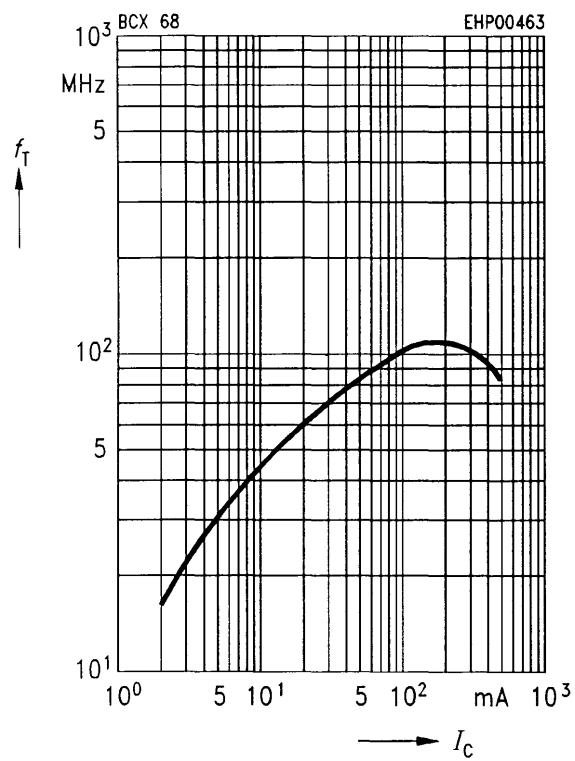
DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 1$ V
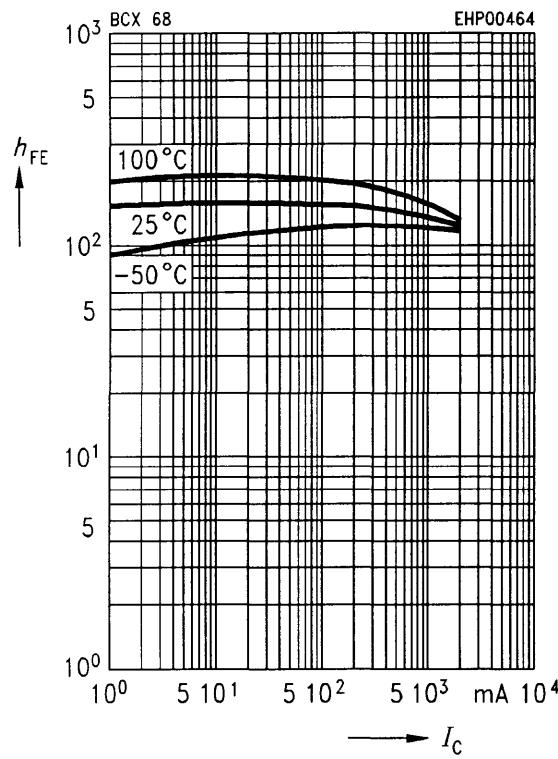

Collector-emitter saturation voltage
$I_C = f(V_{CEsat})$
$h_{FE} = 10$
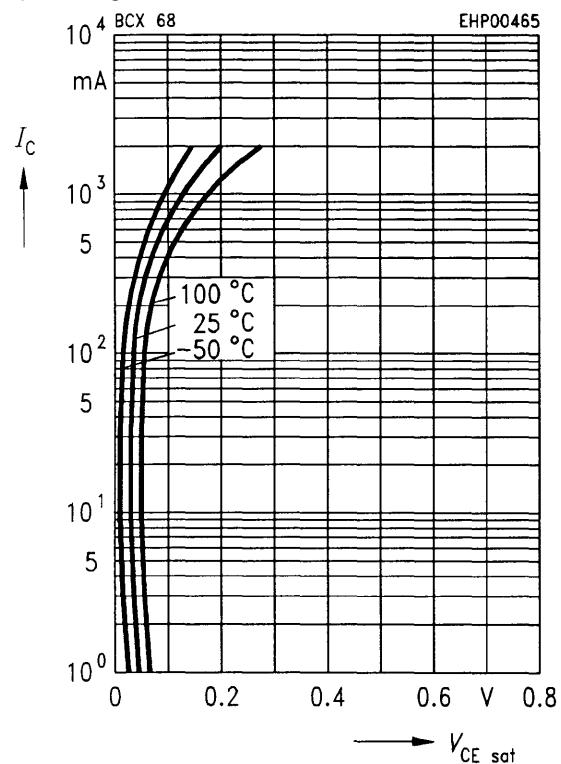
Collector cutoff current $I_{CB0} = f(T_A)$
$V_{CB} = 25$ V
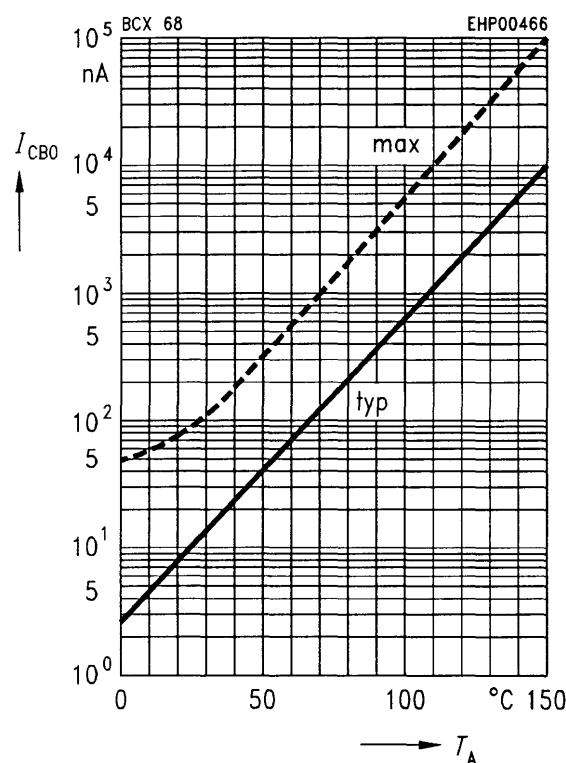
Base-emitter saturation voltage
$I_C = f(V_{BEsat})$
$h_{FE} = 10$