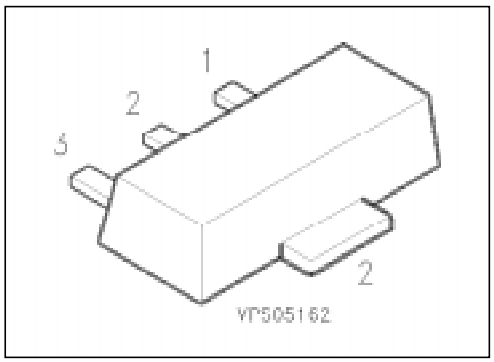
SIEMENS

NPN Silicon AF Transistors

BCX 54 … BCX 56

Features

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX 51 … BCX 53 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1)]
BCX 54	BA	Q62702-C954	B	C	E	SOT-89
BCX 54-10	BC	Q62702-C1861				
BCX 54-16	BD	Q62702-C1731				
BCX 55	BE	Q62702-C1729				
BCX 55-10	BG	Q62702-C1730				
BCX 55-16	BM	Q62702-C1903				
BCX 56	BH	Q62702-C1614				
BCX 56-10	BK	Q62702-C1635				
BCX 56-16	BL	Q62702-C1613				

1) For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values			Unit
		BCX 54	BCX 55	BCX 56	
Collector-emitter voltage	V_{CE0}	45	60	80	V
Collector-base voltage	V_{CB0}	45	60	100	
Emitter-base voltage	V_{EB0}	5	5	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 = 130 ˚C	P_{tot}	1			W
Junction temperature	T_j	150			˚C
Storage temperature range	T_{stg}	– 65 … + 150			

Thermal Resistance

Junction - ambient[1)]	$R_{th\ JA}$	≤ 75	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 20	

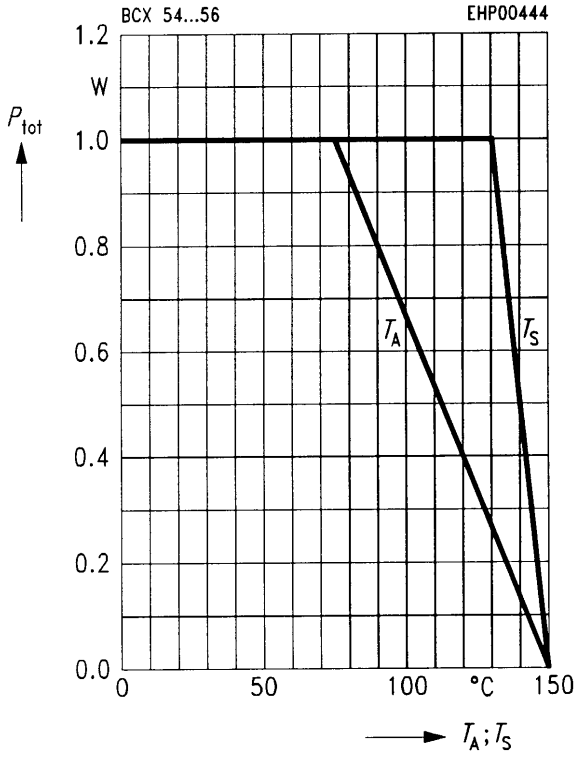
1) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm^2 Cu.

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

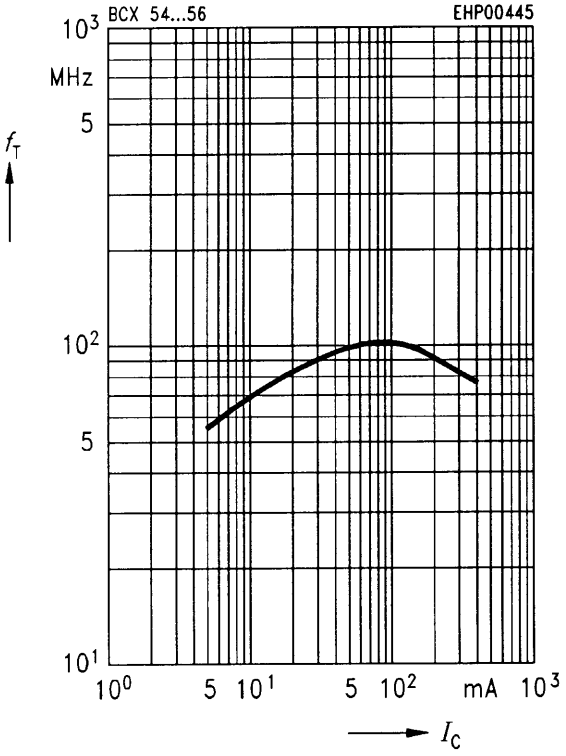
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 10 mA	$V_{(BR)CE0}$				V
BCX 54		45	–	–	
BCX 55		60	–	–	
BCX 56		80	–	–	
Collector-base breakdown voltage I_C = 100 µA	$V_{(BR)CB0}$				
BCX 54		45	–	–	
BCX 55		60	–	–	
BCX 56		100	–	–	
Emitter-base breakdown voltage I_E = 10 µA	$V_{(BR)EB0}$	5	–	–	
Collector cutoff current V_{CB} = 30 V	I_{CB0}	–	–	100	nA
V_{CB} = 30 V, T_A = 150 °C		–	–	20	µA
Emitter cutoff current V_{EB} = 4 V	I_{EB0}	–	–	20	nA
DC current gain[1)] I_C = 5 mA, V_{CE} = 2 V	h_{FE}	25	–	–	–
I_C = 150 mA, V_{CE} = 2 V					
BCX 54, BCX 55, BCX 56		40	–	250	
BCX 54-10, BCX 55-10, BCX 56-10		63	100	160	
BCX 54-16, BCX 55-16, BCX 56-16		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 = 20 MHz	f_T	–	100	–	MHz

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

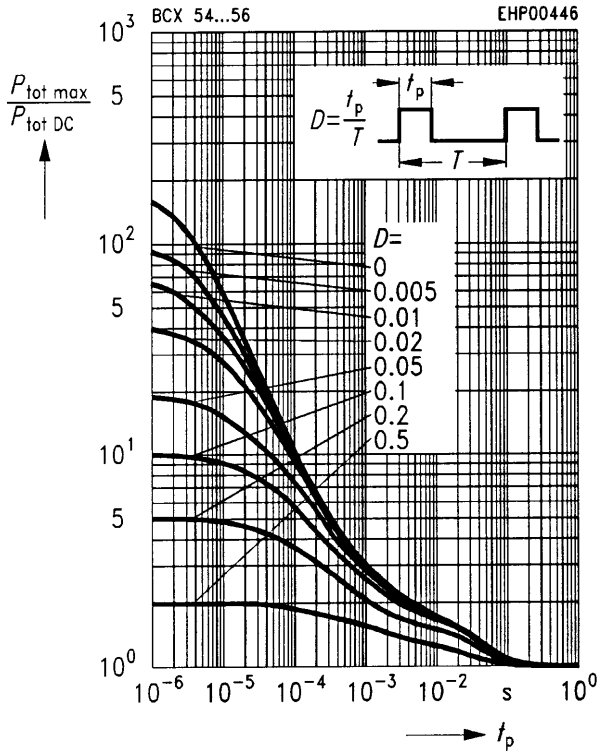
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



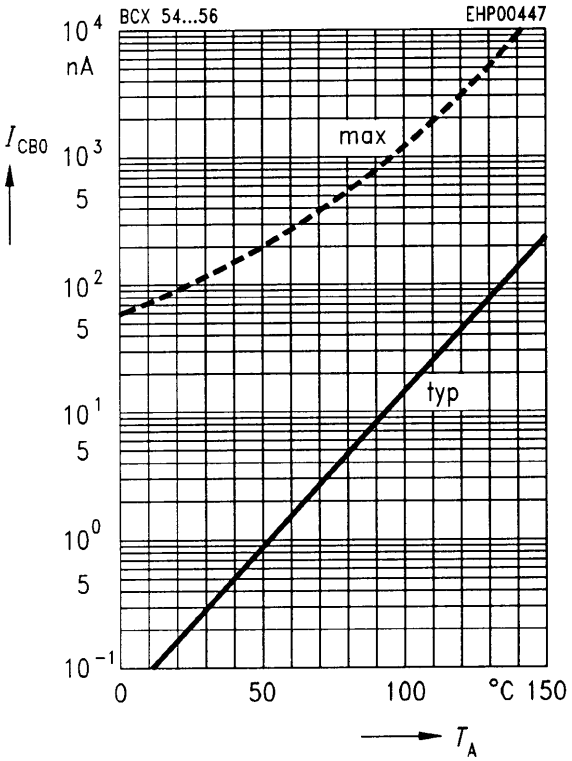
Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V



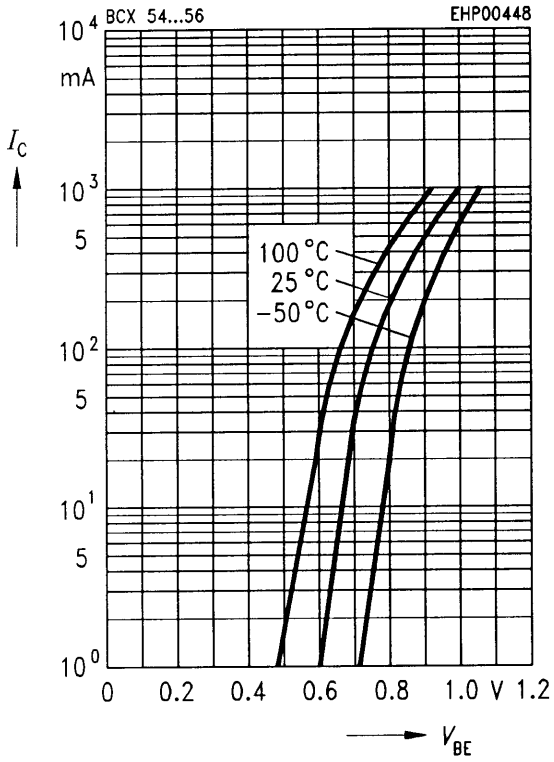
Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$



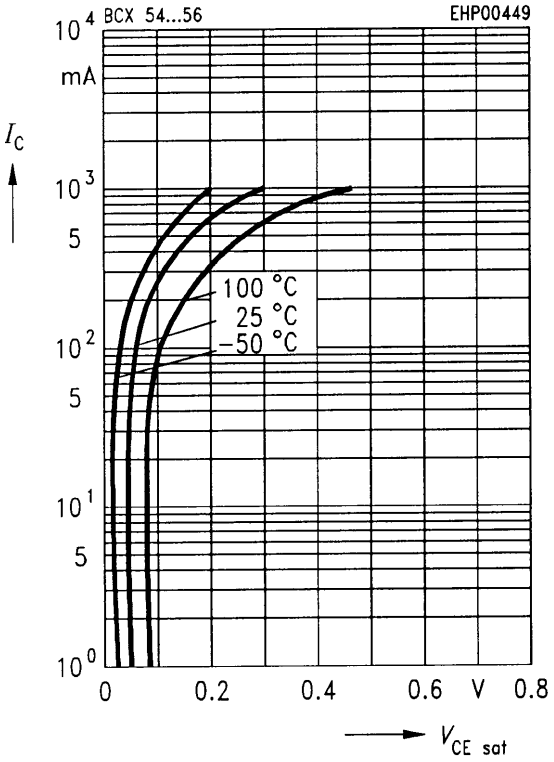
Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 30 V



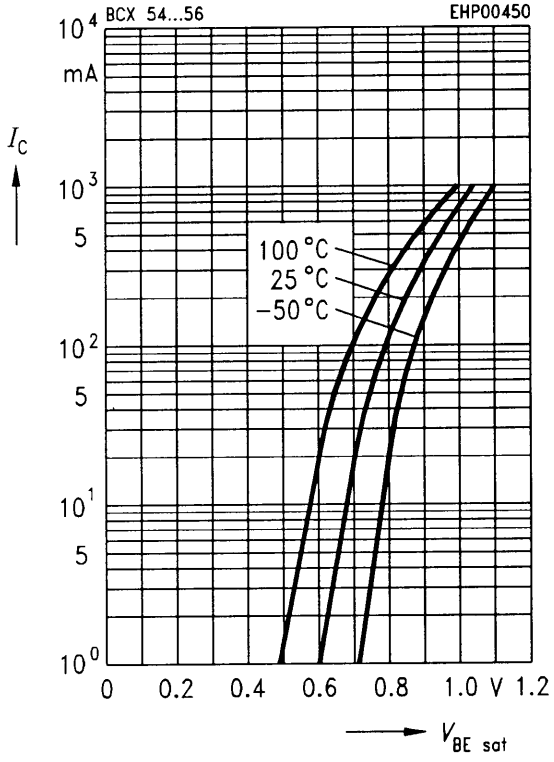
Collector current $I_C = f(V_{BE})$
V_{CE} = 2 V



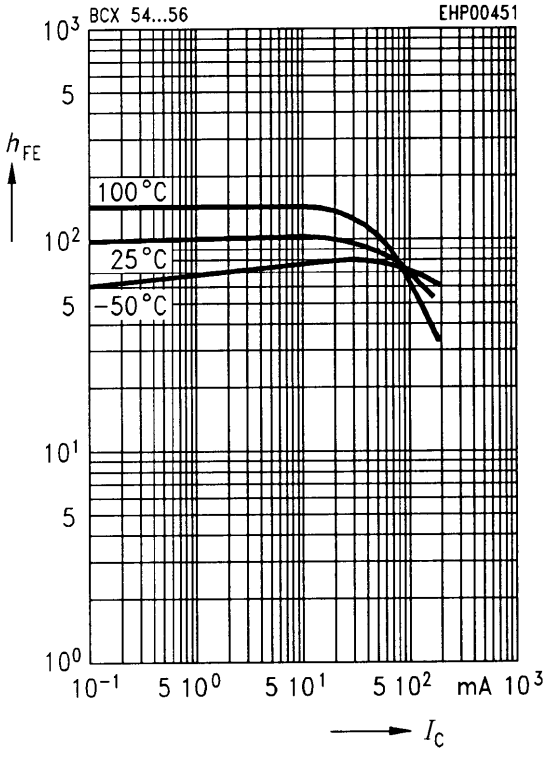
Collector-emitter saturation voltage
$I_C = f(V_{CEsat})$
h_{FE} = 10



Base-emitter saturation voltage
$I_C = f(V_{BEsat})$
h_{FE} = 10



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



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