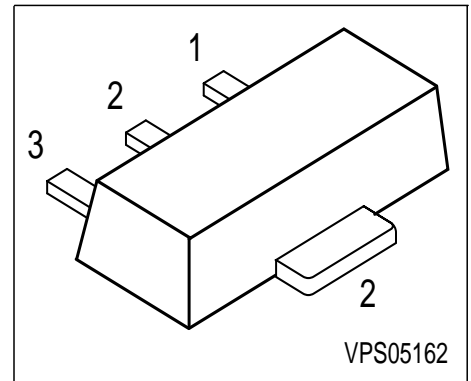


NPN Silicon AF Transistors

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX51...BCX53 (PNP)



Type	Marking	Pin Configuration			Package
BCX54	BA	1 = B	2 = C	3 = E	SOT89
BCX54-10	BC	1 = B	2 = C	3 = E	SOT89
BCX54-16	BD	1 = B	2 = C	3 = E	SOT89
BCX55	BE	1 = B	2 = C	3 = E	SOT89
BCX55-10	BG	1 = B	2 = C	3 = E	SOT89
BCX55-16	BM	1 = B	2 = C	3 = E	SOT89
BCX56	BH	1 = B	2 = C	3 = E	SOT89
BCX56-10	BK	1 = B	2 = C	3 = E	SOT89
BCX56-16	BL	1 = B	2 = C	3 = E	SOT89

Maximum Ratings

Parameter	Symbol	BCX54	BCX55	BCX56	Unit
Collector-emitter voltage	V_{CEO}	45	60	80	V
Collector-base voltage	V_{CBO}	45	60	100	
Emitter-base voltage	V_{EBO}	5	5	5	
DC 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, $T_S = 130\text{ °C}$	P_{tot}	1			W
Junction temperature	T_j	150			°C
Storage temperature	T_{sta}	-65 ... 150			

Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤20	K/W
--	------------	-----	-----

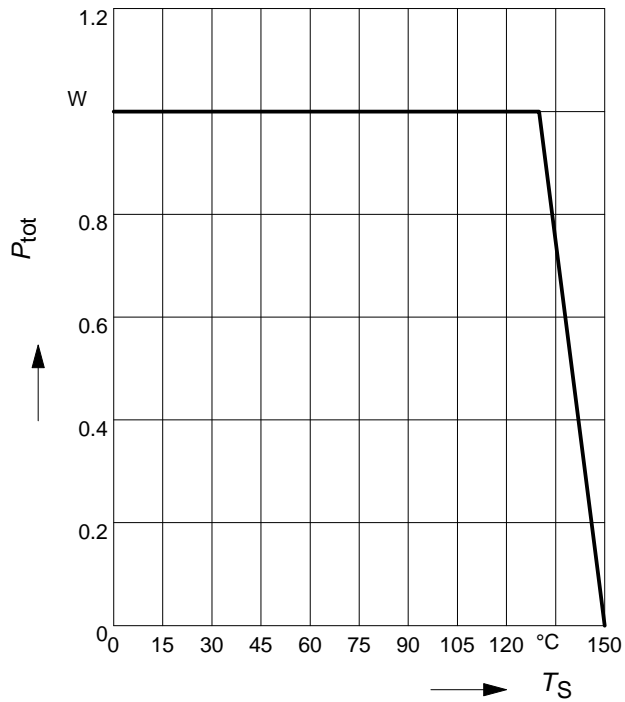
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$, $I_B = 0$	$V_{(BR)CEO}$	45	-	-	V
BCX54		60	-	-	
BCX55		80	-	-	
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$, $I_B = 0$	$V_{(BR)CBO}$	45	-	-	
BCX54		60	-	-	
BCX55		100	-	-	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$, $T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	-	-	20	μA
DC current gain 1) $I_C = 5\text{ mA}$, $V_{CE} = 2\text{ V}$	h_{FE}	25	-	-	-
DC current gain 1) $I_C = 150\text{ mA}$, $V_{CE} = 2\text{ V}$	h_{FE}	40	-	250	
BCX54...56		63	100	160	
hFE-grp.10		100	160	250	
DC current gain 1) $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$	h_{FE}	25	-	-	
Collector-emitter saturation voltage1) $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{CEsat}	-	-	0.5	V
Base-emitter voltage 1) $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$	$V_{BE(ON)}$	-	-	1	
AC Characteristics					
Transition frequency $I_C = 50\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 20\text{ MHz}$	f_T	-	100	-	MHz

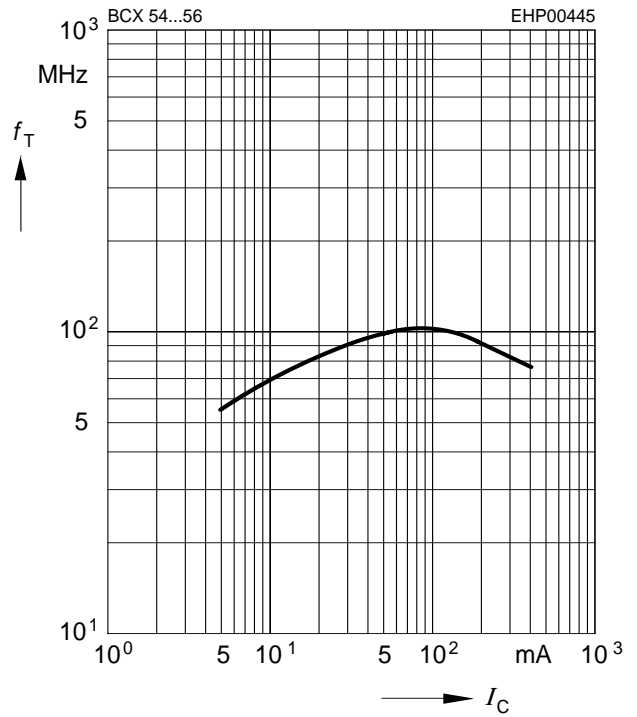
1) Pulse test: $t \leq 300\mu\text{s}$, $D = 2\%$

Total power dissipation $P_{\text{tot}} = f(T_S)$



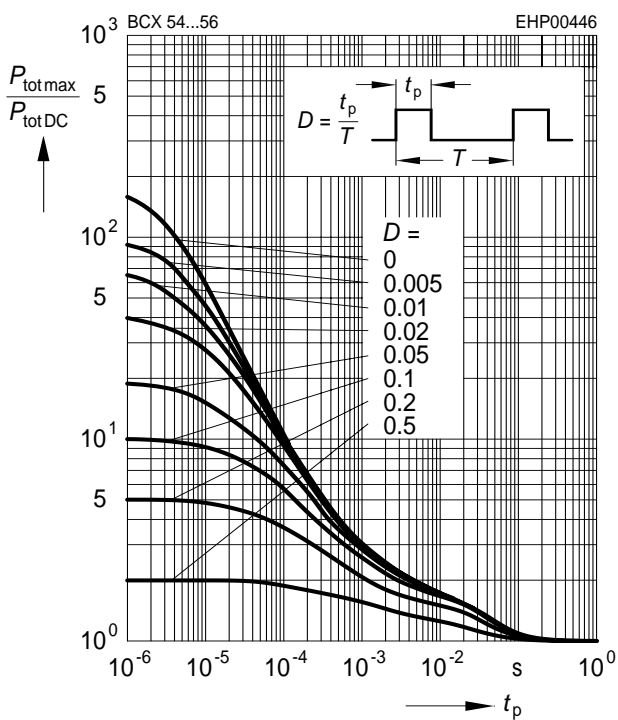
Transition frequency $f_T = f(I_C)$

$V_{CE} = 10V$



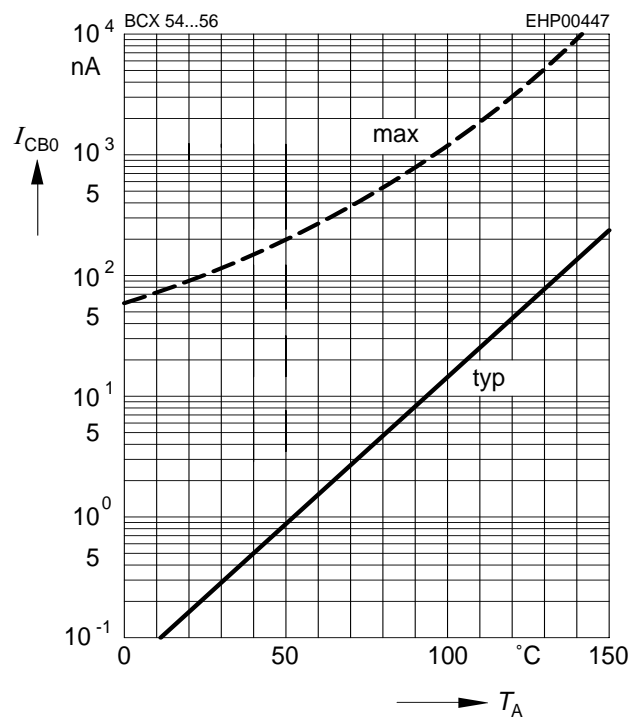
Permissible pulse load

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



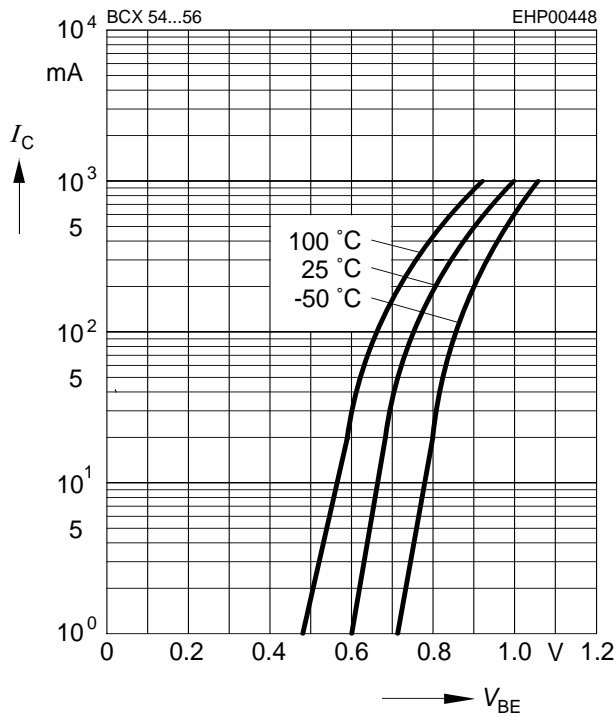
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 30V$



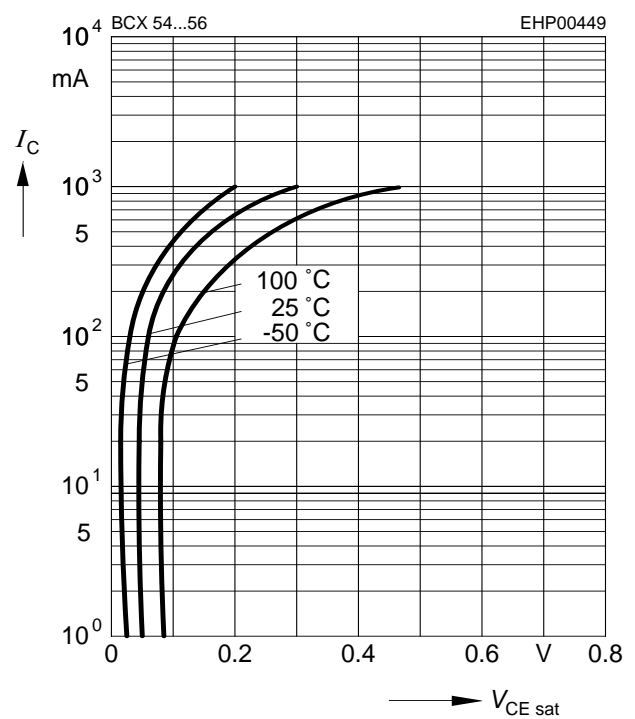
Collector current $I_C = f(V_{BE})$

$V_{CE} = 2V$



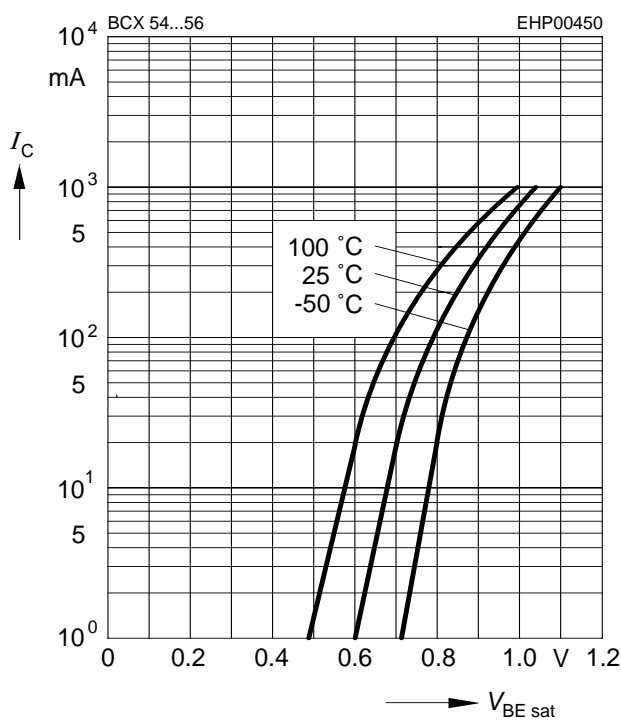
Collector-emitter saturation voltage

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



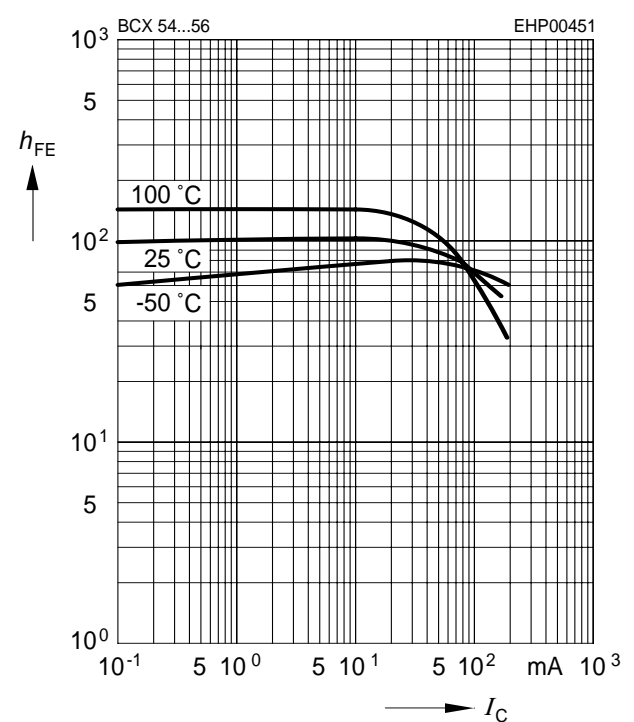
Base-emitter saturation voltage

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



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

$V_{CE} = 2V$



**Published by Infineon Technologies AG,
St.-Martin-Strasse 53,
81669 München**

**© Infineon Technologies AG 2004.
All Rights Reserved.**

Attention please!

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.