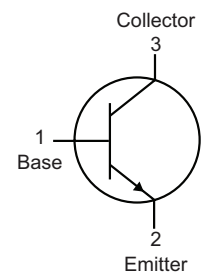
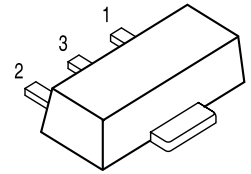


# NPN Silicon AF Transistor



## Features:

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX51/BCX52/BCX53

## Pin Configuration:

1. Base
2. Emitter
3. Collector

## Maximum Ratings

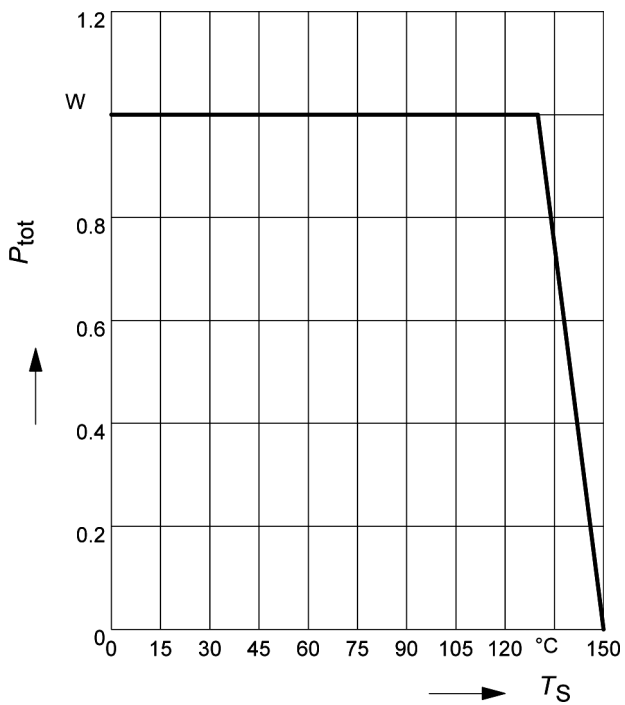
Parameter	Symbol	Value	Unit
Collector - Base Voltage - BCX54 - BCX55 - BCX56	$V_{CBO}$	-45 -60 -100	V
Collector - Emitter Voltage - BCX54 - BCX55 - BCX56	$V_{CEO}$	-45 -60 -80	
Emitter - Base Voltage	$V_{ebo}$	5	
Collector Current - Continuous	$I_C$	1	A
Collector Current - Peak	$I_{CM}$	1.5	
Base Current	$I_B$	100	mA
Peak Base Current	$I_{BM}$	200	
Total Power Dissipation, $T_S=130^\circ\text{C}$	$P_{TOT}$	500	mW
Junction and Storage Temperature	$T_j, T_{stg}$	-65 to +150	$^\circ\text{C}$

# NPN Silicon AF Transistor

## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise noted)

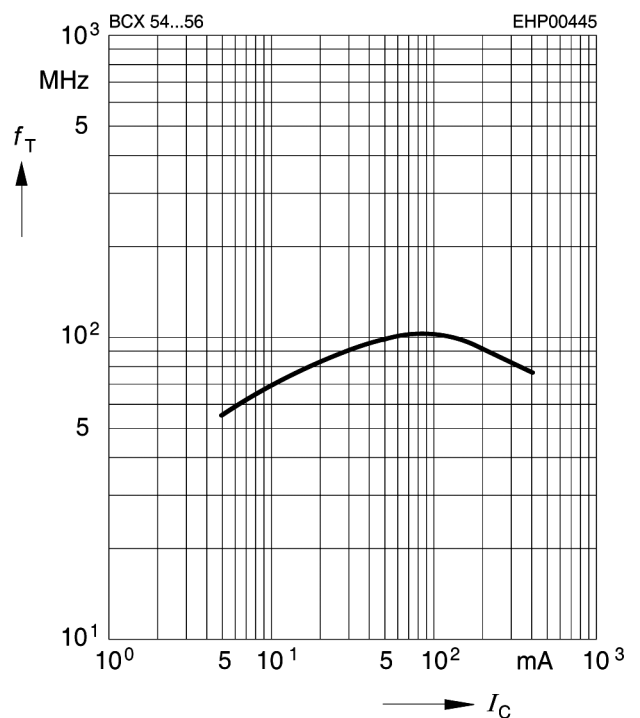
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$ BCX54 BCX55 BCX56	45 60 100			V
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$ BCX54 BCX55 BCX56	45 60 80			
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	5			
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0$ $V_{CB} = 30\text{V}, I_E = 0, T_A = 150^\circ\text{C}$			100 20	nA $\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -5\text{mA}$ $V_{CE} = -2\text{V}, I_C = -150\text{mA}$ $V_{CE} = -2\text{V}, I_C = -150\text{mA}$ -10 -16 $V_{CE} = -2\text{V}, I_C = -500\text{mA}$	25 40 63 100 25		250 160 250	
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$			0.5	V
Base Emitter Voltage	$V_{BE}$	$I_C = -500\text{mA}, V_{CE} = -2\text{V}$			1	
Transition Frequency	$f_T$	$V_{CE} = -10, I_C = -50, f = 20\text{MHz}$	100			MHz

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



Transition frequency  $f_T = f(I_C)$

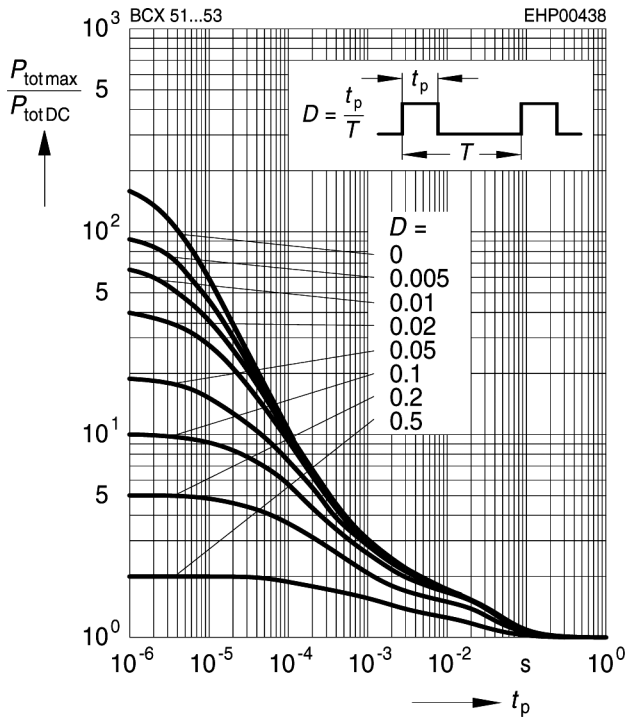
$V_{CE} = 10\text{V}$



# NPN Silicon AF Transistor

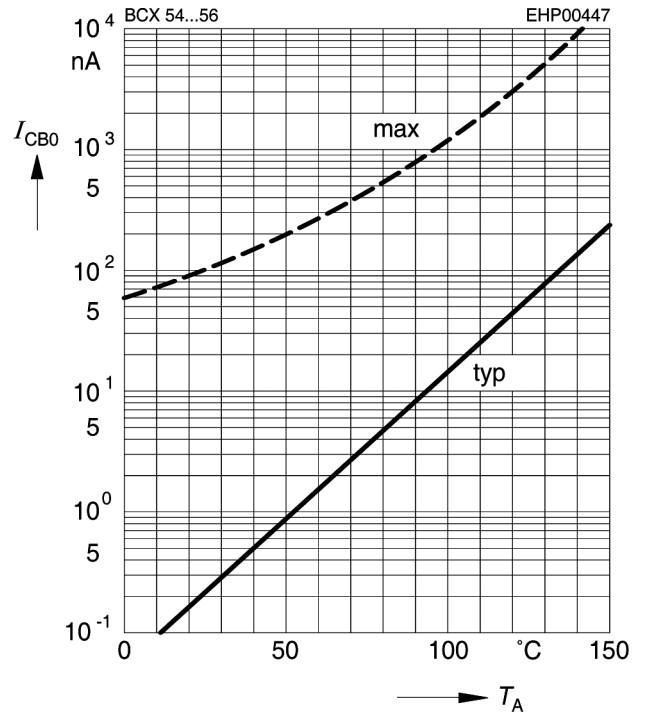
## Permissible pulse load

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



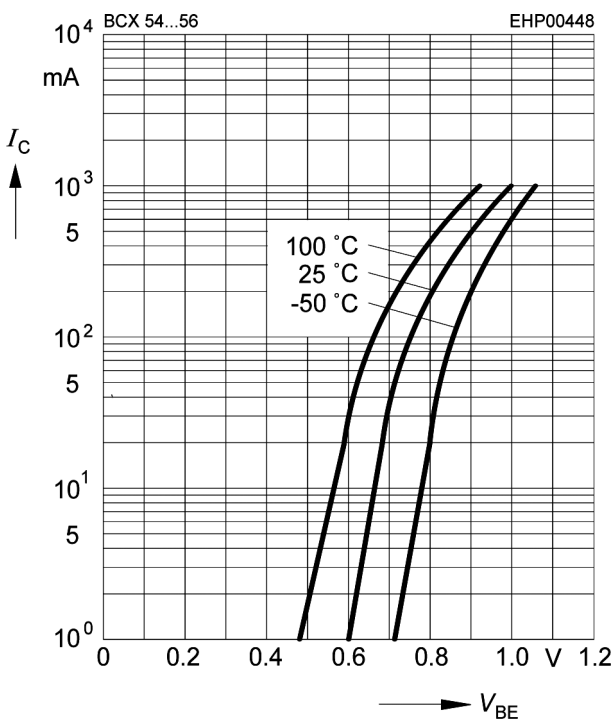
## Collector cutoff current $I_{\text{CBO}} = f(T_A)$

$$V_{\text{CB}} = 30\text{V}$$



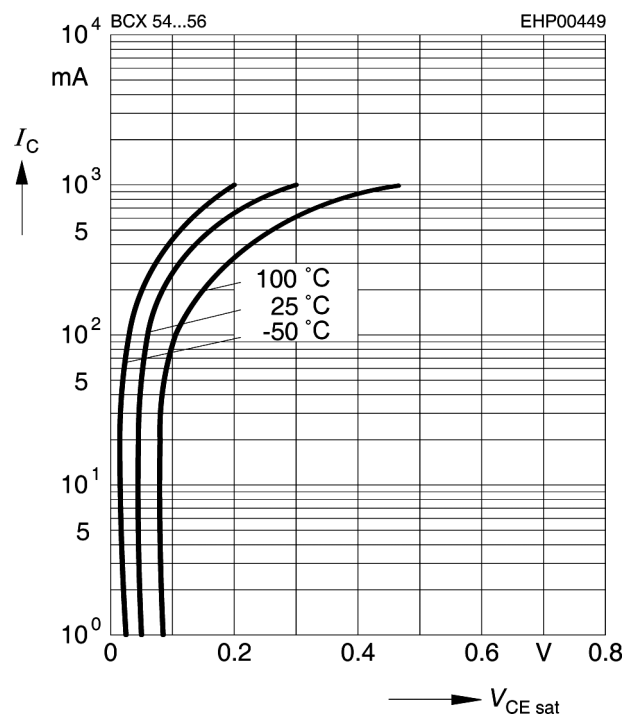
## Collector current $I_C = f(V_{\text{BE}})$

$$V_{\text{CE}} = 2\text{V}$$



## Collector-emitter saturation voltage

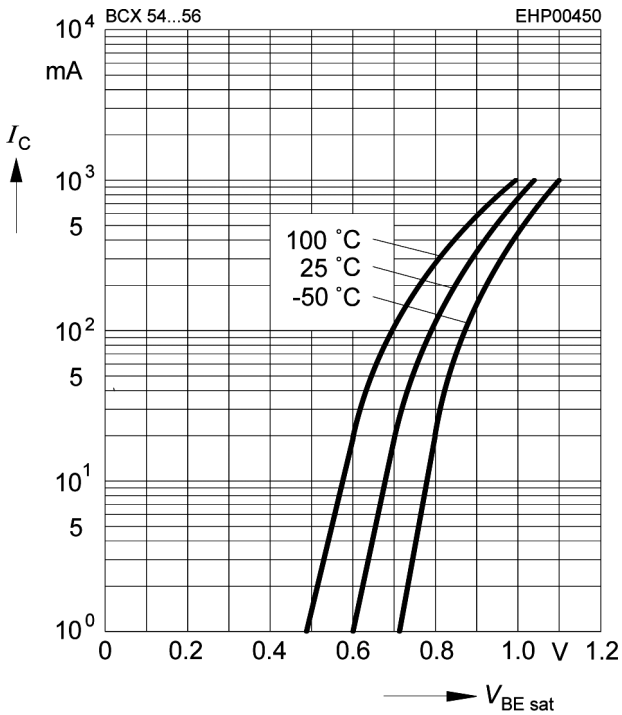
$$I_C = f(V_{\text{CEsat}}, h_{\text{FE}} = 10)$$



# NPN Silicon AF Transistor

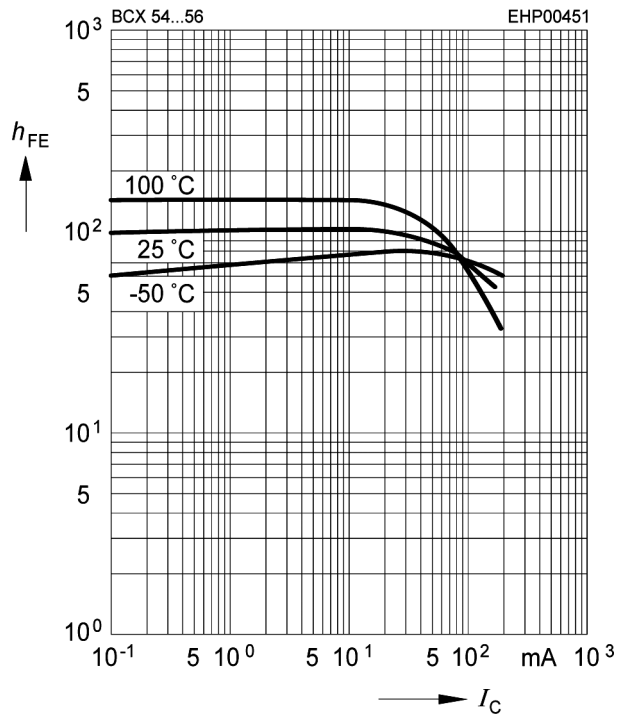
## Base-emitter saturation voltage

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



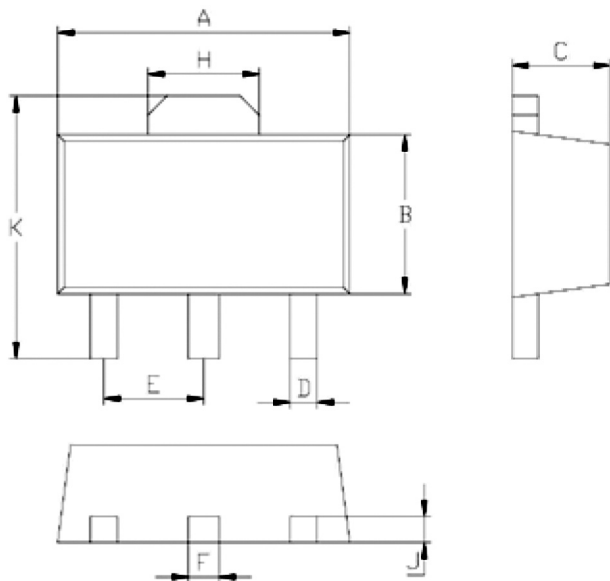
## DC current gain $h_{FE} = f(I_C)$

$$V_{CE} = 2V$$



## Package Outline

Plastic surface mounted package

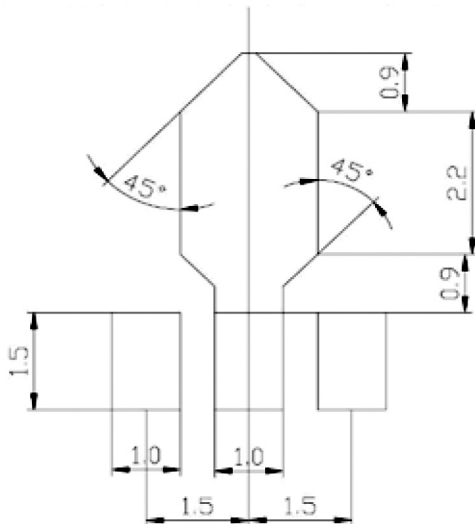


Dimensions	Min.	Max.
A	4.5	4.7
B	2.3	2.7
C	1.5 Typical	
D	0.35	0.55
E	1.4	1.6
F	0.4	0.6
H	1.55	1.75
J	0.4 Typical	
K	4.15	4.25

Dimensions : Millimetres

# NPN Silicon AF Transistor

## Soldering Footprint



Dimensions : Millimetres

## Part Number Table

Description	Part Number
Transistor, NPN, 1A, 45V, SOT-89	BCX54
Transistor, NPN, 1A, 45V, SOT-89	BCX54-16
Transistor, NPN, 1A, 60V, SOT-89	BCX55
Transistor, NPN, 1A, 60V, SOT-89	BCX55-16
Transistor, NPN, 1A, 80V, SOT-89	BCX56
Transistor, NPN, 1A, 80V, SOT-89	BCX56-16

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