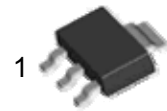


## TRANSISTOR (NPN)

### FEATURES

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP51 ... BCP53 (PNP)

### SOT-223



1. BASE
2. COLLECTOR
3. EMITTER

### MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	BCP54	BCP55	BCP56	Units
$V_{CBO}$	Collector-Base Voltage	45	60	100	V
$V_{CEO}$	Collector-Emitter Voltage	45	60	80	V
$V_{EBO}$	Emitter-Base Voltage	5			V
$I_C$	Collector Current -Continuous	1			A
$P_C$	Collector Power Dissipation	1.5			W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	94			$^\circ\text{C}/\text{W}$
$T_{stg}$	Storage Temperature Range	-65to+150			$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ\text{C}$ unless otherwise specified)

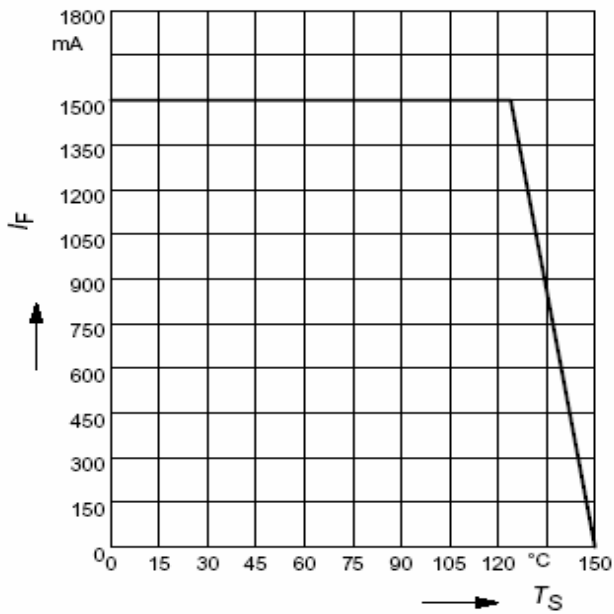
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 0.1\text{mA}, I_E = 0$	BCP54	45	
			BCP55	60	
			BCP56	100	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	BCP54	45	
			BCP55	60	
			BCP56	80	
Base-emitter breakdown voltage	$V_{(BR)EBO}$	$I_C = 10\mu\text{A}, I_E = 0$	5		V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 30\text{V}, I_E = 0$		100	nA
DC current gain	$h_{FE(1)}$	$V_{CE} = 2\text{V}, I_C = 5\text{mA}$	25		
	$h_{FE(2)}$	$V_{CE} = 2\text{V}, I_C = 150\text{mA}$	63	250	
	$h_{FE(3)}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	25		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		0.5	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$		1	V
Transition frequency	$f_T$	$V_{CE} = 10\text{V}, I_C = 50\text{mA}, f = 100\text{MHz}$	100		MHz

### CLASSIFICATION OF $h_{FE(2)}$

Rank	BCP54-10, BCP55-10, BCP56-10	BCP54-16, BCP55-16, BCP56-16
Range	63-160	100-250

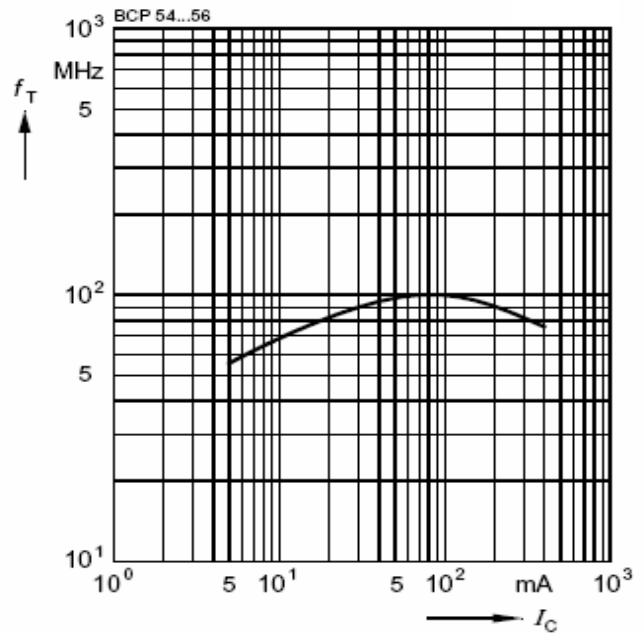
## Typical Characteristics

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



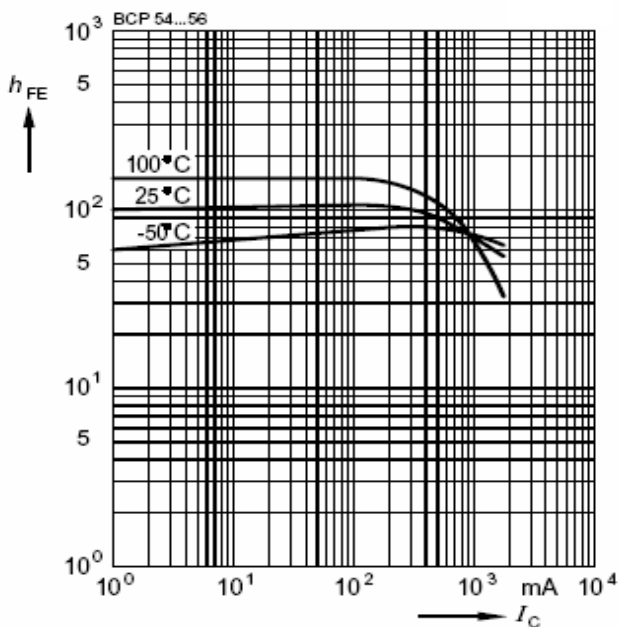
Transition frequency  $f_T = f(I_C)$

$V_{CE} = 10V$



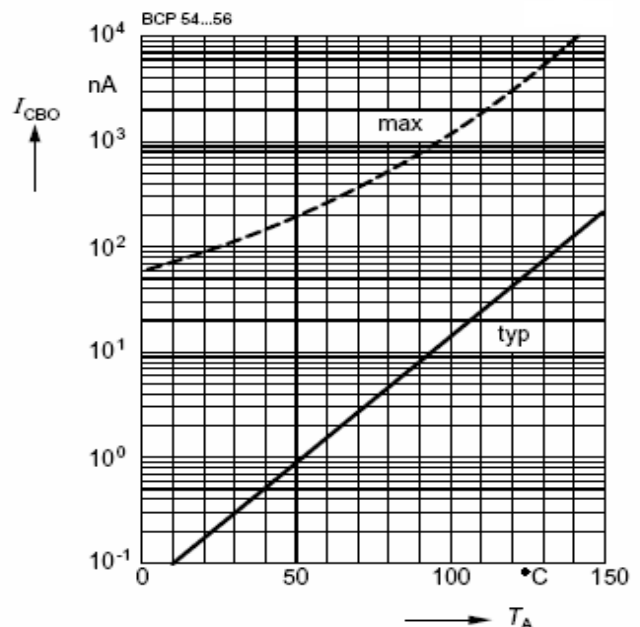
DC current gain  $h_{FE} = f(I_C)$

$V_{CE} = 2V$



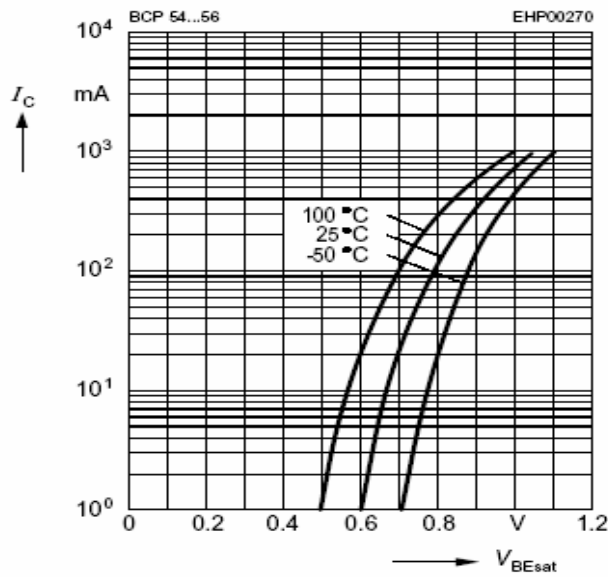
Collector cutoff current  $I_{CBO} = f(T_A)$

$V_{CB} = 30V$



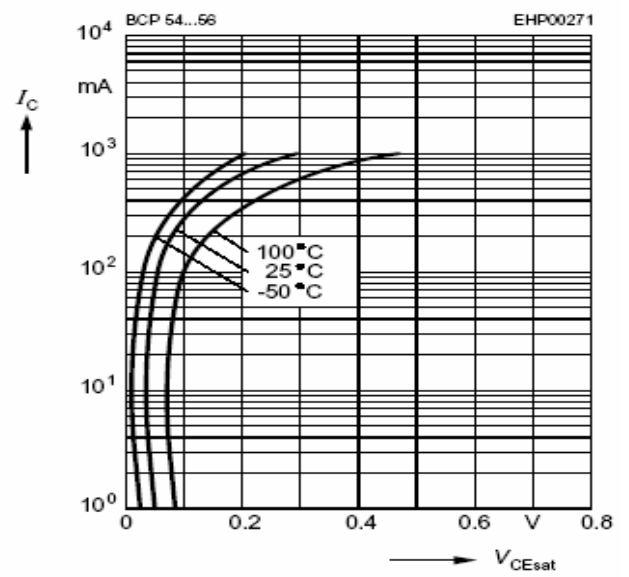
### Base-emitter saturation voltage

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



### Collector-emitter saturation voltage

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



### Permissible pulse load

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

