

## TRANSISTOR (PNP)

### FEATURES

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP54...BCP56 (NPN)

### SOT-223



1. BASE
2. COLLECTOR
3. EMITTER

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

Symbol	Parameter	BCP51	BCP52	BCP53	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)

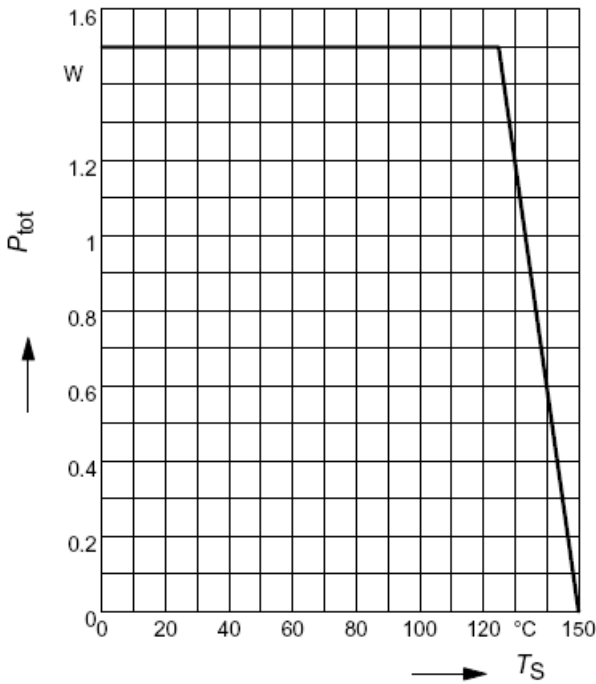
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
<b>Collector-base breakdown voltage</b>	<b>BCP51</b> <b>BCP52</b> <b>BCP53</b>	$V_{(BR)CBO}$	$I_C=-0.1\text{mA}, I_E=0$	-45 -60 -100	V
<b>Collector-emitter breakdown voltage</b>	<b>BCP51</b> <b>BCP52</b> <b>BCP53</b>	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-45 -60 -80	V
<b>Base-emitter breakdown voltage</b>		$V_{(BR)EBO}$	$I_C=-10\mu\text{A}, I_E=0$	-5	V
<b>Collector cut-off current</b>		$I_{CBO}$	$V_{CB}=-30\text{V}, I_E=0$	-100	nA
<b>DC current gain</b>		$h_{FE(1)}$	$V_{CE}=-2\text{V}, I_C=-5\text{mA}$	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	
<b>Collector-emitter saturation voltage</b>		$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$	-0.5	V
<b>Base-emitter voltage</b>		$V_{BE}$	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$	-1	V
<b>Transition frequency</b>		$f_T$	$V_{CE}=-10\text{V}, I_C=-50\text{mA}, f=100\text{MHz}$	100	MHz

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

Rank	BCP51-10, BCP52-10, BCP53-10	BCP51-16, BCP52-16, BCP53-16
Range	63-160	100-250

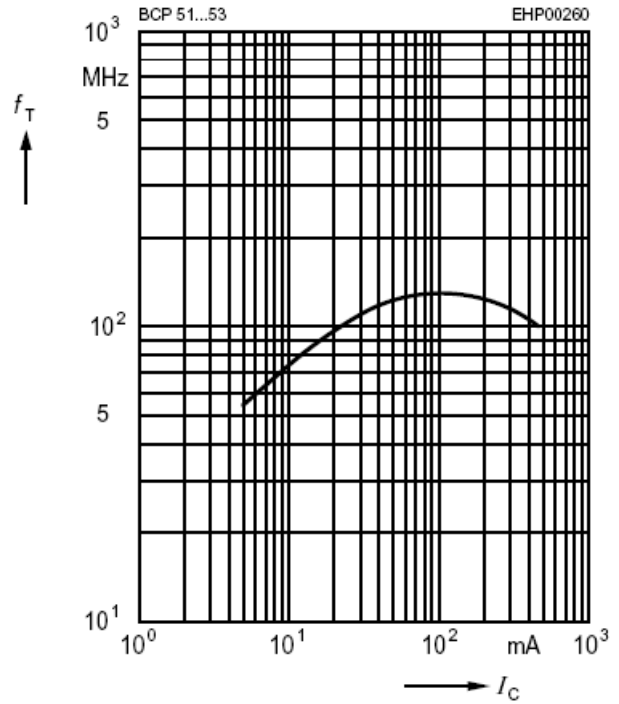
**Typical Characteristics**

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



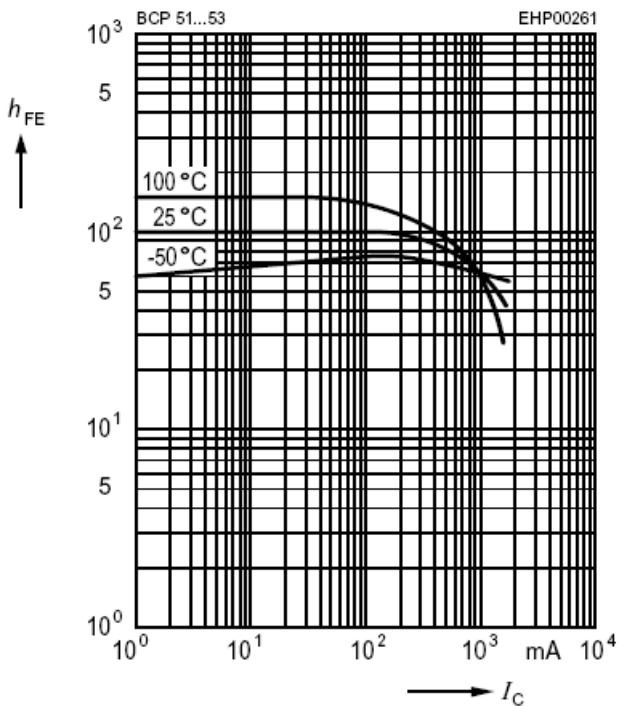
**Transition frequency  $f_T = f(I_C)$**

$V_{CE} = 10V$



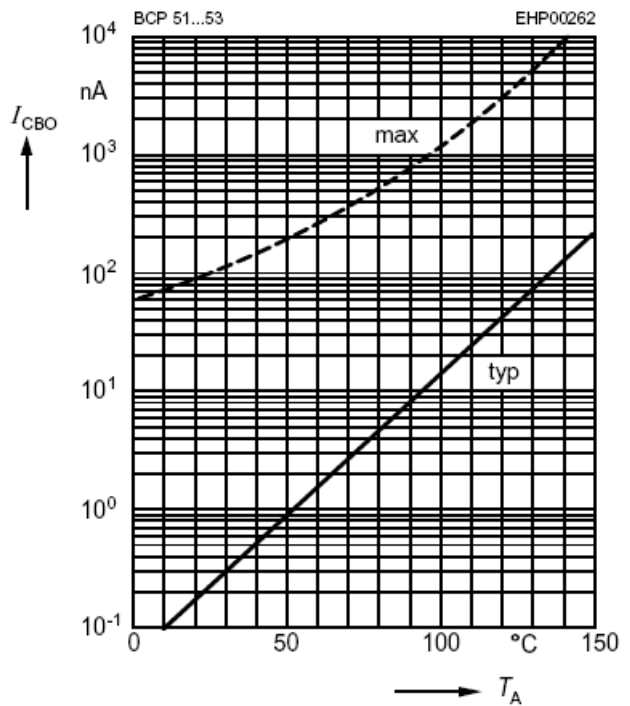
**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 2V$



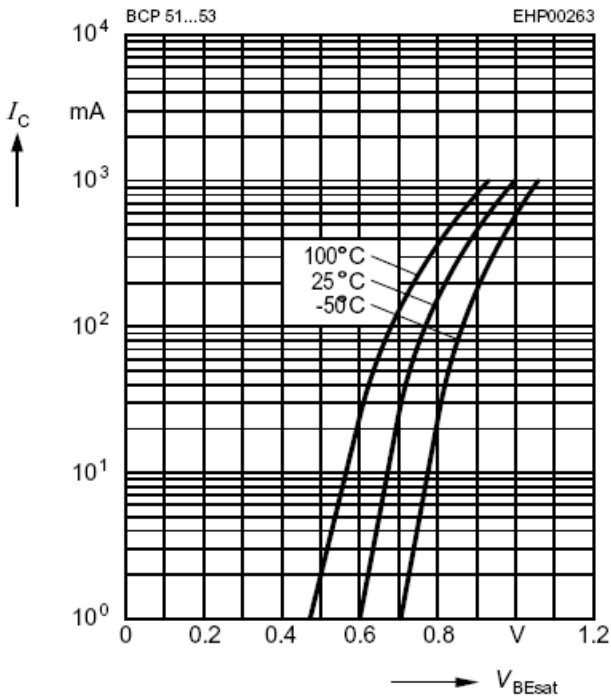
**Collector cutoff current  $I_{CBO} = f(T_A)$**

$V_{CB} = 30V$



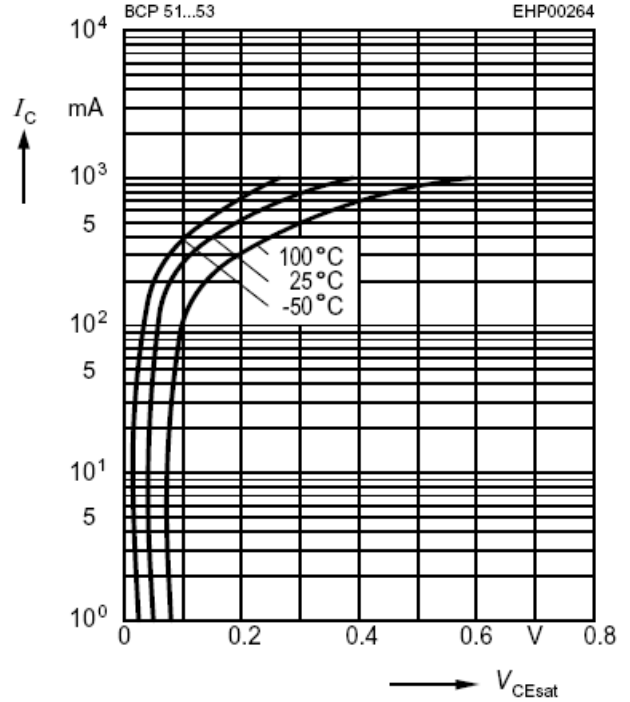
**Base-emitter saturation voltage**

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



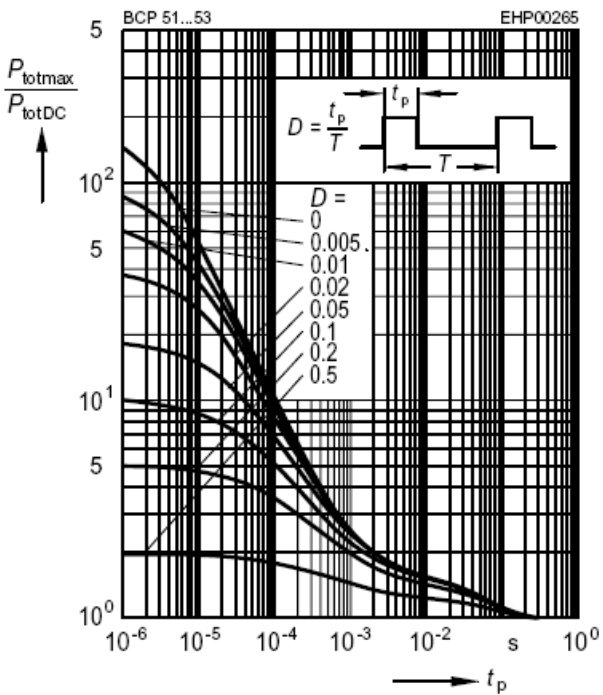
**Collector-emitter saturation voltage**

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



**Permissible pulse load**

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



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