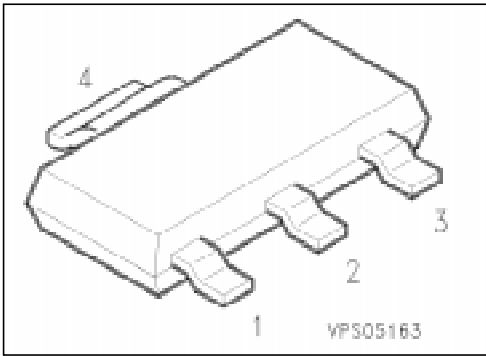


## NPN Silicon High-Voltage Transistors

**BF 720**  
**BF 722**

- Suitable for video output stages in TV sets and switching power supplies
- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary types: BF 721/723 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration				Package <sup>1)</sup>
			1	2	3	4	
BF 720 BF 722	BF 720 BF 722	Q62702-F1238 Q62702-F1306	B	C	E	C	SOT-223

### Maximum Ratings

Parameter	Symbol	Values		Unit
		BF 720	BF 722	
Collector-emitter voltage	$V_{CE0}$	–	250	V
	$V_{CER}$	300	–	
Collector-base voltage	$V_{CB0}$	300	250	
Emitter-base voltage	$V_{EB0}$	5	5	
Collector current	$I_C$	50		mA
Peak collector current	$I_{CM}$	100		
Total power dissipation, $T_s \leq 110\text{ °C}^2)$	$P_{tot}$	1.5		W
Junction temperature	$T_j$	150		°C
Storage temperature range	$T_{stg}$	– 65 ... + 150		

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	$\leq 87$	K/W
Junction - soldering point	$R_{th\ JS}$	$\leq 27$	

<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

## Electrical Characteristics

at  $T_A = 25\text{ °C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### DC characteristics

Collector-emitter breakdown voltage $I_C = 1\text{ mA}$ , $I_B = 0$ BF 722	$V_{(BR)CE0}$	250	—	—	V
Collector-emitter breakdown voltage $I_C = 10\text{ }\mu\text{A}$ , $R_{BE} = 2.7\text{ k}\Omega$ BF 720	$V_{(BR)CER}$	300	—	—	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$ , $I_B = 0$ BF 720 BF 722	$V_{(BR)CB0}$	300	—	—	
		250	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$	$V_{(BR)EB0}$	5	—	—	
Collector-base cutoff current $V_{CB} = 200\text{ V}$ , $I_E = 0$	$I_{CB0}$	—	—	10	nA
Collector-emitter cutoff current $V_{CE} = 200\text{ V}$ , $R_{BE} = 2.7\text{ k}\Omega$ $V_{CE} = 200\text{ V}$ , $R_{BE} = 2.7\text{ k}\Omega$ , $T_A = 150\text{ °C}$	$I_{CER}$	—	—	50	nA
		—	—	10	$\mu\text{A}$
Emitter-base cutoff current $V_{EB} = 5\text{ V}$ , $I_C = 0$	$I_{EB0}$	—	—	10	$\mu\text{A}$
DC current gain <sup>1)</sup> $I_C = 25\text{ mA}$ , $V_{CE} = 20\text{ V}$	$h_{FE}$	50	—	—	—
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 30\text{ mA}$ , $I_B = 5\text{ mA}$	$V_{CEsat}$	—	—	0.6	V

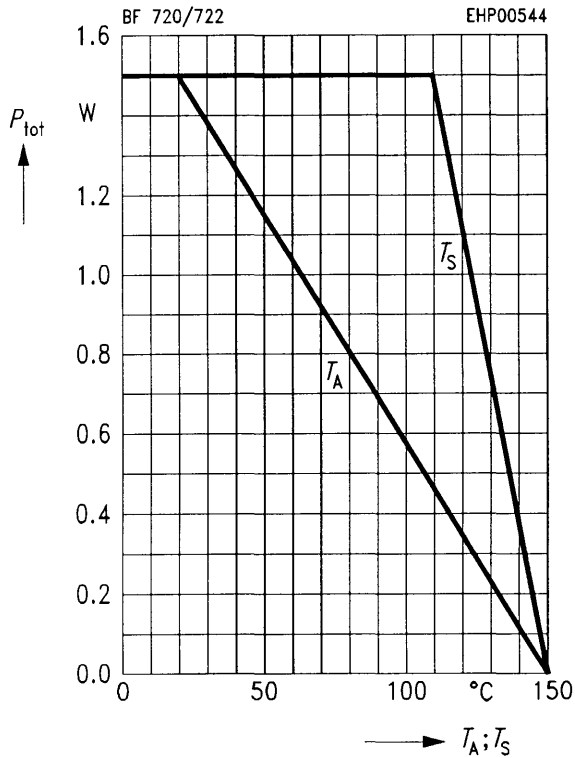
### AC characteristics

Transition frequency $I_C = 10\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 100\text{ MHz}$	$f_T$	—	100	—	MHz
Collector-base capacitance $V_{CB} = 30\text{ V}$ , $I_C = 0$ , $f = 1\text{ MHz}$	$C_{obo}$	—	0.8	—	pF

<sup>1)</sup> Pulse test conditions:  $t \leq 300\text{ }\mu\text{s}$ ,  $D = 2\text{ %}$ .

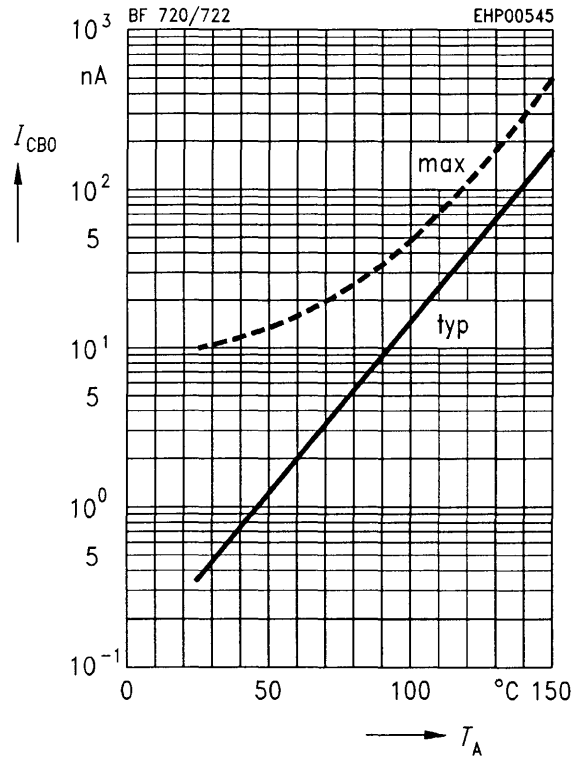
## Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

\* Package mounted on epoxy



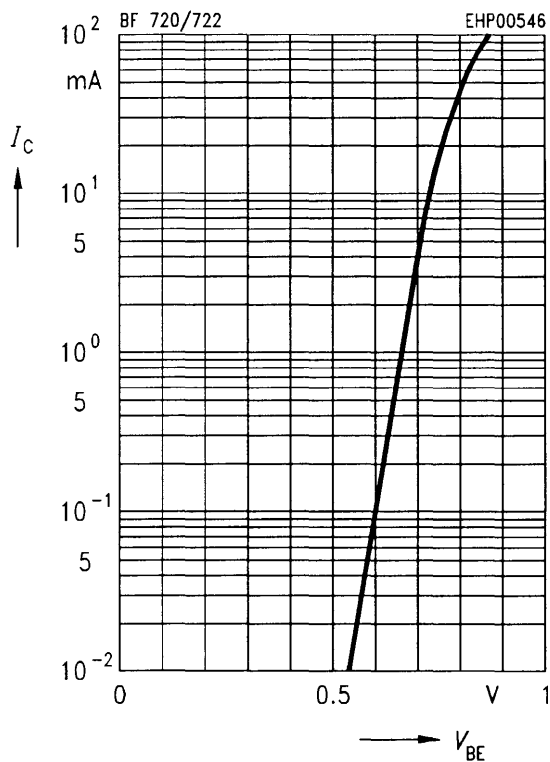
## Collector cutoff current $I_{\text{CB0}} = f(T_A)$

$V_{\text{CB}} = 200 \text{ V}$

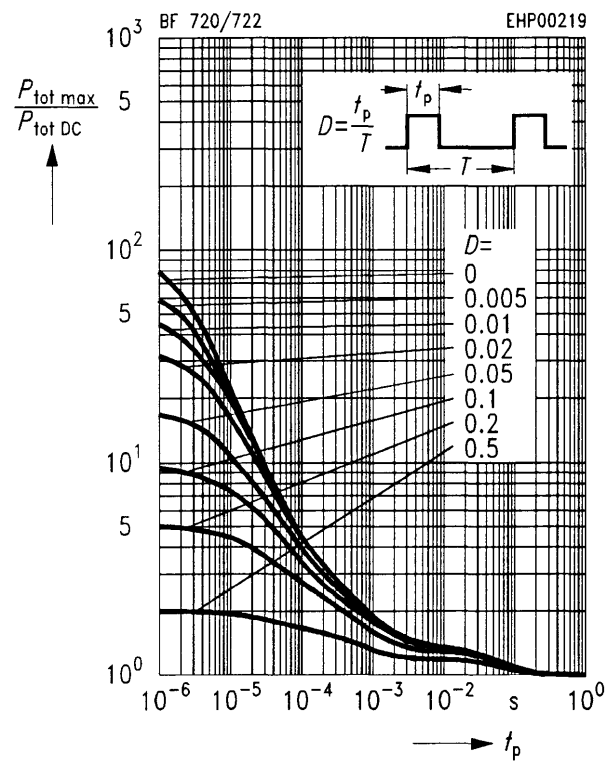


## Collector current $I_C = f(V_{\text{BE}})$

$V_{\text{CE}} = 20 \text{ V}$

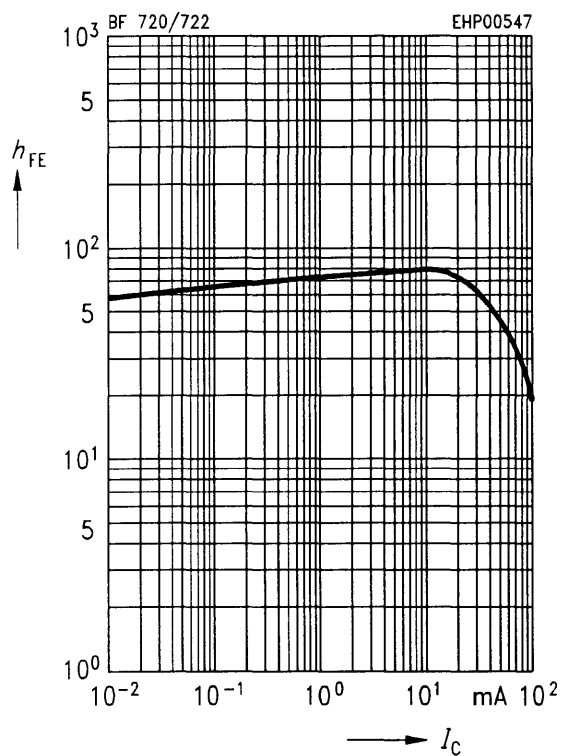


## Permissible pulse load $P_{\text{tot max}}/P_{\text{tot DC}} = f(t_p)$



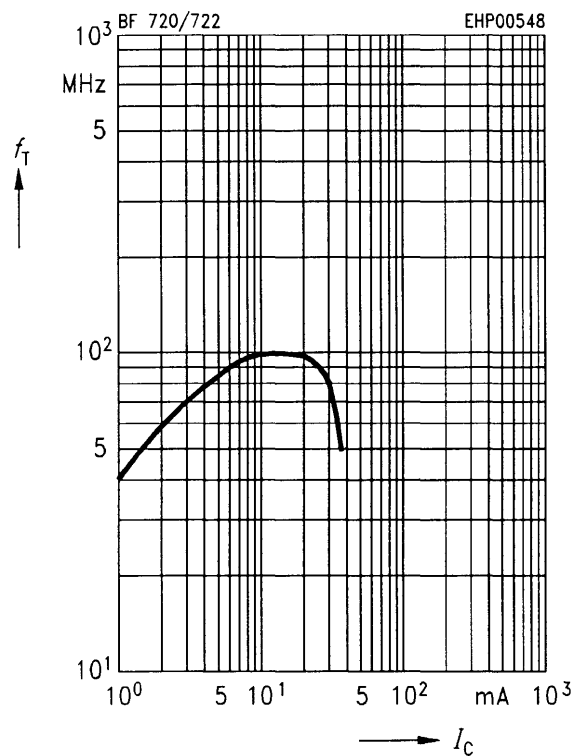
## DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 20 \text{ V}$



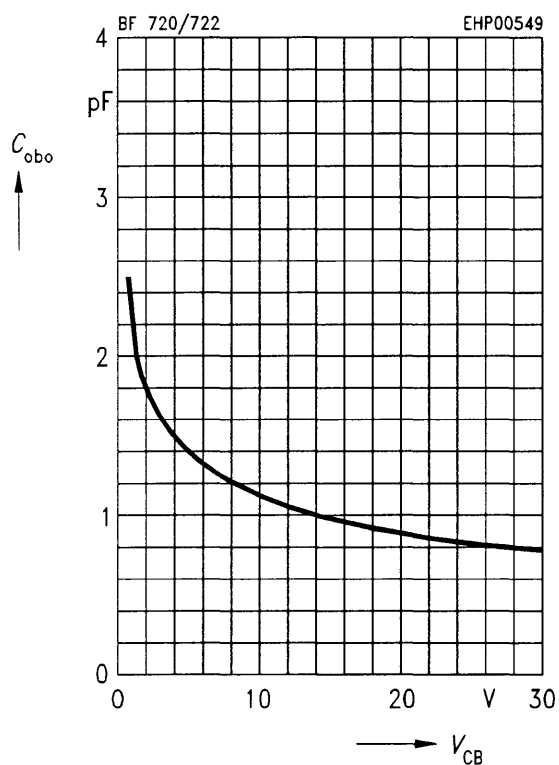
## Transition frequency $f_T = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$



## Collector-base capacitance $C_{obo} = f(V_{CB})$

$I_C = 0, f = 1 \text{ MHz}$



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[www.datasheetcatalog.com](http://www.datasheetcatalog.com)

Datasheets for electronics components.