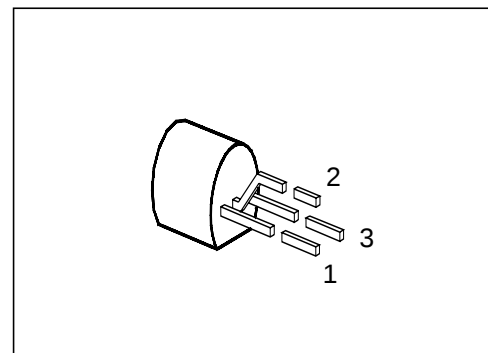


NPN Silicon Transistors With High Reverse Voltage

BF 420
BF 422

- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary types: BF 421, BF 423 (PNP)



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BF 420 BF 422	—	Q62702-F531 Q62702-F495	E	C	B	TO-92

Maximum Ratings

Parameter	Symbol	Values		Unit
		BF 420	BF 422	
Collector-emitter voltage	V_{CE0}	—	250	V
Collector-emitter voltage $R_{BE} = 2.7\text{ k}$	V_{CER}	300	—	
Collector-base voltage	V_{CB0}	300	250	
Emitter-base voltage	V_{EB0}	5		
Collector current	I_C	50		mA
Peak base current	I_{BM}	100		
Total power dissipation, $T_C = 88\text{ °C}$	P_{tot}	830		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	− 65 ... + 150		

Thermal Resistance

Junction - ambient	$R_{th \text{ JA}}$	≤ 150	K/W
Junction - case ²⁾	$R_{th \text{ JC}}$	≤ 75	

¹⁾ For detailed information see chapter Package Outlines.

²⁾ Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

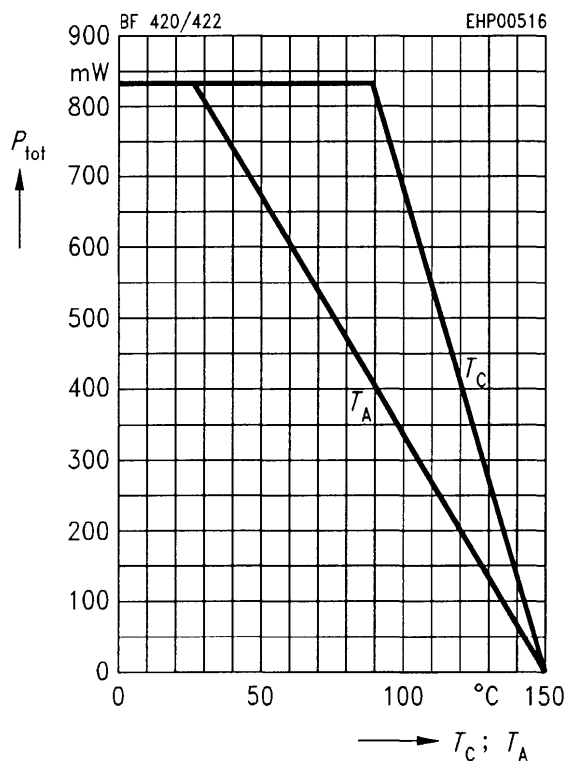
Collector-emitter breakdown voltage $I_C = 1\text{ mA}$ BF 422	$V_{(BR)CE0}$	250	—	—	V
Collector-emitter breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $R_{BE} = 2.7\text{ k}\Omega$ BF 420	$V_{(BR)CER}$	300	—	—	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$ BF 420 BF 422	$V_{(BR)CB0}$	300	—	—	
		250	—	—	
Emitter-base breakdown voltage, $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	—	—	
Collector cutoff current $V_{CB} = 200\text{ V}$	I_{CB0}	—	—	10	nA
Collector cutoff current $V_{CE} = 200\text{ V}$, $R_{BE} = 2.7\text{ k}\Omega$, $T_A = 150\text{ °C}$	I_{CER}	—	—	10	μA
Emitter cutoff current, $V_{EB} = 5\text{ V}$	I_{EB0}	—	—	10	
DC current gain $I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 20\text{ V}$ $I_C = 25\text{ mA}$, $V_{CE} = 20\text{ V}$	h_{FE}	15	—	—	—
		50	—	—	
Collector-emitter saturation voltage ¹⁾ $I_C = 25\text{ mA}$, $T_j = 150\text{ °C}$	$V_{CEsatRF}$	—	—	20	V

AC characteristics

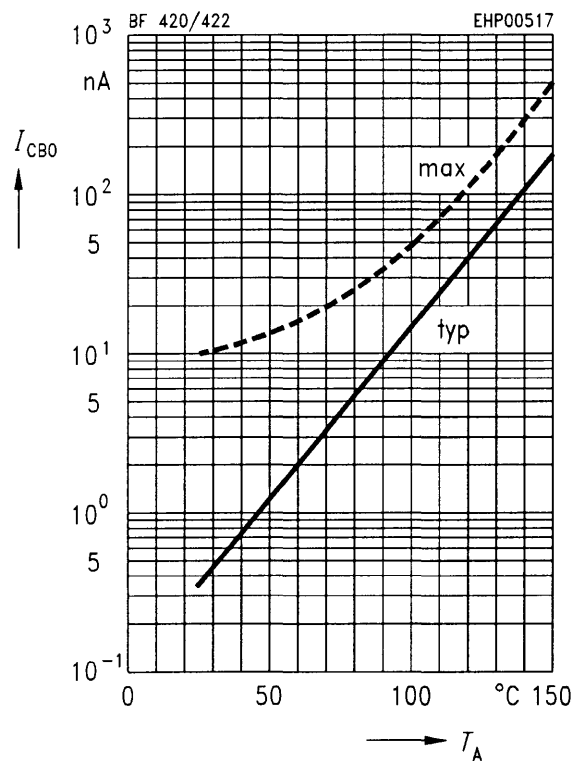
Transition frequency $I_C = 10\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 20\text{ MHz}$	f_T	—	100	—	MHz
Output capacitance $V_{CB} = 30\text{ V}$, $f = 1\text{ MHz}$	C_{obo}	—	0.8	—	pF

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

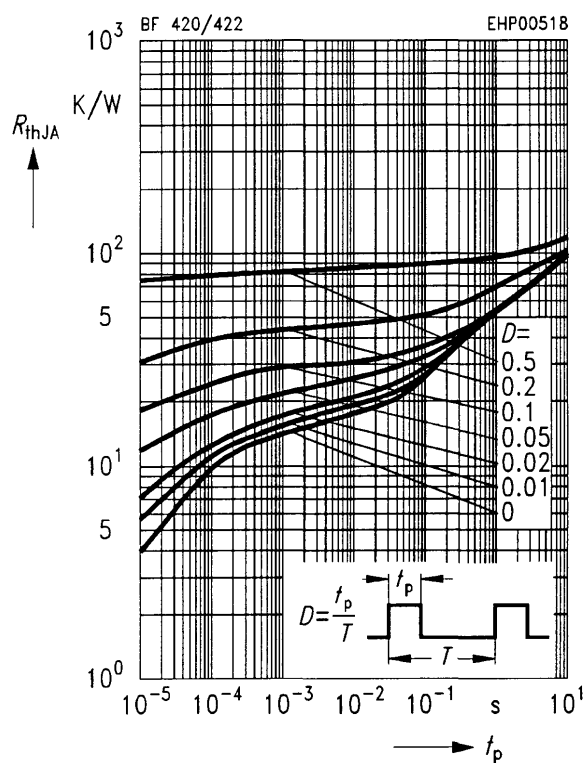
Total power dissipation $P_{\text{tot}} = f(T_A; T_C)$



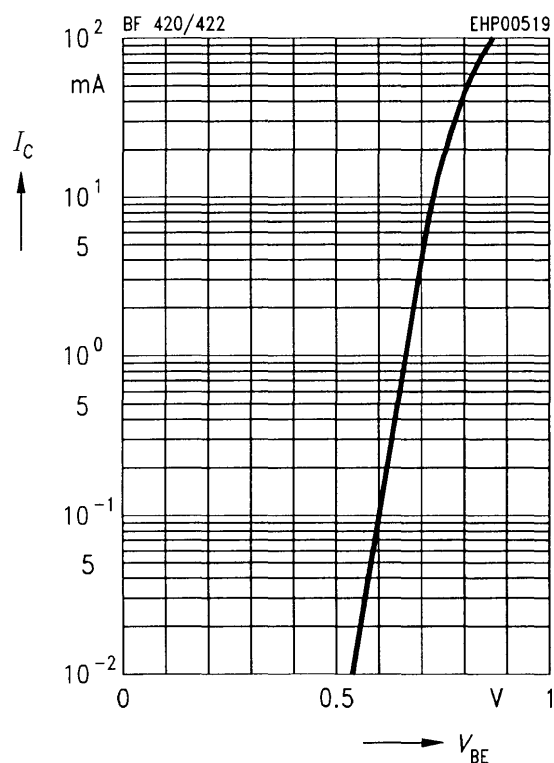
Collector cutoff current $I_{\text{CB0}} = f(T_A)$
 $V_{\text{CB}} = 200 \text{ V}$



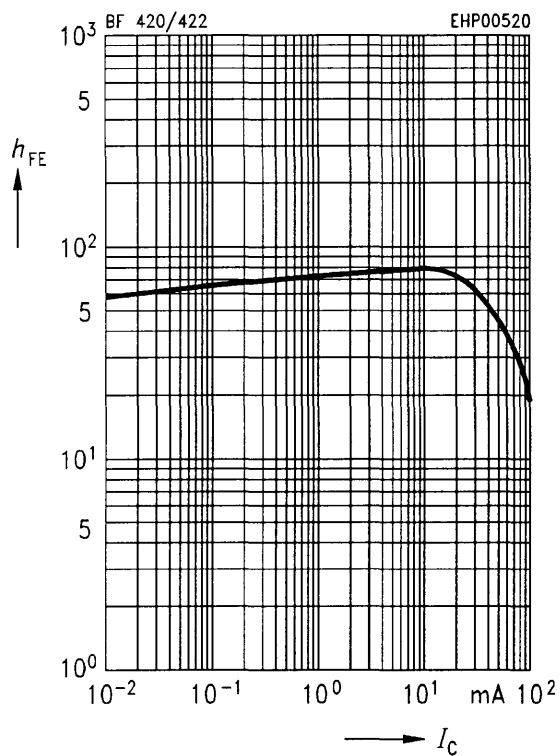
Permissible pulse load $R_{\text{thJA}} = f(t_p)$



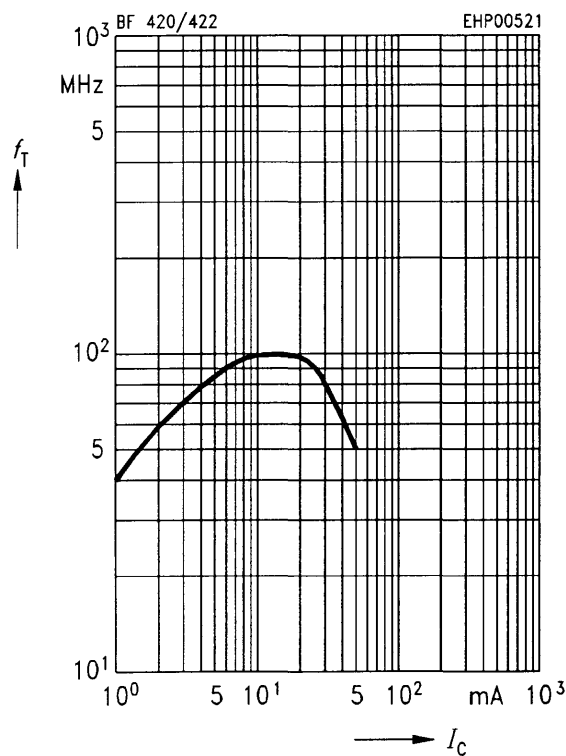
Collector current $I_C = f(V_{\text{BE}})$
 $V_{\text{CE}} = 20 \text{ V}, T_A = 25 \text{ °C}$



DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 20 \text{ V}, T_A = 25^\circ \text{C}$



Transition frequency $f_T = f(I_C)$
 $V_{CE} = 10 \text{ V}, f = 20 \text{ MHz}$



Output capacitance $C_{obo} = f(V_{CB})$
 $I_C = 0, f = 1 \text{ MHz}$

