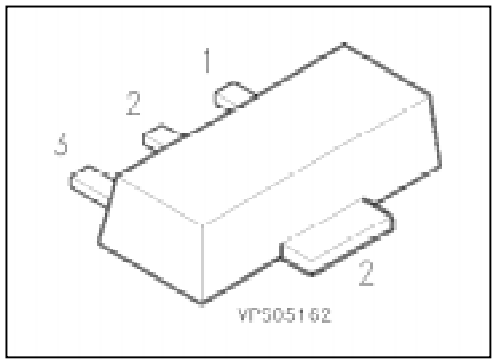
SIEMENS

NPN Silicon High-Voltage Transistor — BFN 20

- Suitable for video output stages in TV sets and switching power supplies
- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary type: BFN 21 (PNP)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1]
BFN 20	DC	Q62702-F1058	B	C	E	SOT-89

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	300	V
Collector-base voltage	V_{CB0}	300	
Collector-emitter voltage, R_{BE} = 2.7 kΩ	V_{CER}	300	
Emitter-base voltage	V_{EB0}	5	
Collector current	I_C	50	mA
Peak collector current	I_{CM}	100	
Total power dissipation, T_S = 120 °C	P_{tot}	1	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 65 … + 150	

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 90	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 30	

1) For detailed information see chapter Package Outlines.

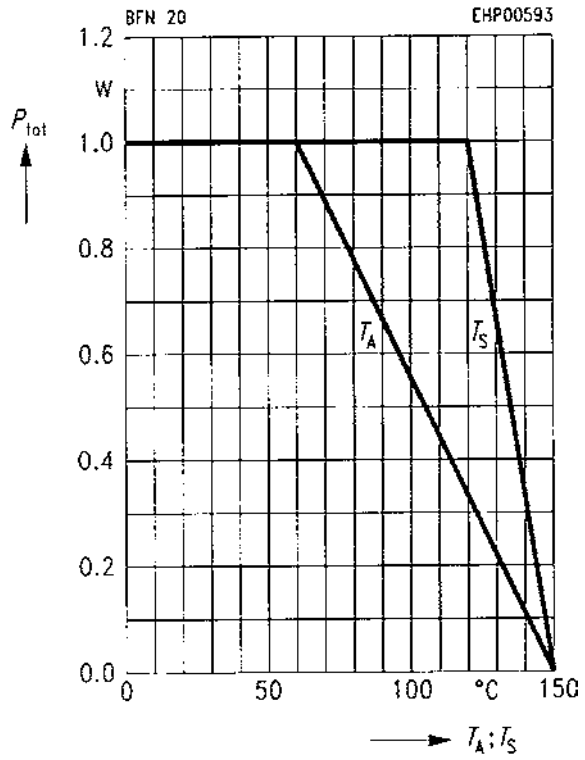
2) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

Electrical Characteristics
at T_A = 25 ˚C, unless otherwise specified.

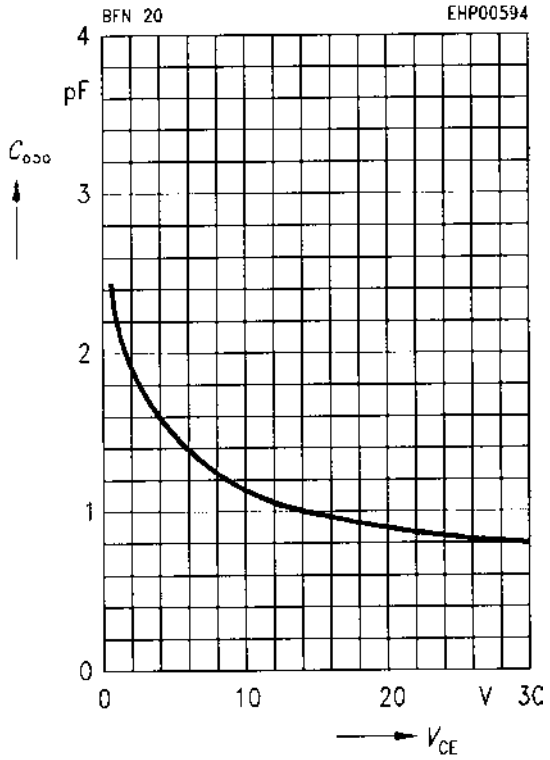
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 1 mA	$V_{(BR)CE0}$	300	–	–	V
Collector-base breakdown voltage I_C = 10 µA	$V_{(BR)CB0}$	300	–	–	
Collector-emitter breakdown voltage I_C = 10 µA, R_{BE} = 2.7 kΩ	$V_{(BR)CER}$	300	–	–	
Emitter-base breakdown voltage I_E = 10 µA	$V_{(BR)EB0}$	5	–	–	
Collector-base cutoff current V_{CB} = 250 V V_{CB} = 250 V, T_A = 150 ˚C	I_{CB0}	 – –	 – –	 100 20	 nA µA
Collector cutoff current V_{CE} = 300 V, R_{BE} = 2.7 kΩ V_{CE} = 300 V, T_A = 150 ˚C, R_{BE} = 2.7 kΩ	I_{CER}	 – –	 – –	 1 50	µA
Emitter-base cutoff current V_{EB} = 5 V	I_{EB0}	–	–	10	
DC current gain[1)] I_C = 25 mA, V_{CE} = 20 V	h_{FE}	40	–	–	–
Collector-emitter saturation voltage[1)] I_C = 10 mA, I_B = 1 mA	V_{CEsat}	–	–	0.5	V
Base-emitter saturation voltage[1)] I_C = 10 mA, I_B = 1 mA	V_{BEsat}	–	–	1	
AC characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 10 V, f = 20 MHz	f_t	–	100	–	MHz
Output capacitance V_{CB} = 30 V, f = 1 MHz	C_{obo}	–	0.8	–	pF

1) Pulse test conditions: $t \leq 300$ µs, D = 2 %.

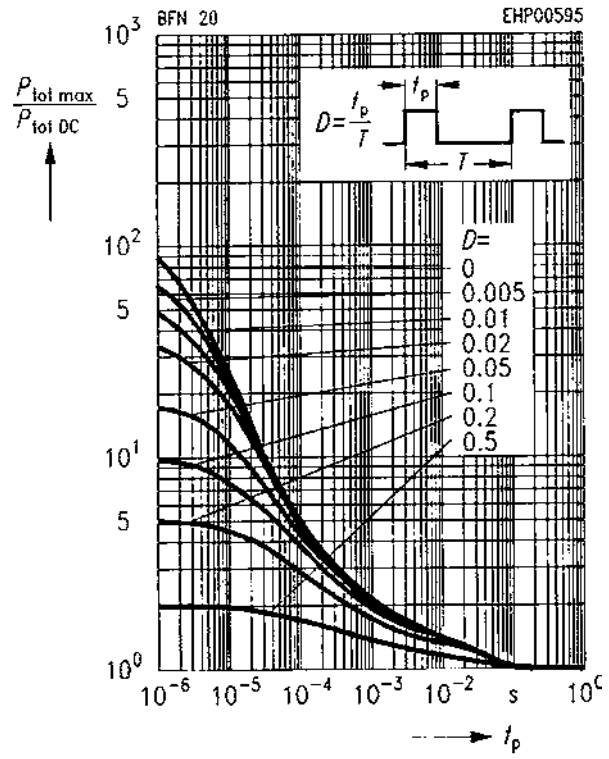
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



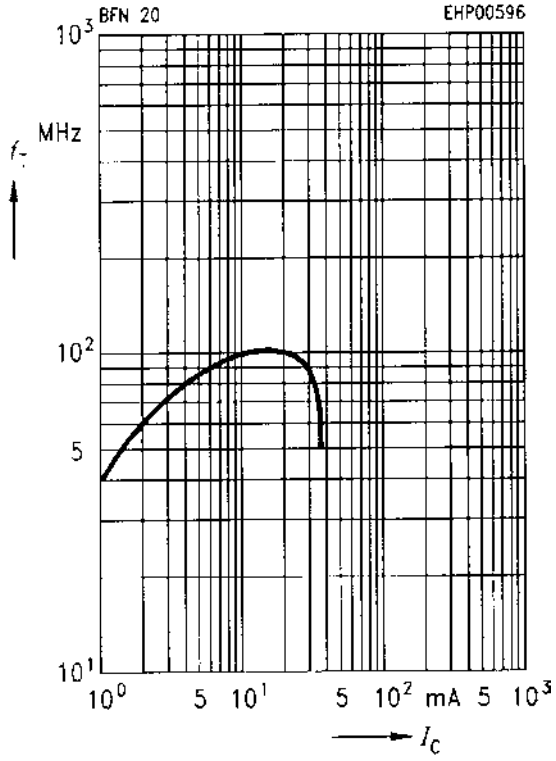
Output capacitance $C_{obo} = f(V_{CE})$
f= 1 MHz



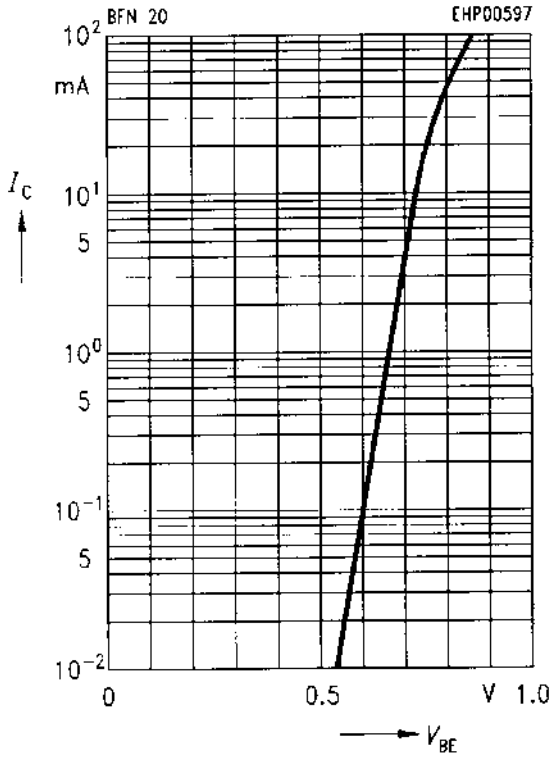
Permissible pulse load $P_{tot\,max} / P_{tot\,DC} = f(t_p)$



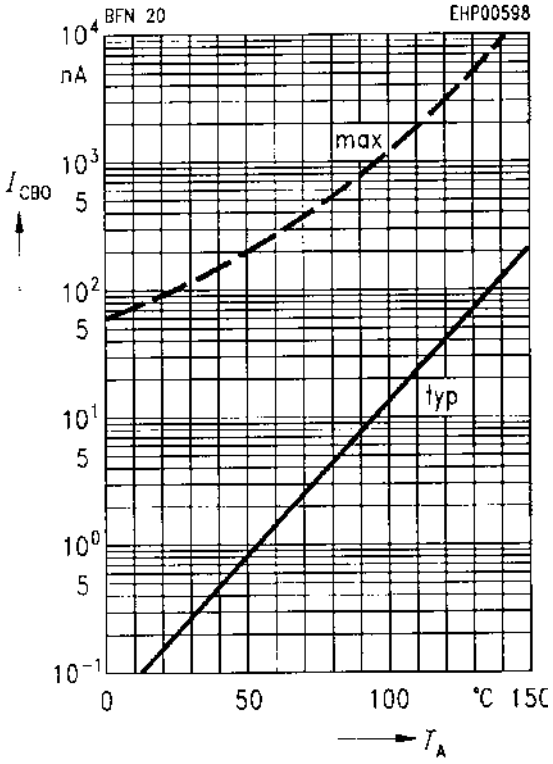
Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V



Collector current $I_C = f(V_{BE})$
V_{CE} = 20 V



Collector cutoff current $I_{CB0} = f(T_A)$
V_{CB} = 250 V



DC current gain $h_{FE} = f(I_C)$
V_{CE} = 20 V