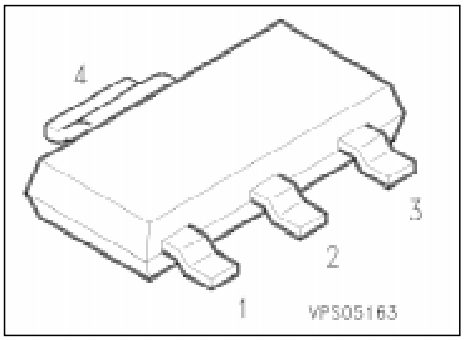
SIEMENS

PNP Silicon High-Voltage Transistors

BFN 37
BFN 39

- Suitable for video output stages in TV sets and switching power supplies
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary types: BFN 36, BFN 38 (NPN)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	4	Package[1]
BFN 37 BFN 39	BFN 37 BFN 39	Q62702-F1304 Q62702-F1305	B	C	E	C	SOT-223

Maximum Ratings

Parameter	Symbol	Values BFN 37	BFN 39	Unit
Collector-emitter voltage	V_{CE0}	250	300	V
Collector-base voltage	V_{CB0}	250	300	
Emitter-base voltage	V_{EB0}	5		
Collector current	I_C	200		mA
Peak collector current	I_{CM}	500		
Base current	I_B	100		
Peak base current	I_{BM}	200		
Total power dissipation, $T_S = 124$ °C	P_{tot}	1.5		W
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	– 65 … + 150		

Thermal Resistance

Junction - ambient[2]	$R_{th\ JA}$	≤ 72	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 17	

1) For detailed information see chapter Package Outlines.
2) Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² Cu.

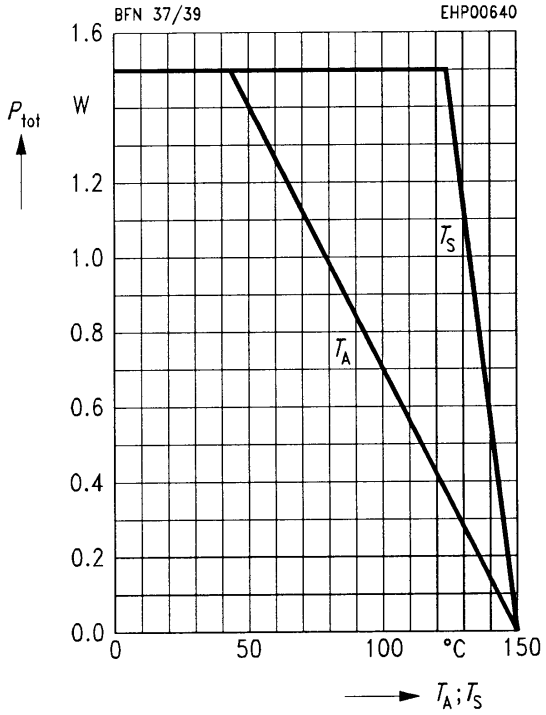
Electrical Characteristics

at T_A = 25 °C, unless otherwise specified.

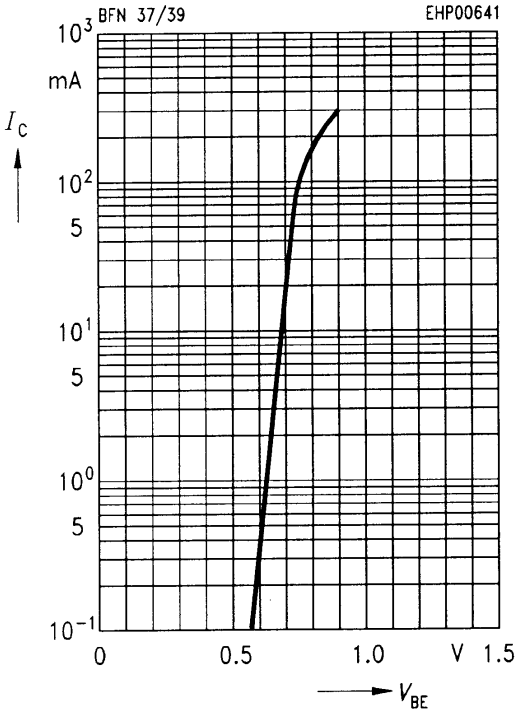
Parameter		Symbol	Values			Unit
			min.	typ.	max.	
DC characteristics						
Collector-emitter breakdown voltage		$V_{(BR)CE0}$				V
I_C = 1 mA, I_B = 0	BFN 37		250	–	–	
	BFN 39		300	–	–	
Collector-base breakdown voltage		$V_{(BR)CB0}$				
I_C = 100 µA, I_B = 0	BFN 37		250	–	–	
	BFN 39		300	–	–	
Emitter-base breakdown voltage		$V_{(BR)EB0}$	5	–	–	
I_E = 100 µA, I_B = 0						
Collector-base cutoff current		I_{CB0}				
V_{CB} = 200 V	BFN 37		–	–	100	nA
V_{CB} = 250 V	BFN 39		–	–	100	nA
V_{CB} = 200 V, T_A = 150 °C	BFN 37		–	–	20	µA
V_{CB} = 250 V, T_A = 150 °C	BFN 39		–	–	20	µA
Emitter-base cutoff current		I_{EB0}	–	–	100	nA
V_{EB} = 4 V, I_C = 0						
DC current gain[1)]		h_{FE}				–
I_C = 1 mA, V_{CE} = 10 V			25	–	–	
I_C = 10 mA, V_{CE} = 10 V			40	–	–	
I_C = 30 mA, V_{CE} = 10 V	BFN 37		40	–	–	
I_C = 30 mA, V_{CE} = 10 V	BFN 39		30	–	–	
Collector-emitter saturation voltage[1)]		V_{CEsat}				V
I_C = 20 mA, I_B = 2 mA	BFN 37		–	–	0.4	
	BFN 39		–	–	0.5	
Base-emitter saturation voltage[1)]		V_{BEsat}	–	–	0.9	
I_C = 20 mA, I_B = 2 mA						
AC characteristics						
Transition frequency		f_T	–	1000	–	MHz
I_C = 20 mA, V_{CE} = 10 V, f = 100 MHz						
Output capacitance		C_{obo}	–	2.5	–	pF
V_{CB} = 30 V, f = 1 MHz						

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

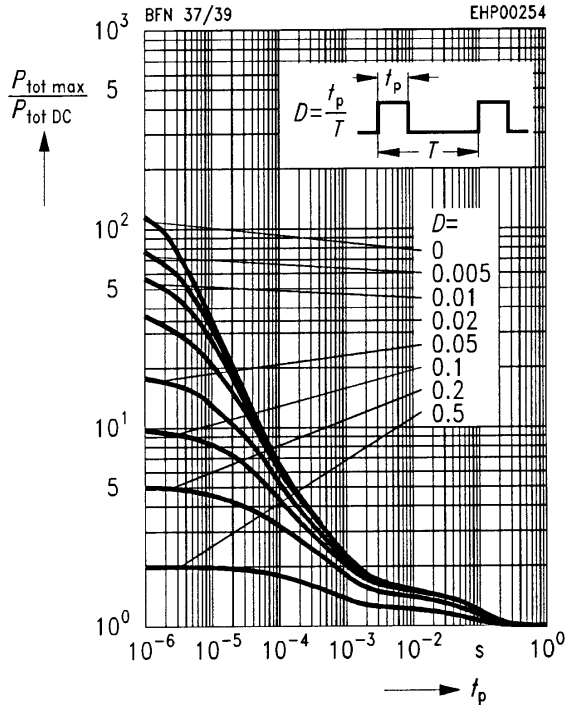
Total power dissipation $P_{tot} = f(T_A^*; T_S)$
* Package mounted on epoxy



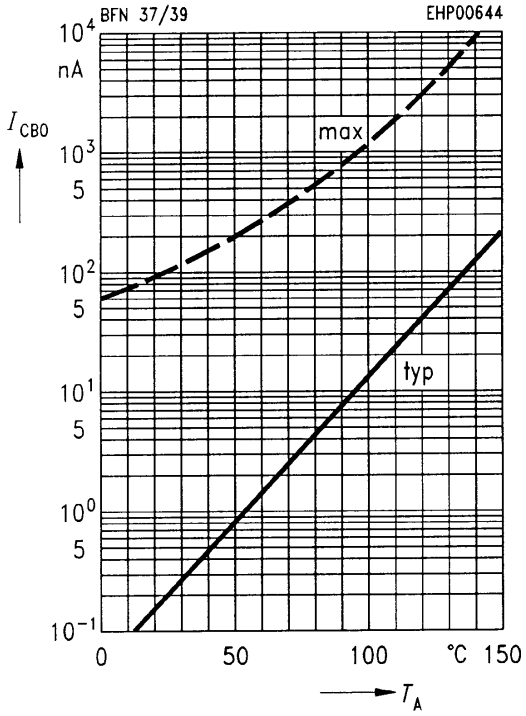
Collector current $I_C = f(V_{BE})$
V_{CE} = 10 V



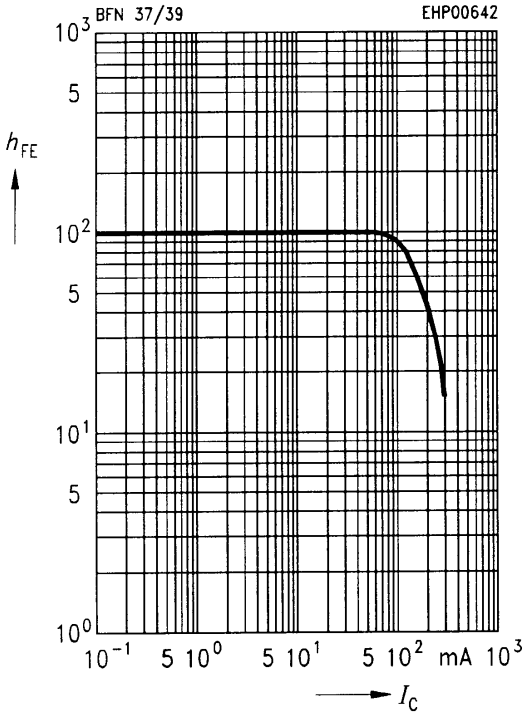
Permissible pulse load $P_{tot\,max}/P_{tot\,DC} = f(t_p)$



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



DC current gain $h_{FE} = f(I_C)$
V_{CE} = 10 V



Transition frequency $f_T = f(I_C)$
V_{CE} = 10 V, f = 100 MHz