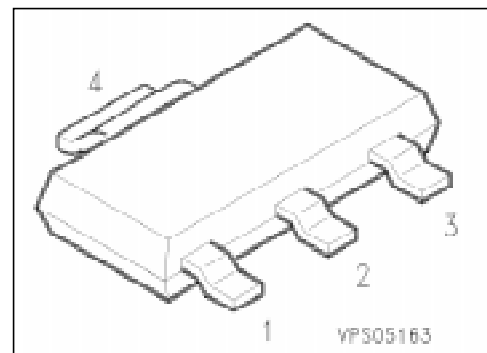


PNP Silicon AF Transistor

BCP 69

- For general AF application
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary type: BCP 68 (NPN)



Type	Marking	Ordering Code (tape and reel)	Pin Configuration				Package ¹⁾
			1	2	3	4	
BCP 69	BCP 69	Q62702-C2130	B	C	E	C	SOT-223
BCP 69-10	BCP 69-10	Q62702-C2131					
BCP 69-16	BCP 69-16	Q62702-C2132					
BCP 69-25	BCP 69-25	Q62702-C2133					

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	V
	V_{CES}	25	
	V_{CB0}	25	
Collector-base voltage	V_{CB0}	25	
Emitter-base voltage	V_{EB0}	5	
Collector current	I_C	1	A
Peak collector current	I_{CM}	2	
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation, $T_s = 124\text{ °C}^{2)}$	P_{tot}	1.5	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 65 ... + 150	

Thermal Resistance

Junction - ambient 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 $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC characteristics

Collector-emitter breakdown voltage $I_C = 30\text{ mA}$, $I_B = 0$	$V_{(BR)CE0}$	20	—	—	V
Collector-emitter breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $V_{BE} = 0$	$V_{(BR)CES}$	25	—	—	
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $I_B = 0$	$V_{(BR)CB0}$	25	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$, $I_B = 0$	$V_{(BR)EB0}$	5	—	—	
Collector-base cutoff current $V_{CB} = 25\text{ V}$ $V_{CB} = 25\text{ V}$, $T_A = 150\text{ }^{\circ}\text{C}$	I_{CB0}	— —	— —	100 100	nA μA
Emitter-base cutoff current $V_{EB} = 5\text{ V}$, $I_C = 0$	I_{EB0}	—	—	100	nA
DC current gain ¹⁾ $I_C = 5\text{ mA}$, $V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}$, $V_{CE} = 1\text{ V}$ BCP 69 BCP 69-10 BCP 69-16 BCP 69-25 $I_C = 1\text{ A}$, $V_{CE} = 1\text{ V}$	h_{FE}	50 85 85 100 160 60	— — 100 160 250 —	— 375 160 250 375 —	—
Collector-emitter saturation voltage ¹⁾ $I_C = 1\text{ A}$, $I_B = 100\text{ mA}$	V_{CEsat}	—	—	0.5	V
Base-emitter voltage ¹⁾ $I_C = 5\text{ mA}$, $V_{CE} = 10\text{ V}$ $I_C = 1\text{ A}$, $V_{CE} = 1\text{ V}$	V_{BE}	— —	0.6 —	— 1	

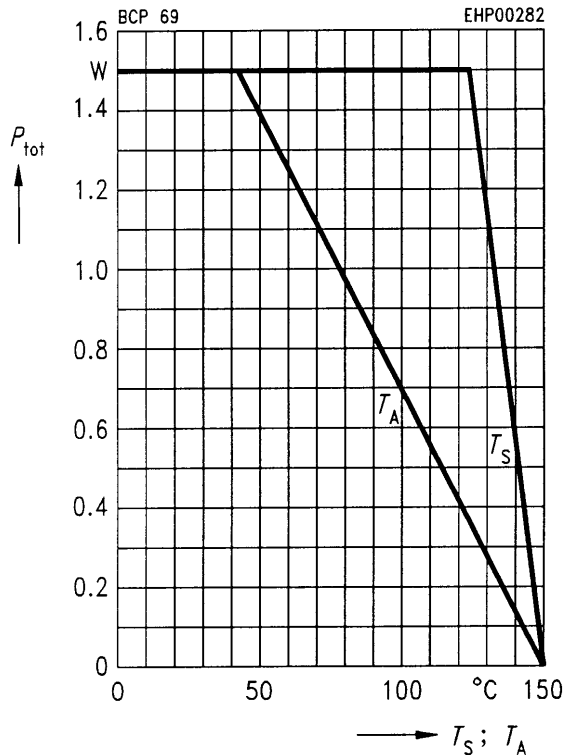
AC characteristics

Transition frequency $I_C = 100\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 100\text{ MHz}$	f_T	—	100	—	MHz
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¹⁾ Pulse test conditions: $t \leq 300\text{ }\mu\text{s}$, $D = 2\text{ }\%$.

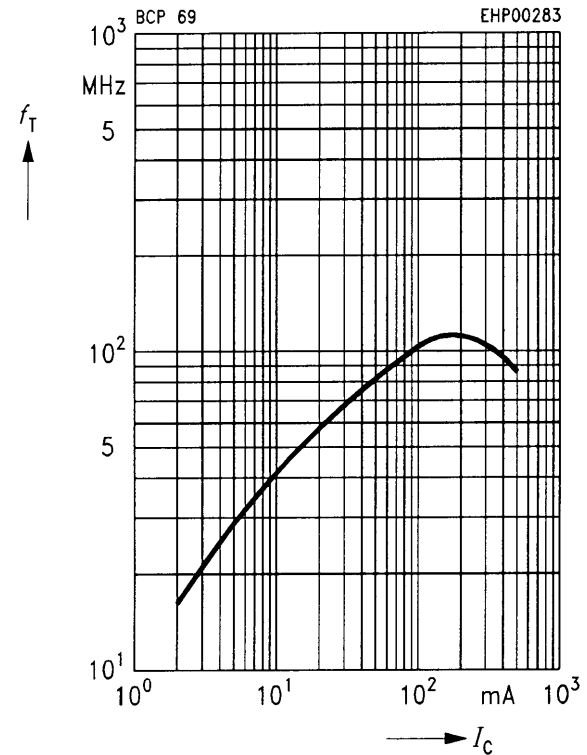
Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

* Package mounted on epoxy



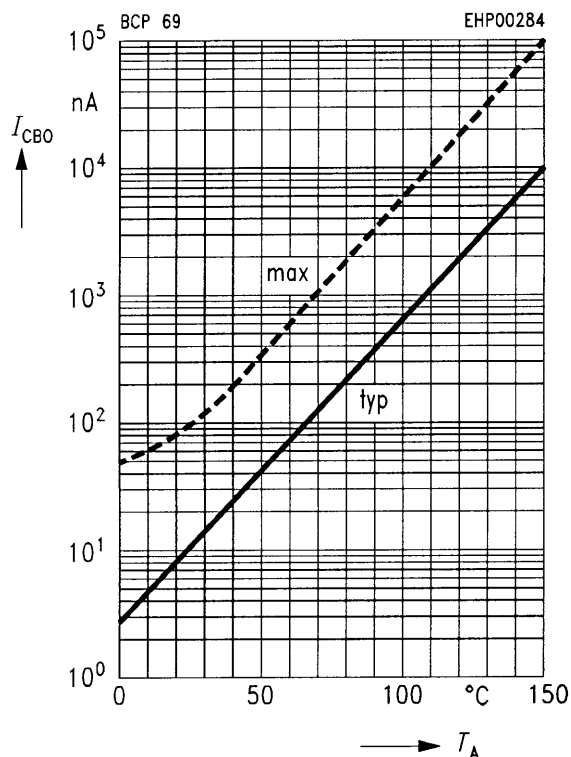
Transition frequency $f_T = f(I_C)$

$V_{CE} = 5 \text{ V}$, $f = 100 \text{ MHz}$



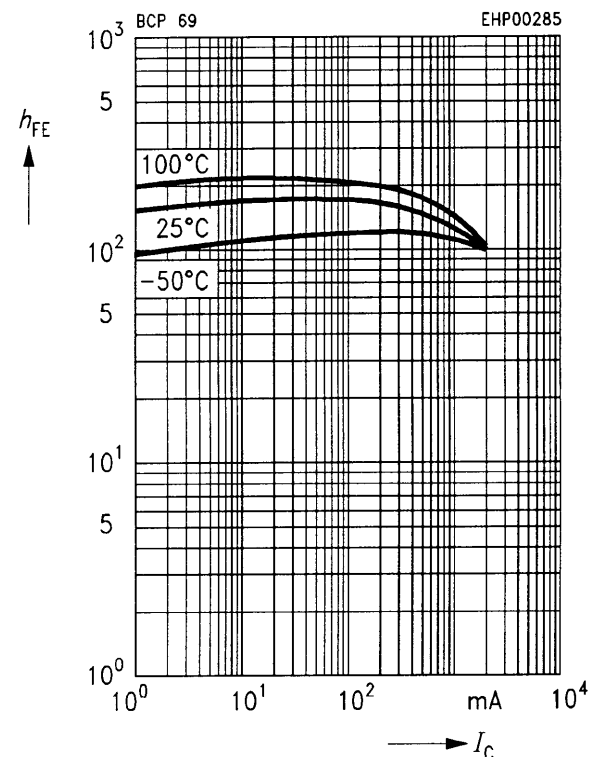
Collector cutoff current $I_{CB0} = f(T_A)$

$V_{CB} = 25 \text{ V}$



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

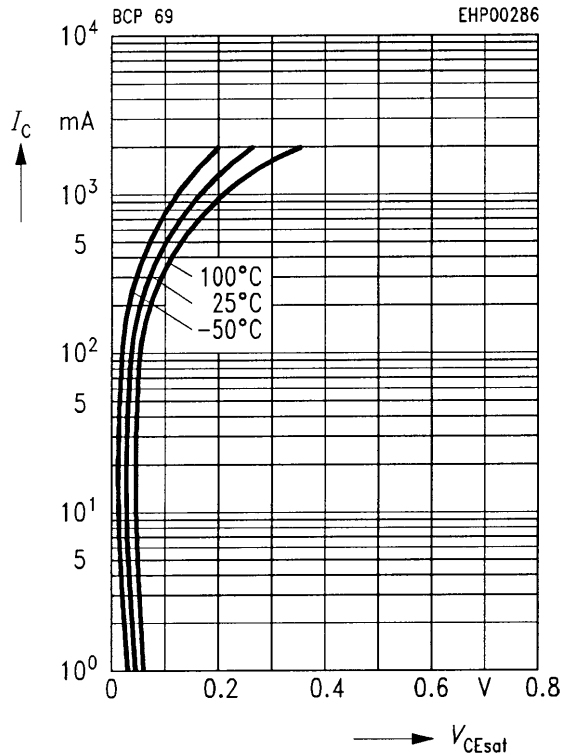
$V_{CB} = 1 \text{ V}$



Collector-emitter saturation voltage

$$I_C = f(V_{CEsat})$$

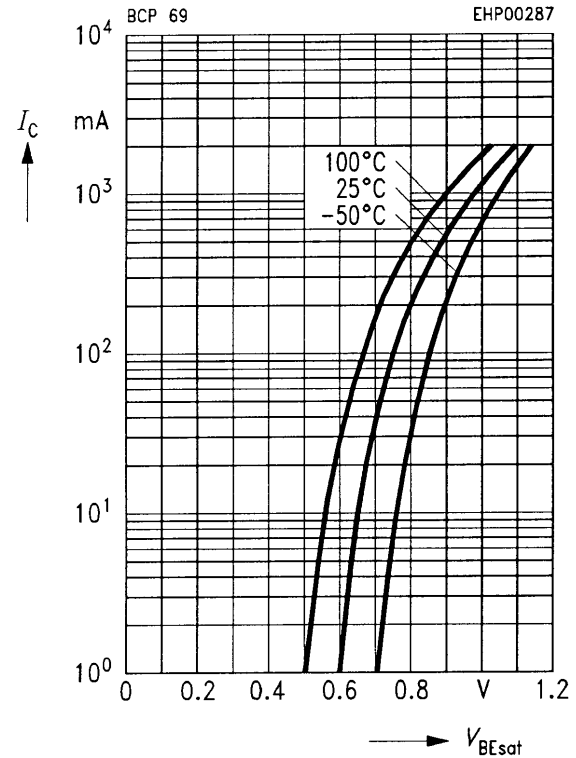
$$h_{FE} = 10$$



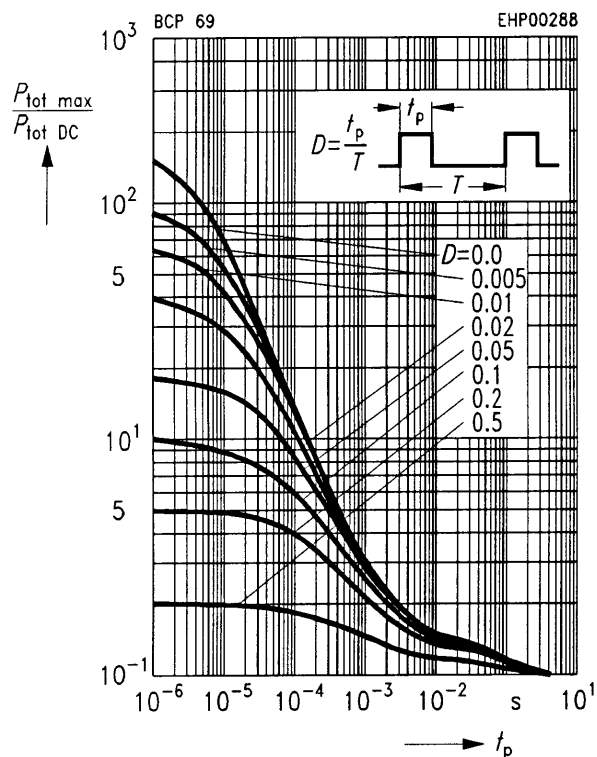
Base-emitter saturation voltage

$$I_C = f(V_{BEsat})$$

$$h_{FE} = 10$$



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



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