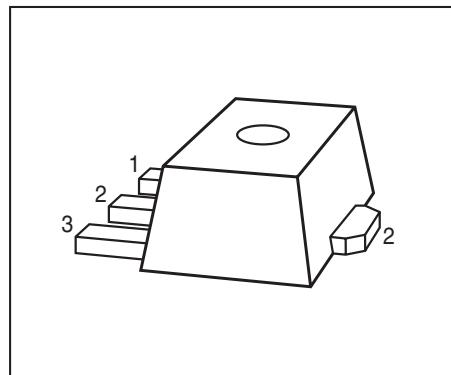


PNP Silicon AF Transistors

- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- Complementary type: BCX68 (NPN)
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101



Type	Marking	Pin Configuration			Package
BCX69-10	CF	1=B	2=C	3=E	SOT89
BCX69-16	CG	1=B	2=C	3=E	SOT89
BCX69-25	CH	1=B	2=C	3=E	SOT89

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	20	V
Collector-base voltage	V_{CBO}	25	
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	1	A
Peak collector current, $t_p \leq 10 \text{ ms}$	I_{CM}	2	
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation- $T_S = 114 \text{ }^\circ\text{C}$	P_{tot}	3	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ²⁾	R_{thJS}	≤ 12	K/W

¹Pb-containing package may be available upon special request

²For calculation of R_{thJA} please refer to Application Note Thermal Resistance

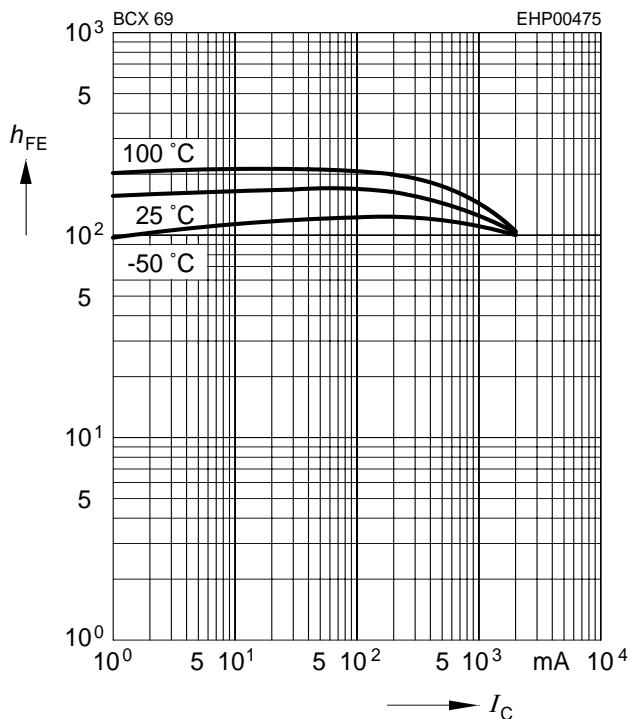
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 30 \text{ mA}, I_B = 0$	$V_{(\text{BR})\text{CEO}}$	20	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(\text{BR})\text{CBO}}$	25	-	-	
Emitter-base breakdown voltage $I_E = 1 \mu\text{A}, I_C = 0$	$V_{(\text{BR})\text{EBO}}$	5	-	-	
Collector-base cutoff current $V_{\text{CB}} = 25 \text{ V}, I_E = 0$ $V_{\text{CB}} = 25 \text{ V}, I_E = 0, T_A = 150$	I_{CBO}	-	-	0.1 100	μA
DC current gain ¹⁾ $I_C = 5 \text{ mA}, V_{\text{CE}} = 10 \text{ V}$ $I_C = 500 \text{ mA}, V_{\text{CE}} = 1 \text{ V}, \text{BCX69-10}$ $I_C = 500 \text{ mA}, V_{\text{CE}} = 1 \text{ V}, \text{BCX69-16}$ $I_C = 500 \text{ mA}, V_{\text{CE}} = 1 \text{ V}, \text{BCX69-25}$ $I_C = 1 \text{ A}, V_{\text{CE}} = 1 \text{ V}$	h_{FE}	50 85 100 160 60	-	-	-
Collector-emitter saturation voltage ¹⁾ $I_C = 1 \text{ A}, I_B = 100 \text{ mA}$	V_{CEsat}	-	-	0.5	V
Base-emitter voltage ¹⁾ $I_C = 5 \text{ mA}, V_{\text{CE}} = 10 \text{ V}$ $I_C = 1 \text{ A}, V_{\text{CE}} = 1 \text{ V}$	$V_{\text{BE}(\text{ON})}$	-	0.6 -	- 1	
AC Characteristics					
Transition frequency $I_C = 100 \text{ mA}, V_{\text{CE}} = 5 \text{ V}, f = 20 \text{ MHz}$	f_T	-	100	-	MHz

¹Pulse test: $t < 300\mu\text{s}$; $D < 2\%$

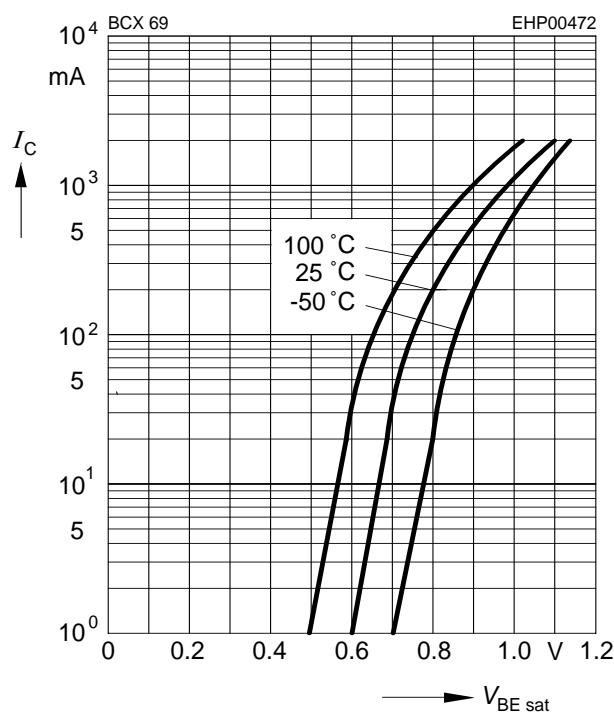
DC current gain $h_{FE} = f(I_C)$

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



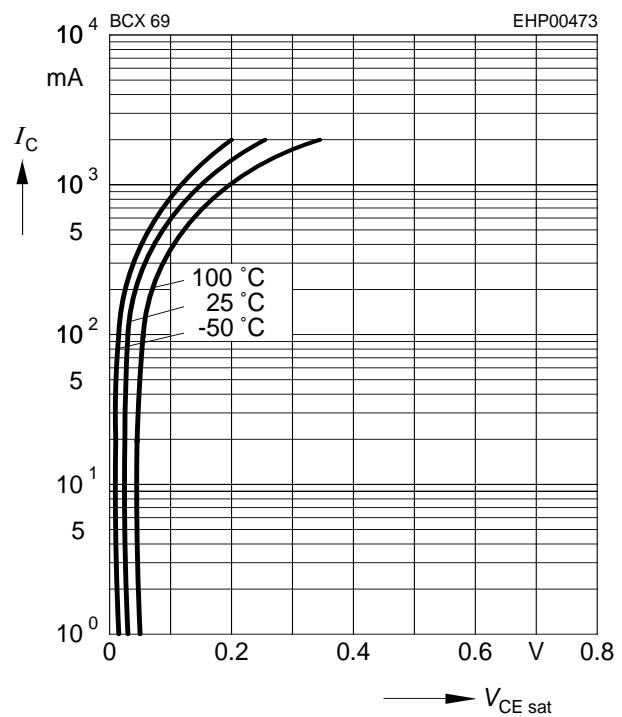
Base-emitter saturation voltage

$$I_C = f(V_{BEsat}), h_{FE} = 10$$



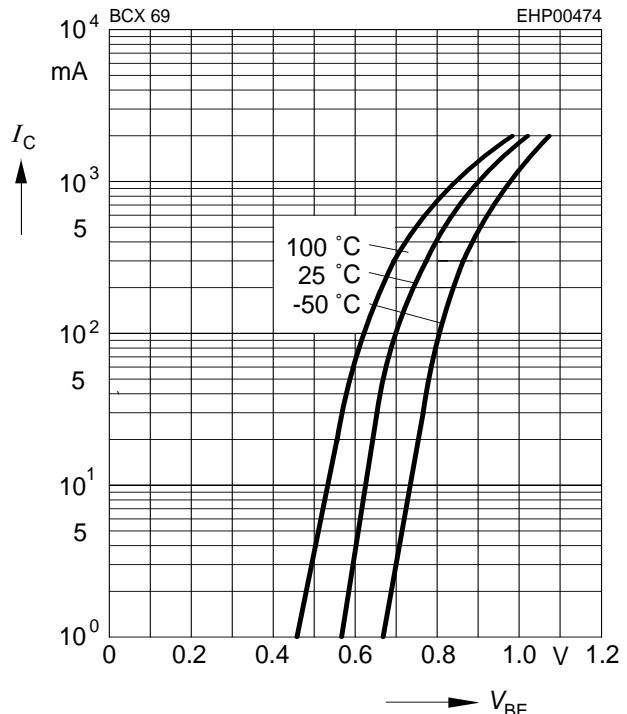
Collector-emitter saturation voltage

$$I_C = f(V_{CEsat}), h_{FE} = 10$$

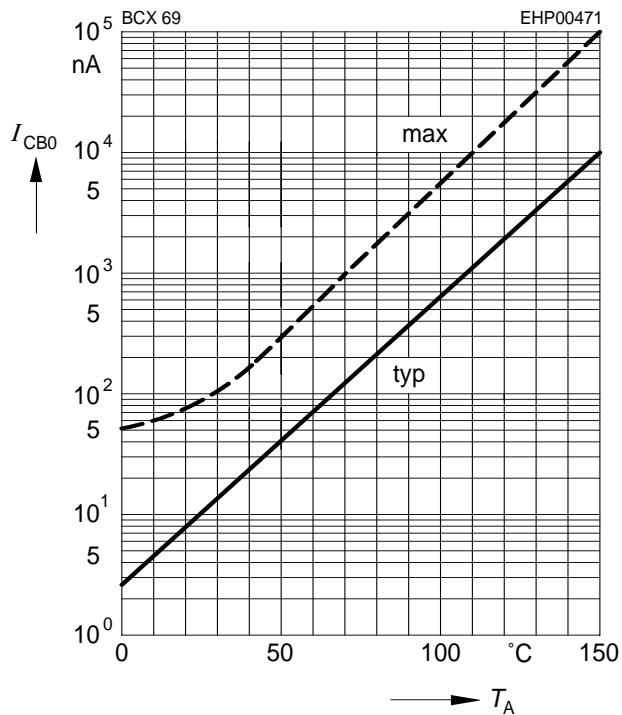


Collector current $I_C = f(V_{BE})$

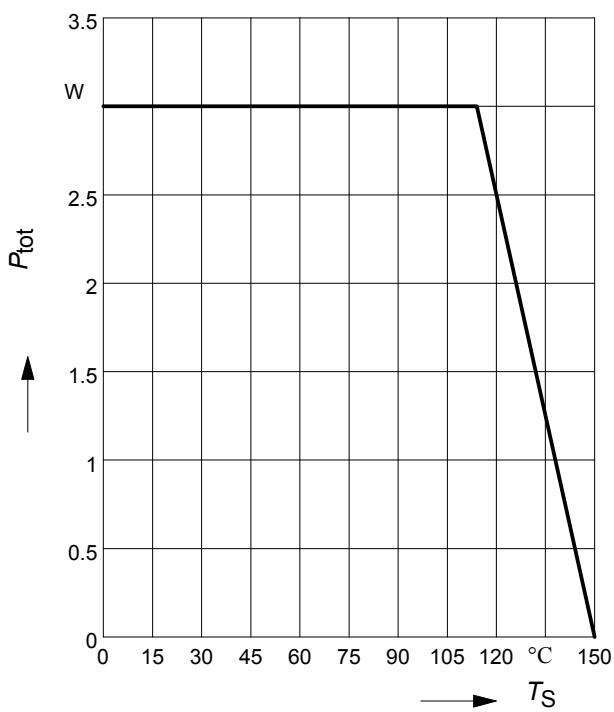
$$V_{CE} = 1 \text{ V}$$



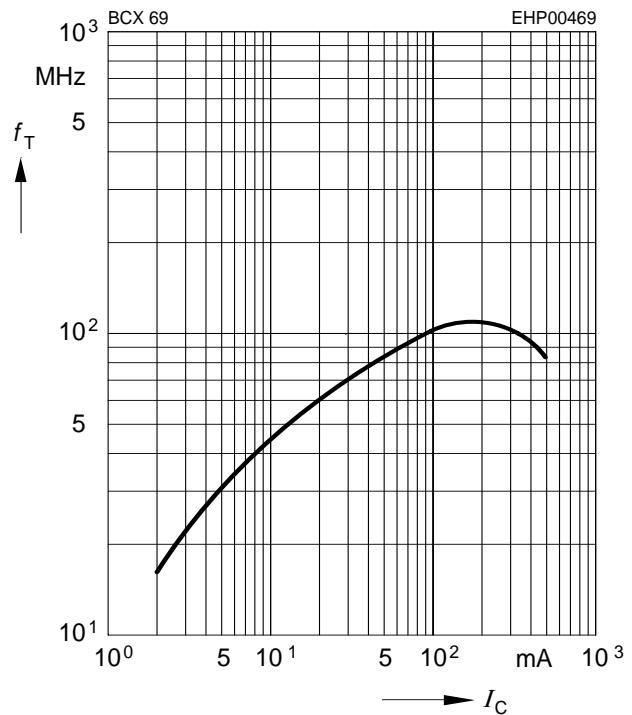
Collector cutoff current $I_{CBO} = f(T_A)$
 $V_{CB} = 25 \text{ V}$



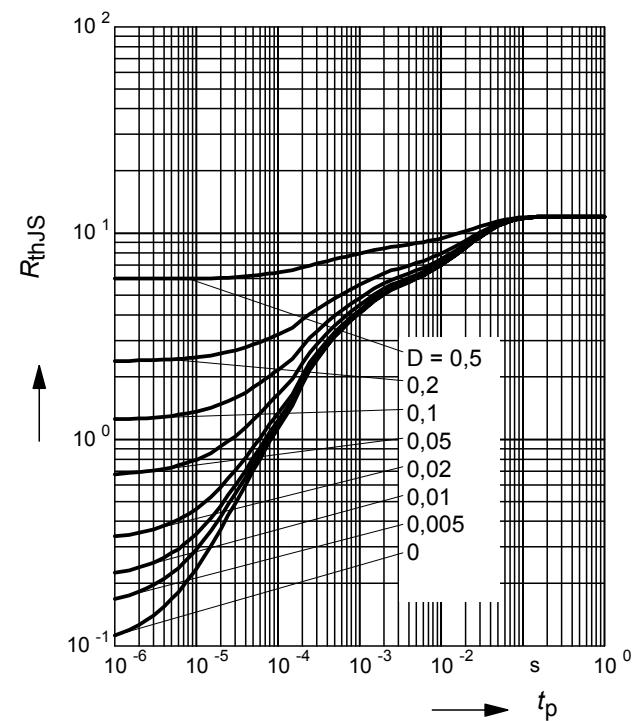
Total power dissipation $P_{\text{tot}} = f(T_S)$



Transition frequency $f_T = f(I_C)$
 $V_{CE} = 5 \text{ V}$

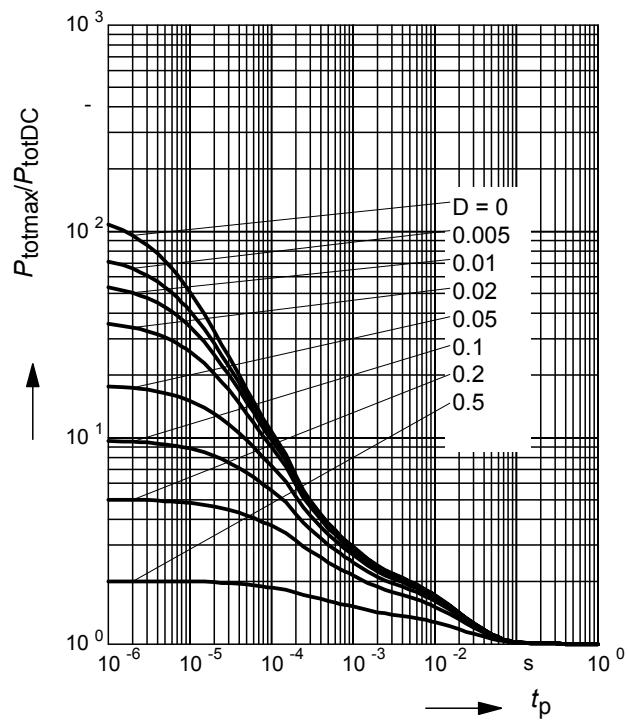


Permissible Pulse Load $R_{\text{thJS}} = f(t_p)$



Permissible Pulse Load

$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$



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