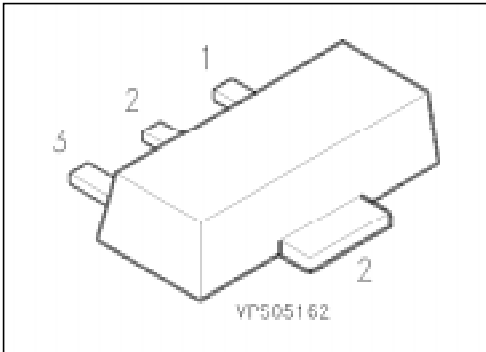


## PNP Silicon AF Transistors

## BCX 69

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



Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package <sup>1)</sup>
			1	2	3	
BCX 69	–	Q62702-C1714	B	C	E	SOT-89
BCX 69-10	CF	Q62702-C1867				
BCX 69-16	CG	Q62702-C1868				
BCX 69-25	CH	Q62702-C1869				

### Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	$V_{CE0}$	20	V
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, $T_s = 130\text{ °C}$	$P_{tot}$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	– 65 ... + 150	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 75	K/W
Junction - soldering point	$R_{th\ JS}$	≤ 20	

<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

## Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### DC characteristics

Collector-emitter breakdown voltage $I_C = 30\text{ mA}$	$V_{(BR)CE0}$	20	—	—	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)CB0}$	25	—	—	
Emitter-base breakdown voltage $I_E = 1\text{ }\mu\text{A}$	$V_{(BR)EB0}$	5	—	—	
Collector cutoff current $V_{CB} = 25\text{ V}$ $V_{CB} = 25\text{ V}, T_A = 150\text{ °C}$	$I_{CB0}$	— —	— —	100 100	nA $\mu\text{A}$
Emitter cutoff current $V_{EB} = 5\text{ V}$	$I_{EB0}$	—	—	10	$\mu\text{A}$
DC current gain <sup>1)</sup> $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}, V_{CE} = 1\text{ V}$  BCX 69 BCX 69-10 BCX 69-16 BCX 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 <sup>1)</sup> $I_C = 1\text{ A}, I_B = 100\text{ mA}$	$V_{CEsat}$	—	—	0.5	V
Base-emitter voltage <sup>1)</sup> $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 1\text{ A}, V_{CE} = 1\text{ V}$	$V_{BE}$	— —	0.6 —	— 1	

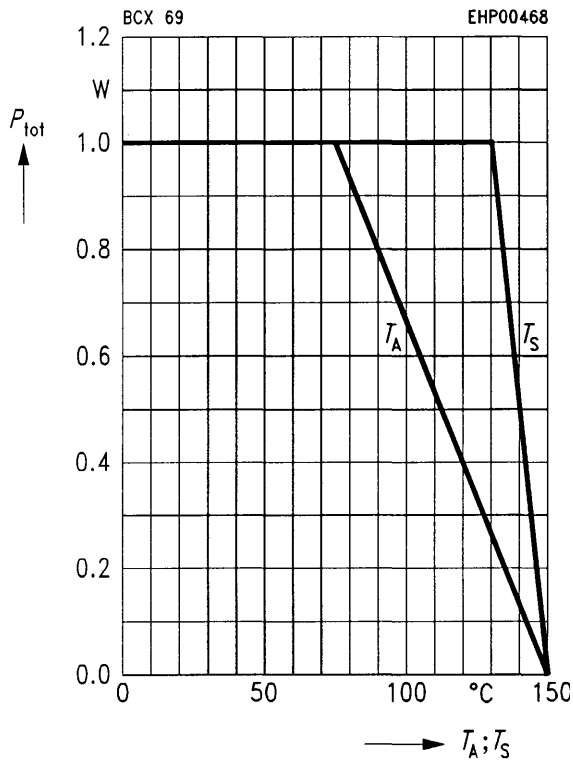
### AC characteristics

Transition frequency $I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 20\text{ MHz}$	$f_T$	—	100	—	MHz
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<sup>1)</sup> Pulse test:  $t \leq 300\text{ }\mu\text{s}$ ,  $D = 2\text{ %}$ .

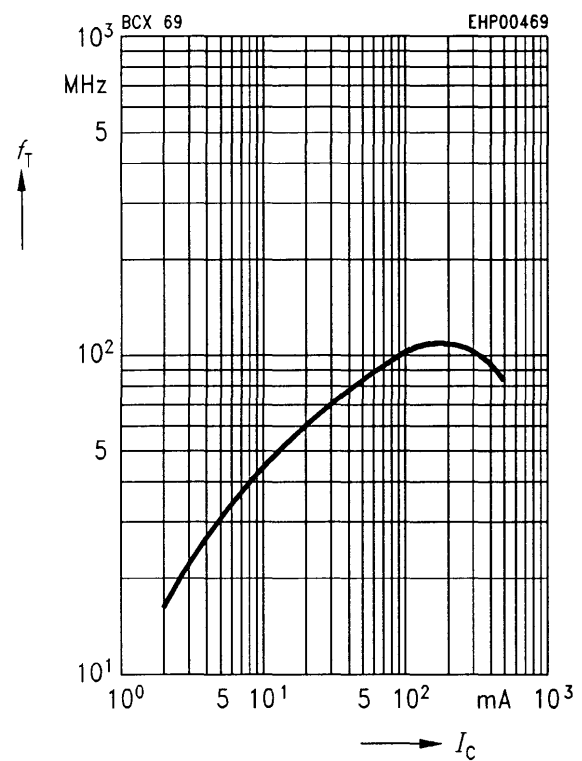
## Total power dissipation $P_{\text{tot}} = f(T_A^*; T_S)$

\* Package mounted on epoxy

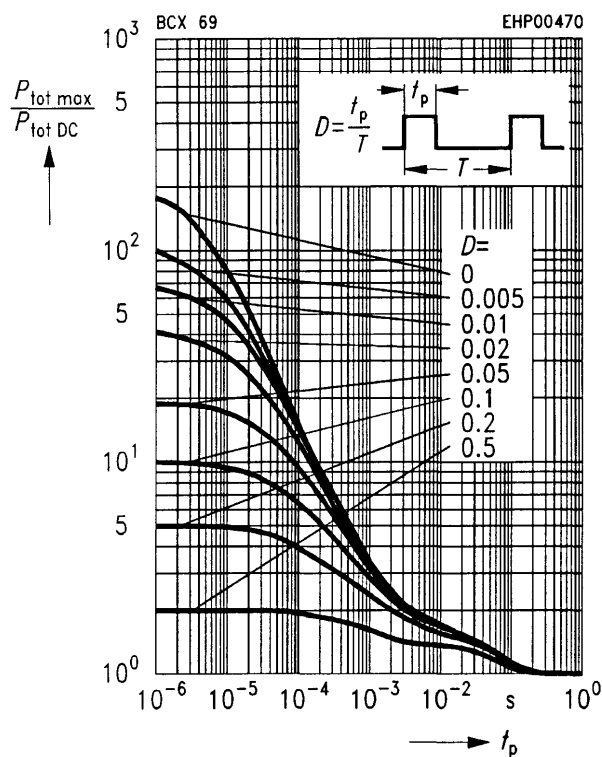


## Transition frequency $f_T = f(I_C)$

$V_{CE} = 5 \text{ V}$

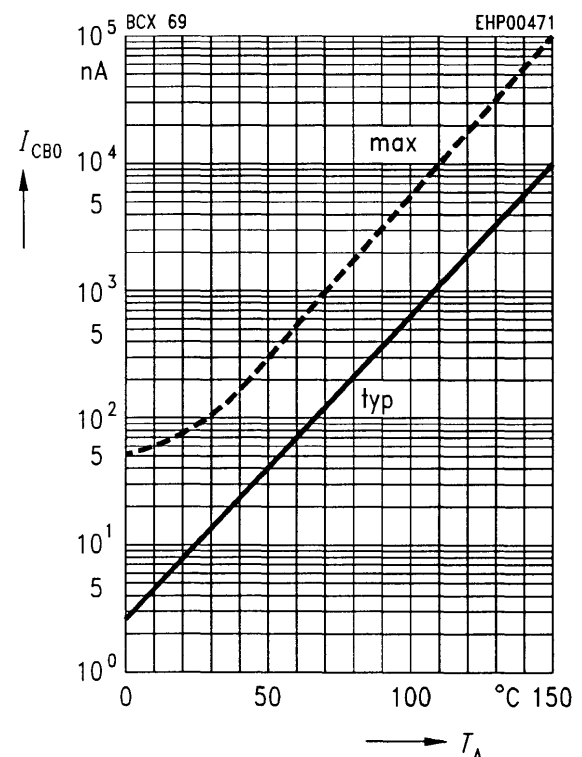


## Permissible pulse load $P_{\text{tot max}}/P_{\text{tot DC}} = f(t_p)$



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

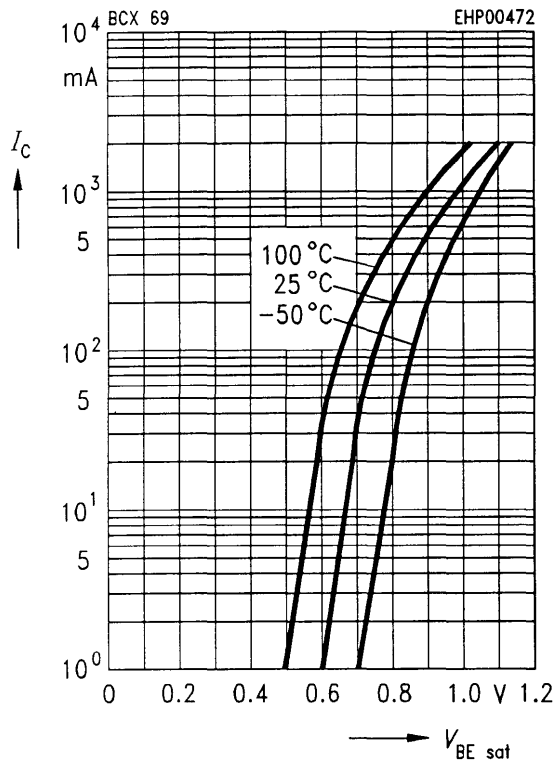
$V_{CB} = 25 \text{ V}$



### Base-emitter saturation voltage

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

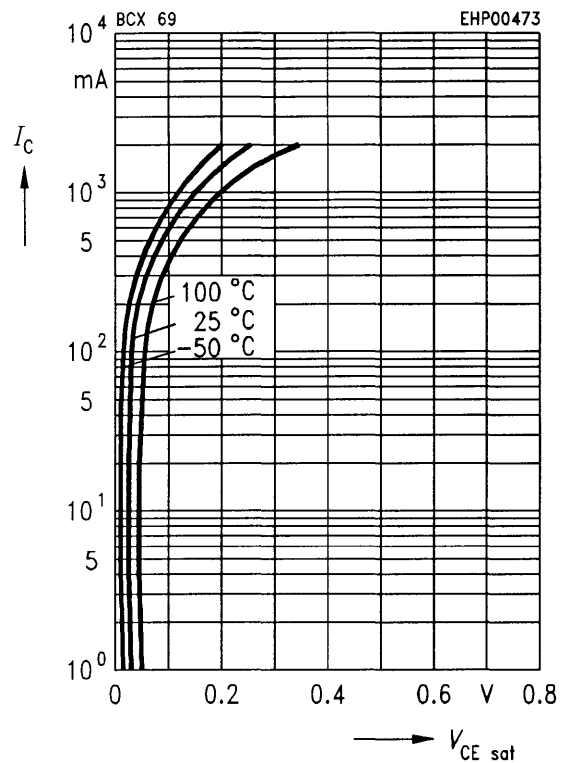
$$h_{FE} = 10$$



### Collector-emitter saturation voltage

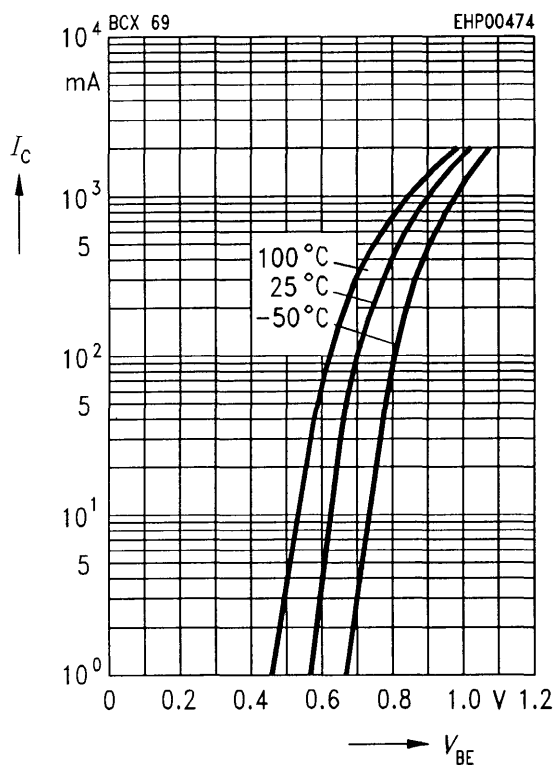
$$I_C = f(V_{CEsat})$$

$$h_{FE} = 10$$



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

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



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

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

