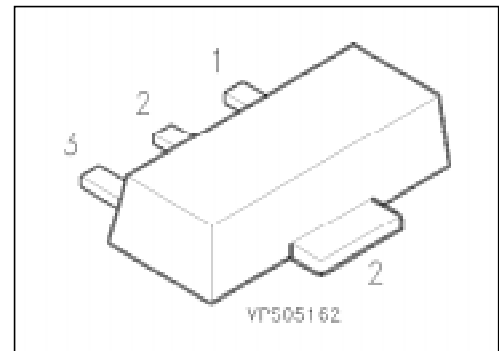


## PNP Silicon AF Transistors

## 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<br>(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  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified.

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

**DC characteristics**

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

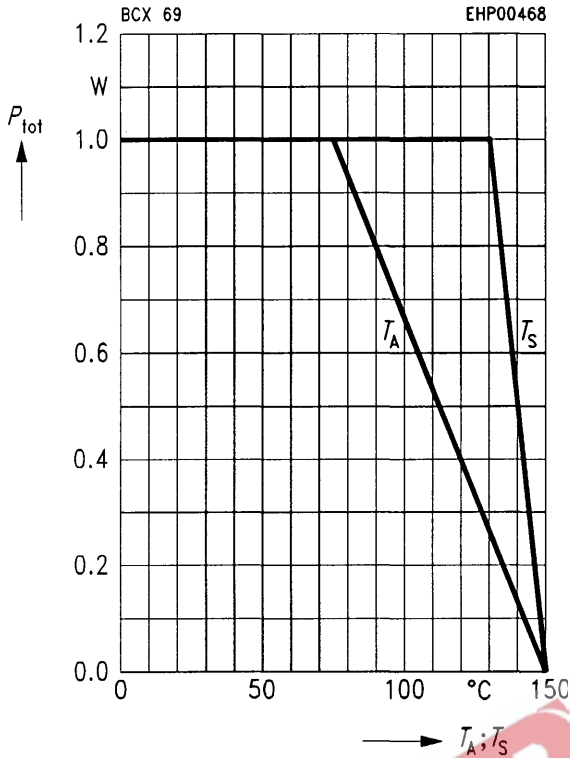
**AC characteristics**

|   |       |   |     |   |     |
|---|-------|---|-----|---|-----|
| Transition frequency<br>$I_C = 100\text{ mA}, V_{CE} = 5\text{ V}, f = 20\text{ MHz}$ | $f_T$ | – | 100 | – | MHz |
|---|-------|---|-----|---|-----|

<sup>1)</sup> Pulse test:  $t \leq 300\text{ }\mu\text{s}, D = 2\text{ }\%$ .

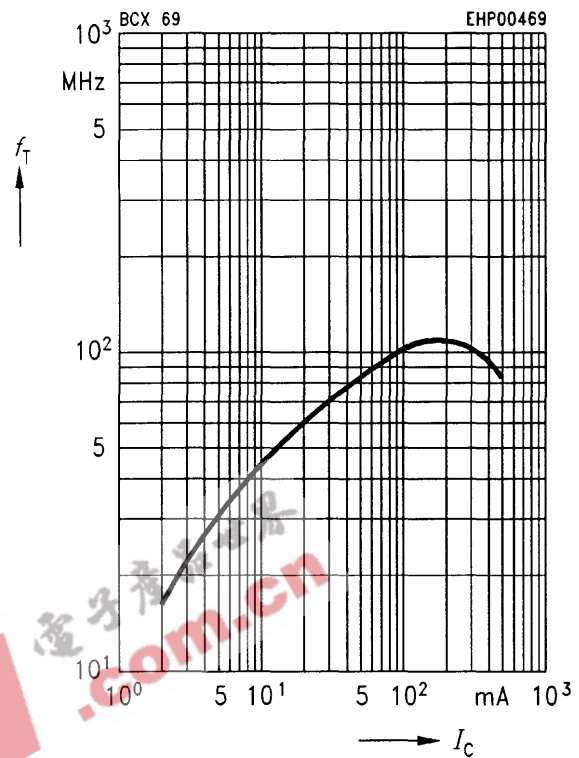
**Total power dissipation  $P_{tot} = f(T_A^*; T_S)$**

\* Package mounted on epoxy

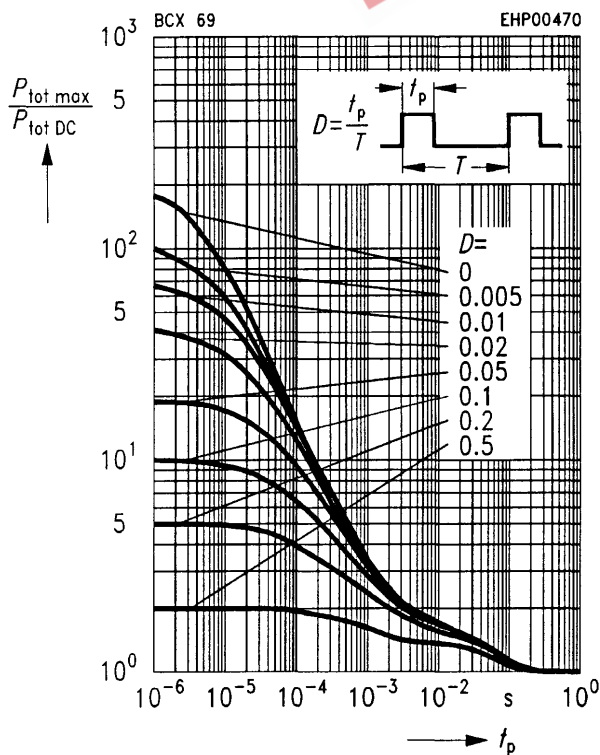


**Transition frequency  $f_T = f(I_C)$**

$V_{CE} = 5 V$

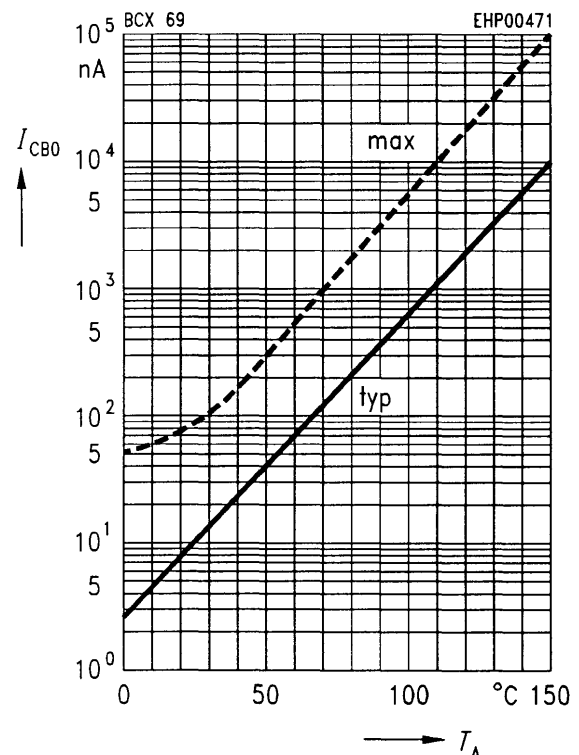


**Permissible pulse load  $P_{tot max}/P_{tot DC} = f(t_p)$**



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

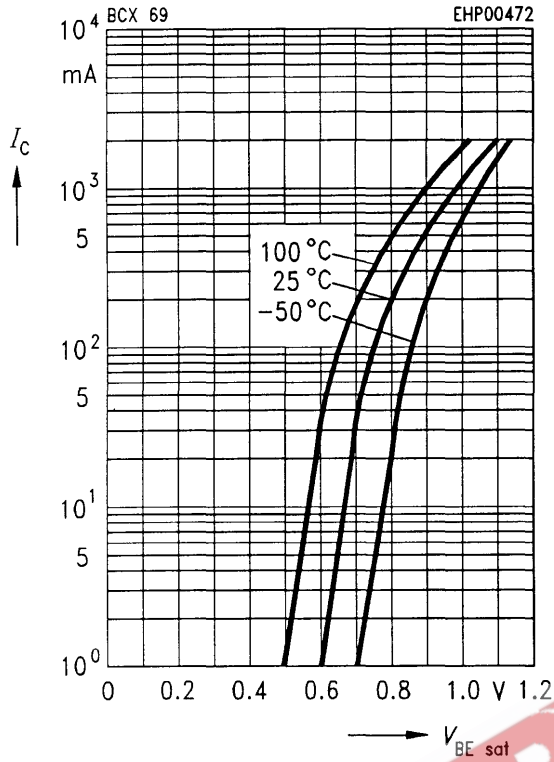
$V_{CB} = 25 V$



**Base-emitter saturation voltage**

$I_C = f(V_{BEsat})$

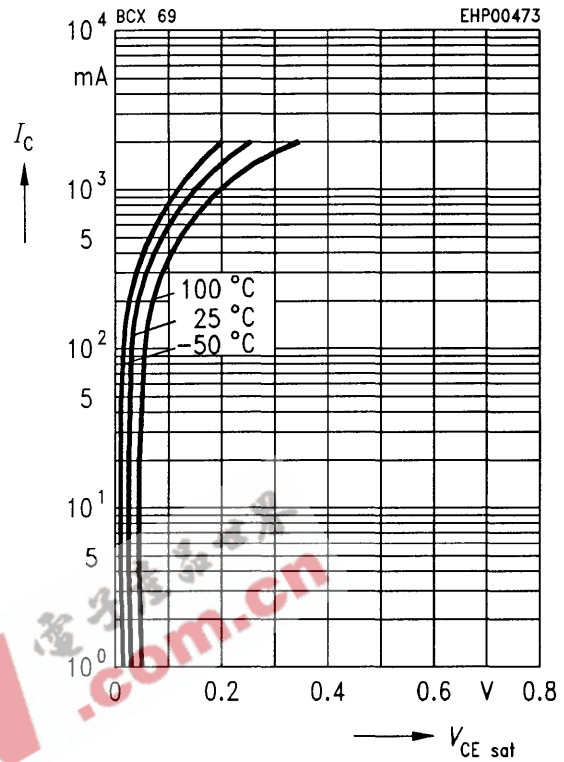
$h_{FE} = 10$



**Collector-emitter saturation voltage**

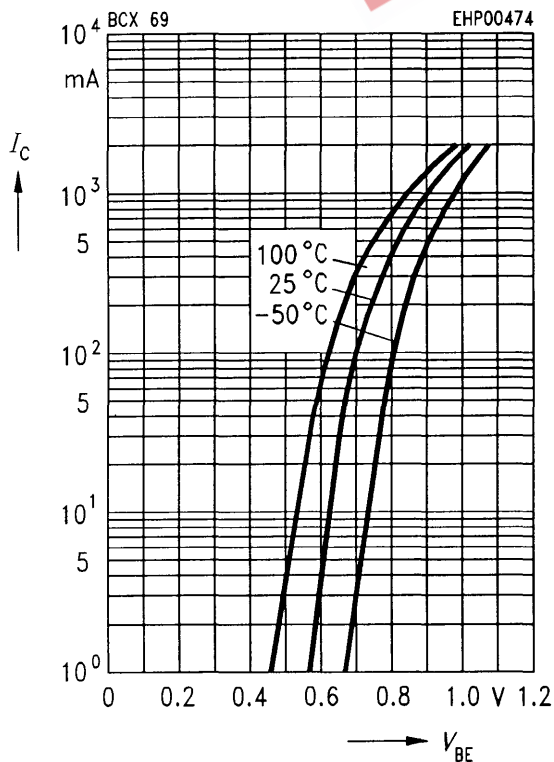
$I_C = f(V_{CEsat})$

$h_{FE} = 10$



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

$V_{CE} = 1 V$



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

$V_{CE} = 1 V$

