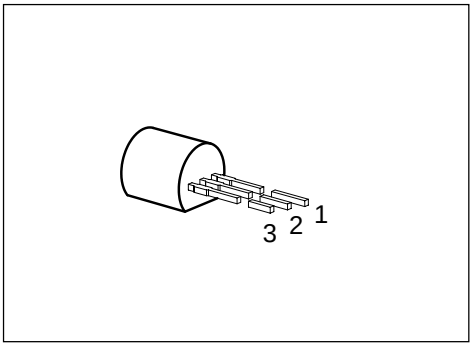
SIEMENS

## NPN Silicon Transistors with High Reverse Voltage

**BFP 22**
**BFP 25**

- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary types: BFP 23, BFP 26 (PNP)




| Type | Marking | Ordering Code (tape and reel) | Pin Configuration 1 | 2 | 3 | Package[1] |
|---|---|---|---|---|---|---|
| BFP 22<br>BFP 25 | – | Q62702-F621<br>Q62702-F721 | E | B | C | TO-92 |

### Maximum Ratings

| Parameter | Symbol | Values BFP 22 | BFP 25 | Unit |
|---|---|---|---|---|
| Collector-emitter voltage | $V_{CE0}$ | 200 | 300 | V |
| Collector-base voltage | $V_{CB0}$ | 200 | 300 | |
| Emitter-base voltage | $V_{EB0}$ | 6 | | |
| 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, $T_C = 66$ °C | $P_{tot}$ | 625 | | mW |
| Junction temperature | $T_j$ | 150 | | °C |
| Storage temperature range | $T_{stg}$ | – 65 … + 150 | | |

### Thermal Resistance

| | | | |
|---|---|---|---|
| Junction - ambient | $R_{th\ JA}$ | ≤ 200 | K/W |
| Junction - case[2] | $R_{th\ JC}$ | ≤ 135 | |

1) For detailed information see chapter Package Outlines.
2) Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

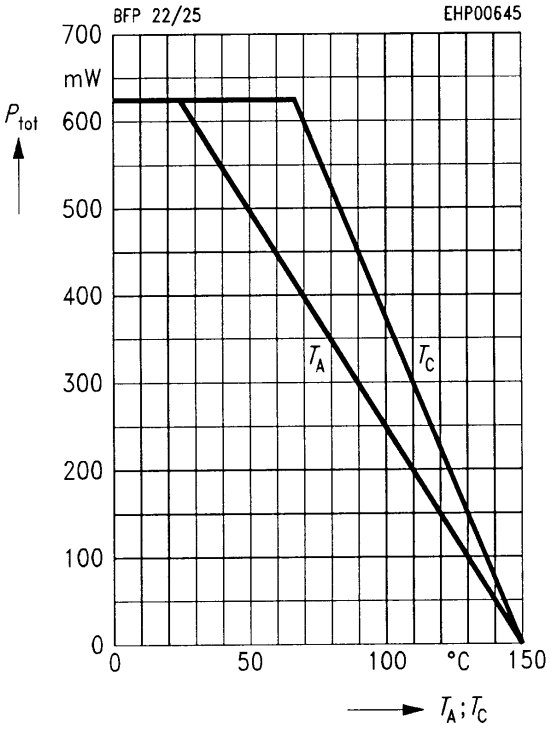
## Electrical Characteristics

at $T_A$ = 25 °C, unless otherwise specified.

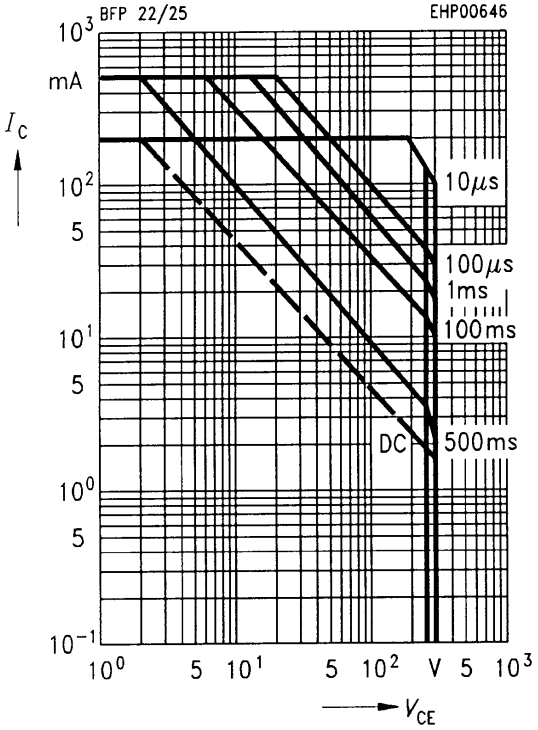
| Parameter | | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | min. | typ. | max. | |
| **DC characteristics** | | | | | | |
| Collector-emitter breakdown voltage | | $V_{(BR)CE0}$ | | | | V |
| $I_C$ = 1 mA | BFP 22 | | 200 | – | – | |
| | BFP 25 | | 300 | – | – | |
| Collector-base breakdown voltage | | $V_{(BR)CB0}$ | | | | |
| $I_C$ = 100 µA | BFP 22 | | 200 | – | – | |
| | BFP 25 | | 300 | – | – | |
| Emitter-base breakdown voltage | | $V_{(BR)EB0}$ | 6 | – | – | |
| $I_E$ = 100 µA | | | | | | |
| Collector-base cutoff current | | $I_{CB0}$ | | | | |
| $V_{CB}$ = 160 V | BFP 22 | | – | – | 100 | nA |
| $V_{CB}$ = 250 V | BFP 25 | | – | – | 100 | nA |
| $V_{CB}$ = 160 V, $T_A$ = 150 °C | BFP 22 | | – | – | 20 | µA |
| $V_{CB}$ = 250 V, $T_A$ = 150 °C | BFP 25 | | – | – | 20 | µA |
| Emitter-base cutoff current | | $I_{EB0}$ | – | – | 100 | nA |
| $V_{EB}$ = 4 V | | | | | | |
| DC current gain | | $h_{FE}$ | | | | – |
| $I_C$ = 1 mA, $V_{CE}$ = 10 V | | | 25 | – | – | |
| $I_C$ = 10 mA, $V_{CE}$ = 10 V[1)] | | | 40 | – | – | |
| $I_C$ = 30 mA, $V_{CE}$ = 10 V[1)] | BFP 22 | | 50 | – | – | |
| | BFP 25 | | 40 | – | – | |
| Collector-emitter saturation voltage[1)] | | $V_{CEsat}$ | | | | V |
| $I_C$ = 20 mA, $I_B$ = 2 mA | BFP 22 | | – | – | 0.4 | |
| | BFP 25 | | – | – | 0.5 | |
| Base-emitter saturation voltage[1)] | | $V_{BEsat}$ | – | – | 0.9 | |
| $I_C$ = 20 A, $I_B$ = 2 mA | | | | | | |
| **AC characteristics** | | | | | | |
| Transition frequency | | $f_T$ | – | 70 | – | MHz |
| $I_C$ = 20 mA, $V_{CE}$ = 10 V, $f$ = 20 MHz | | | | | | |
| Output capacitance | | $C_{obo}$ | – | 1.5 | – | pF |
| $V_{CB}$ = 30 V, $f$ = 1 MHz | | | | | | |

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

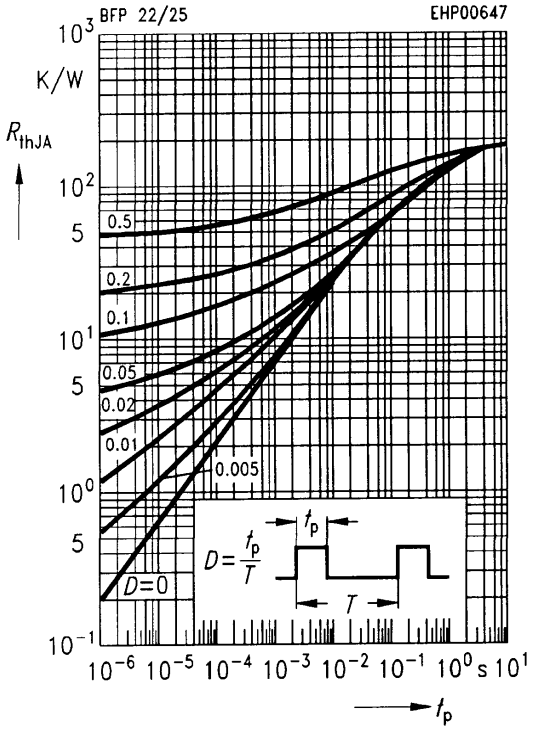
**Total power dissipation** $P_{tot} = f(T_A; T_C)$



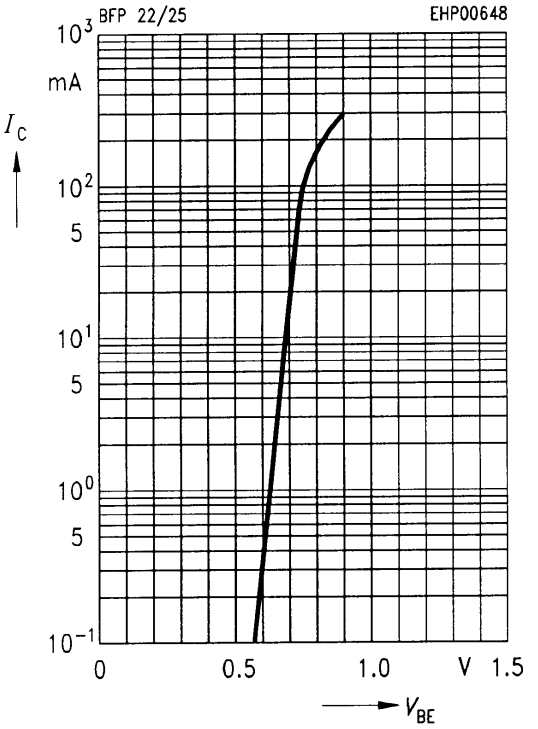

**Operating range** $I_C = f(V_{CE})$
$D = 0$, $T_A = 25$ °C



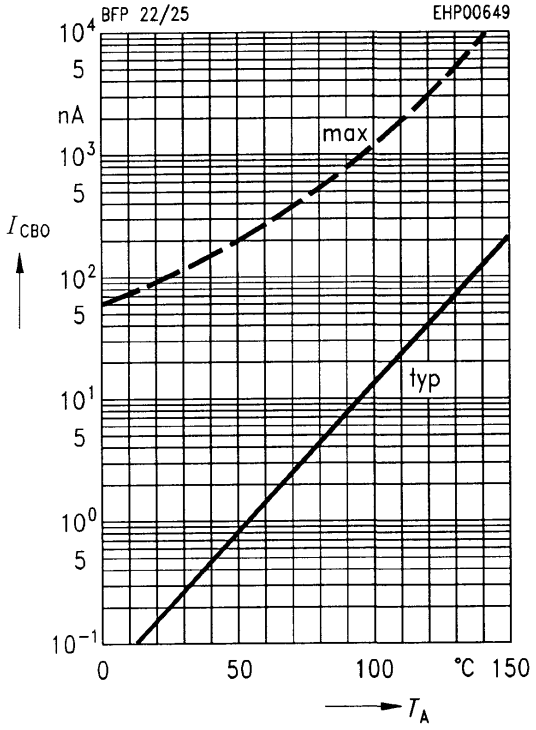

**Permissible pulse load** $R_{thJA} = f(t_p)$



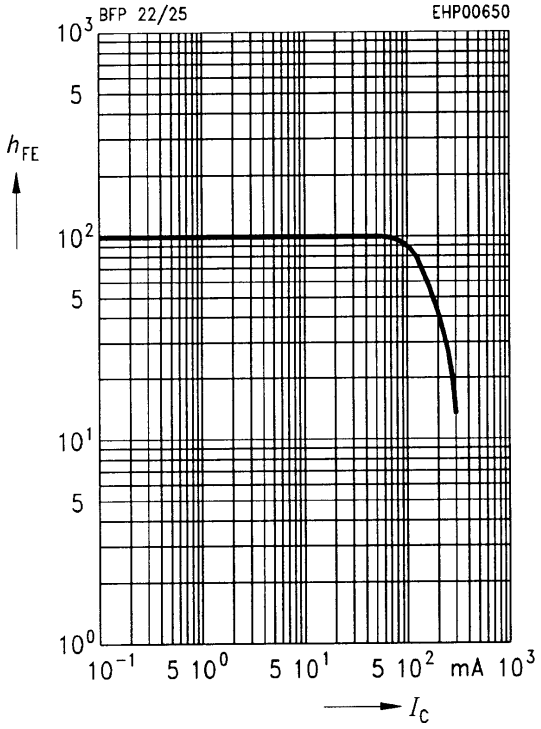

**Collector current** $I_C = f(V_{BE})$
$V_{CE}$ = 10 V, $T_A$ = 25 °C



**Collector cutoff current** $I_{CB0} = f(T)$
$V_{CB}$ = 160 V, 250 V




**DC current gain** $h_{FE} = f(I_C)$
$V_{CE}$ = 10 V, $T_A$ = 25 °C




**Transition frequency** $f_T = f(I_C)$
$V_{CE}$ = 10 V, $f$ = 20 MHz