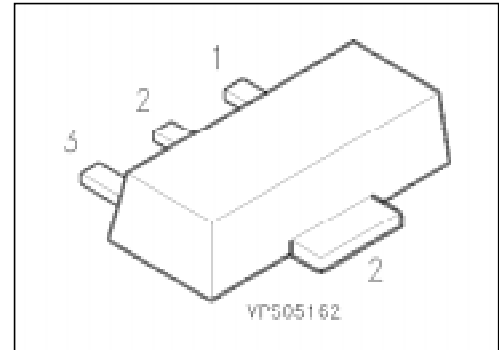


## NPN Silicon High-Voltage Transistor

**BF 622**

- Suitable for video output stages in TV sets
- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary type: BF 623 (PNP)



| Type   | Marking | Ordering Code<br>(tape and reel) | Pin Configuration |   |   | Package <sup>1)</sup> |
|--------|---------|----------------------------------|-------------------|---|---|-----------------------|
|        |         |                                  | 1                 | 2 | 3 |                       |
| BF 622 | DA      | Q62702-F1052                     | B                 | C | E | SOT-89                |

### Maximum Ratings

| Parameter   | Symbol    | Values         | Unit             |
|---|-----------|----------------|------------------|
| Collector-emitter voltage                                   | $V_{CE0}$ | 250            | V                |
| Collector-base voltage                                      | $V_{CB0}$ | 250            |                  |
| Collector-emitter voltage, $R_{BE} = 2.7 \text{ k}\Omega$   | $V_{CER}$ | 250            |                  |
| Emitter-base voltage  | $V_{EB0}$ | 5              |                  |
| Collector current   | $I_C$     | 50             | mA               |
| Peak collector current                                      | $I_{CM}$  | 100            |                  |
| Total power dissipation, $T_S = 120 \text{ }^\circ\text{C}$ | $P_{tot}$ | 1              | W                |
| Junction temperature  | $T_j$     | 150            | $^\circ\text{C}$ |
| Storage temperature range                                   | $T_{stg}$ | - 65 ... + 150 |                  |

### Thermal Resistance

|                                  |                     |           |     |
|----------------------------------|---------------------|-----------|-----|
| Junction - ambient <sup>2)</sup> | $R_{th \text{ JA}}$ | $\leq 90$ | K/W |
| Junction - soldering point       | $R_{th \text{ JS}}$ | $\leq 30$ |     |

<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<br>$I_C = 1\text{ mA}$   | $V_{(BR)CE0}$ | 250 | – | –         | V                   |
| $I_C = 10\text{ }\mu\text{A}$ , $R_{BE} = 2.7\text{ k}\Omega$  | $V_{(BR)CER}$ | 250 | – | –         |                     |
| Collector-base breakdown voltage<br>$I_C = 10\text{ }\mu\text{A}$  | $V_{(BR)CB0}$ | 250 | – | –         |                     |
| Emitter-base breakdown voltage<br>$I_E = 10\text{ }\mu\text{A}$  | $V_{(BR)EB0}$ | 5   | – | –         |                     |
| Collector cutoff current<br>$V_{CB} = 200\text{ V}$<br>$V_{CB} = 200\text{ V}$ , $T_A = 150\text{ °C}$   | $I_{CB0}$     | –   | – | 100<br>20 | nA<br>$\mu\text{A}$ |
| Collector cutoff current<br>$V_{CE} = 200\text{ V}$ , $R_{BE} = 2.7\text{ k}\Omega$<br>$V_{CE} = 200\text{ V}$ , $R_{BE} = 2.7\text{ k}\Omega$ , $T_A = 150\text{ °C}$ | $I_{CER}$     | –   | – | 1<br>50   | $\mu\text{A}$       |
| Emitter cutoff current<br>$V_{EB} = 5\text{ V}$  | $I_{EB0}$     | –   | – | 10        |                     |
| DC current gain <sup>1)</sup><br>$I_C = 25\text{ mA}$ , $V_{CE} = 20\text{ V}$   | $h_{FE}$      | 50  | – | –         | –                   |
| Collector-emitter saturation voltage <sup>1)</sup><br>$I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$   | $V_{CEsat}$   | –   | – | 0.5       | V                   |
| Base-emitter saturation voltage <sup>1)</sup><br>$I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$  | $V_{BEsat}$   | –   | – | 1         |                     |

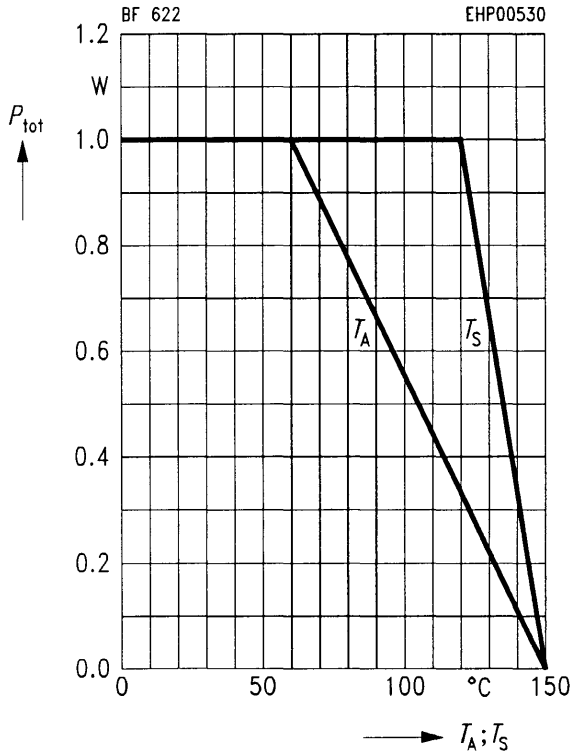
### AC characteristics

|   |           |   |     |   |     |
|---|-----------|---|-----|---|-----|
| Transition frequency<br>$I_C = 10\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 20\text{ MHz}$ | $f_T$     | – | 100 | – | MHz |
| Output capacitance<br>$V_{CB} = 30\text{ V}$ , $f = 1\text{ MHz}$                           | $C_{obo}$ | – | 0.8 | – | pF  |

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

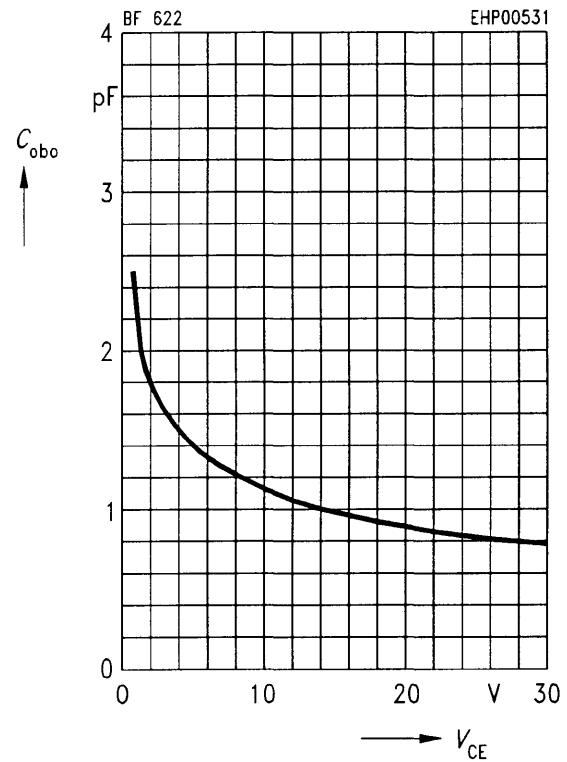
**Total power dissipation  $P_{tot} = f(T_A^*; T_S)$**

\* Package mounted on epoxy

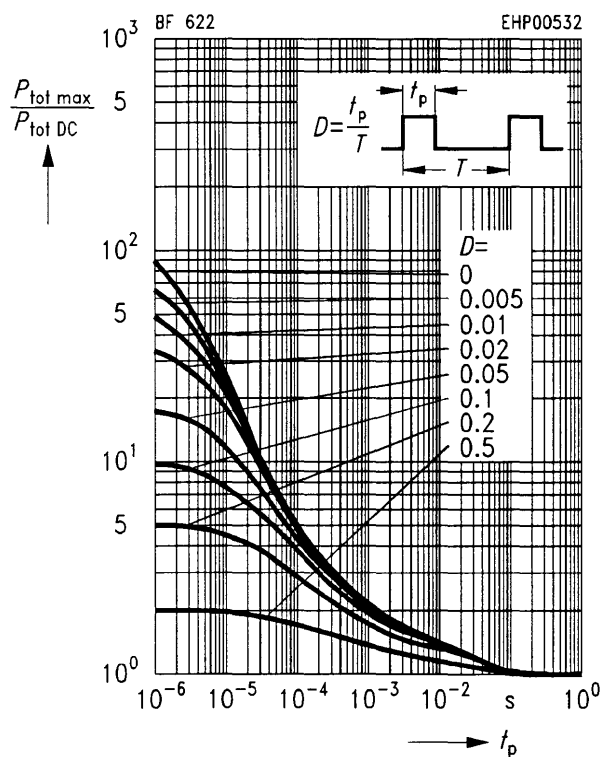


**Output capacitance  $C_{obo} = f(V_{CE})$**

$f = 1 \text{ MHz}$

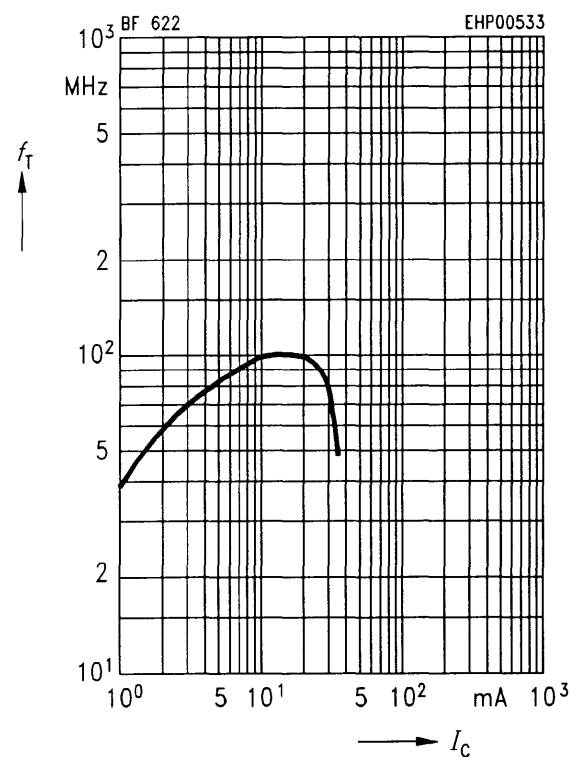


**Permissible pulse load  $P_{tot \text{ max}}/P_{tot \text{ DC}} = f(t_p)$**



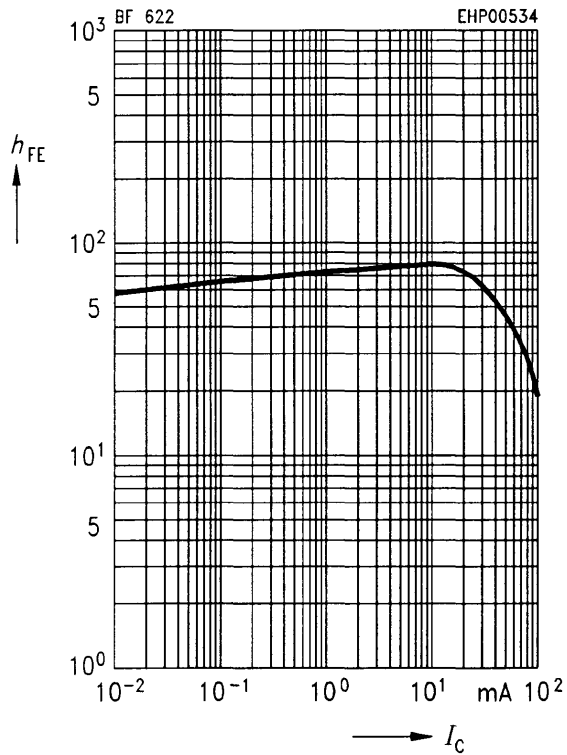
**Transition frequency  $f_T = f(I_C)$**

$V_{CE} = 10 \text{ V}, f = 20 \text{ MHz}$



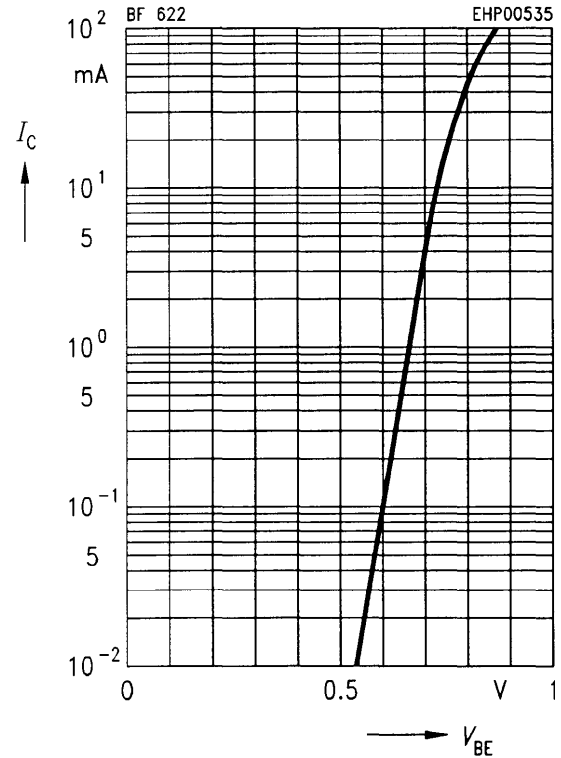
### DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 20\text{ V}$



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

$V_{CE} = 20\text{ V}$



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

$V_{CB} = 200\text{ V}$

