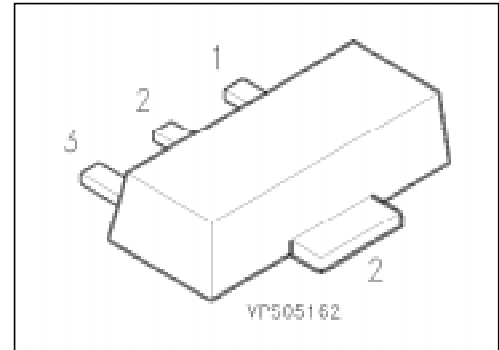


PNP Silicon High-Voltage Transistor

BF 623

- Suitable for video output stages in TV sets
- High breakdown voltage
- Low collector-emitter saturation voltage
- Low capacitance
- Complementary type: BF 622 (NPN)



| Type | Marking | Ordering Code (tape and reel) | Pin Configuration | | | Package ¹⁾ |
|--------|---------|----------------------------------|-------------------|---|---|-----------------------|
| | | | 1 | 2 | 3 | |
| BF 623 | DB | Q62702-F1053 | 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 ²⁾ | $R_{th \text{ JA}}$ | ≤ 90 | K/W |
| Junction - soldering point | $R_{th \text{ JS}}$ | ≤ 30 | |

¹⁾ For detailed information see chapter Package Outlines.

²⁾ Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm² 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 $I_C = 1\text{ mA}$ | $V_{(BR)CE0}$ | 250 | – | – | V |
| $I_C = 10\text{ }\mu\text{A}$, $R_{BE} = 2.7\text{ k}\Omega$ | $V_{(BR)CER}$ | 250 | – | – | |
| Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$ | $V_{(BR)CB0}$ | 250 | – | – | |
| Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$ | $V_{(BR)EB0}$ | 5 | – | – | |
| Collector cutoff current $V_{CB} = 200\text{ V}$ $V_{CB} = 200\text{ V}$, $T_A = 150\text{ °C}$ | I_{CB0} | – | – | 100 20 | nA μA |
| Collector cutoff current $V_{CE} = 200\text{ V}$, $R_{BE} = 2.7\text{ k}\Omega$ $V_{CE} = 200\text{ V}$, $R_{BE} = 2.7\text{ k}\Omega$, $T_A = 150\text{ °C}$ | I_{CER} | – | – | 1 50 | μA |
| Emitter cutoff current $V_{EB} = 5\text{ V}$ | I_{EB0} | – | – | 10 | |
| DC current gain ¹⁾ $I_C = 25\text{ mA}$, $V_{CE} = 20\text{ V}$ | h_{FE} | 50 | – | – | – |
| Collector-emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$ | V_{CEsat} | – | – | 0.5 | V |
| Base-emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}$, $I_B = 1\text{ mA}$ | V_{BEsat} | – | – | 1 | |

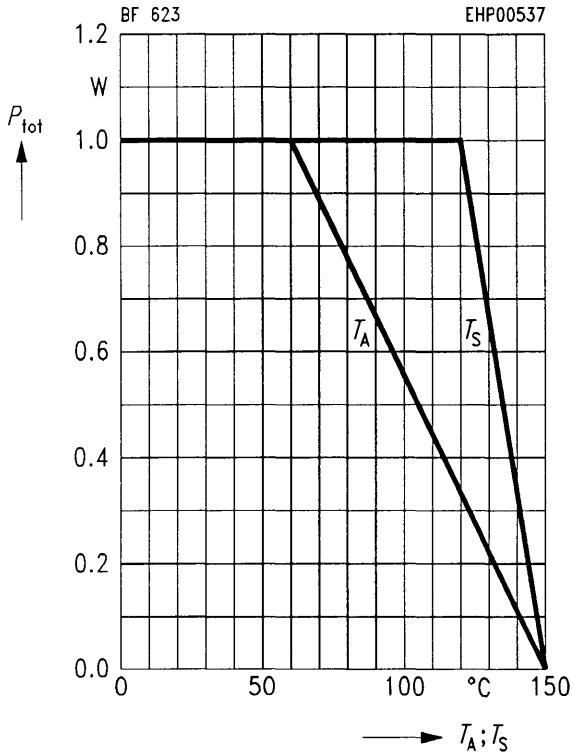
AC characteristics

| | | | | | |
|---|-----------|---|-----|---|-----|
| Transition frequency $I_C = 10\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 20\text{ MHz}$ | f_T | – | 100 | – | MHz |
| Output capacitance $V_{CB} = 30\text{ V}$, $f = 1\text{ MHz}$ | C_{obo} | – | 1.2 | – | pF |

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

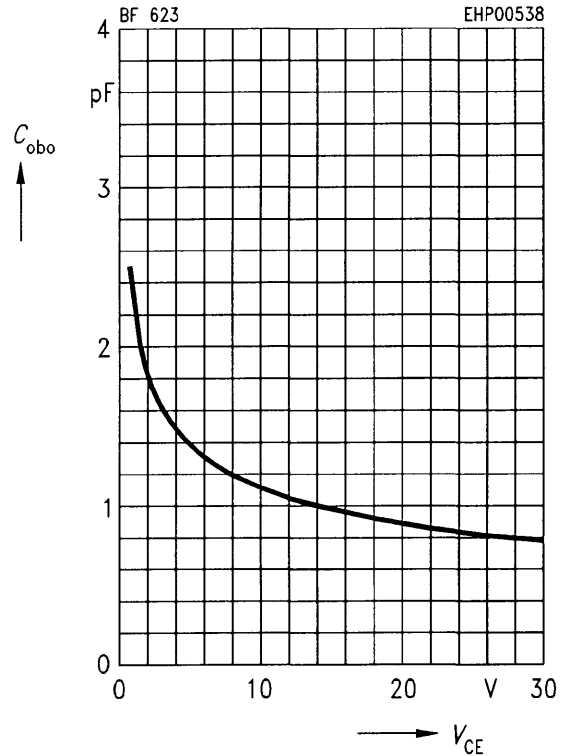
Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy



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

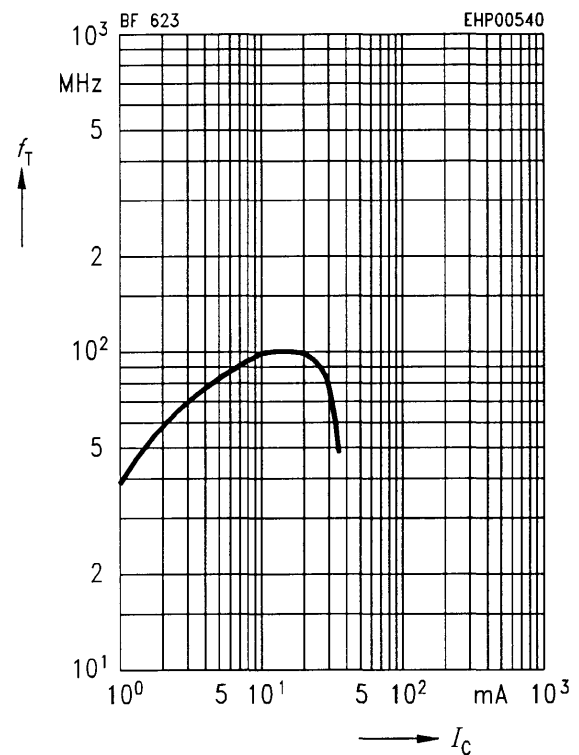
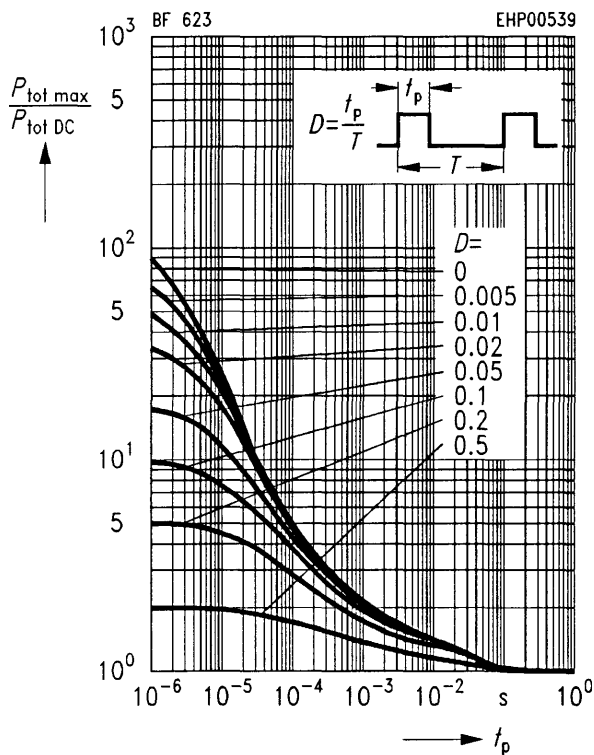
$f = 1 \text{ MHz}$



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

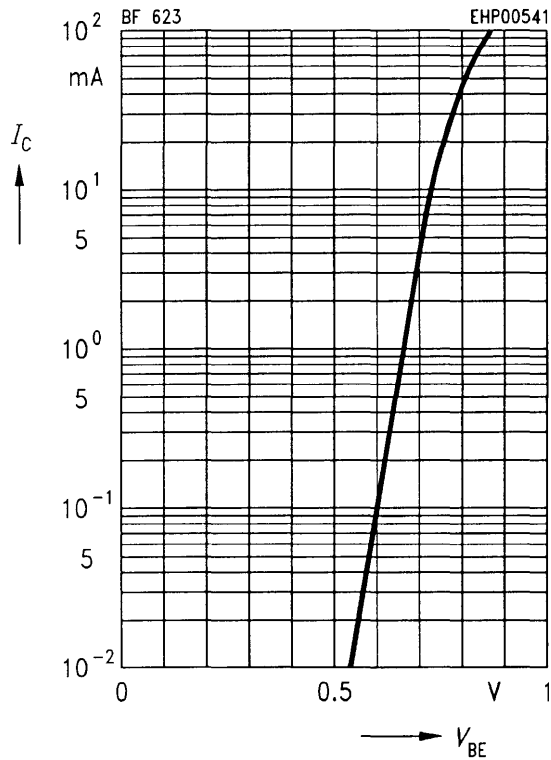
Transition frequency $f_T = f(I_C)$

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



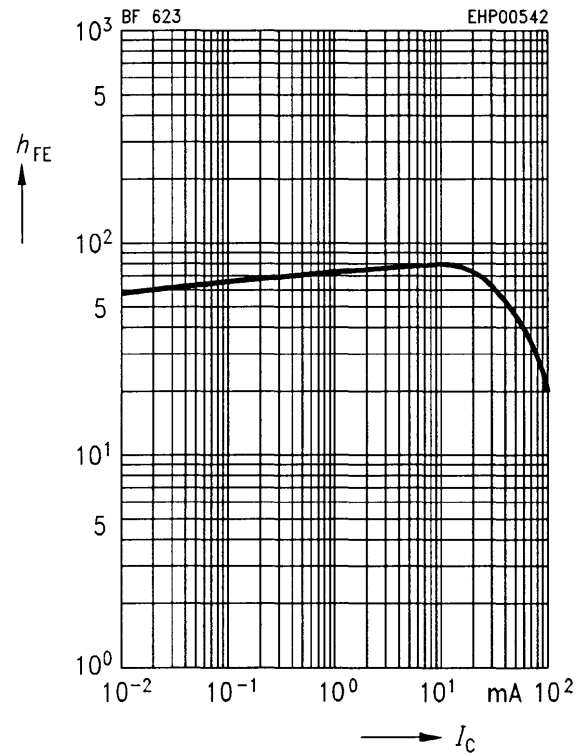
Collector current $I_C = f(V_{BE})$

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



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

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



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

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

