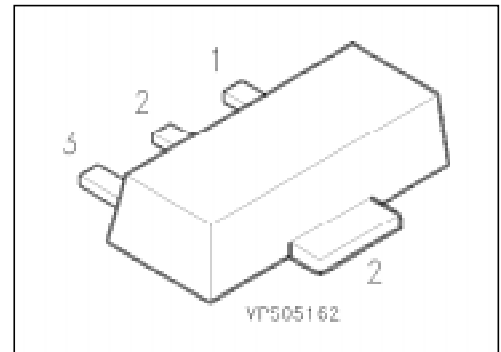


NPN Silicon AF Transistors

BCX 54 ... BCX 56

Features

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCX 51 ... BCX 53 (PNP)



| Type | Marking | Ordering Code (tape and reel) | Pin Configuration | | | Package ¹⁾ |
|-----------|---------|----------------------------------|-------------------|---|---|-----------------------|
| | | | 1 | 2 | 3 | |
| BCX 54 | BA | Q62702-C954 | B | C | E | SOT-89 |
| BCX 54-10 | BC | Q62702-C1861 | | | | |
| BCX 54-16 | BD | Q62702-C1731 | | | | |
| BCX 55 | BE | Q62702-C1729 | | | | |
| BCX 55-10 | BG | Q62702-C1730 | | | | |
| BCX 55-16 | BM | Q62702-C1903 | | | | |
| BCX 56 | BH | Q62702-C1614 | | | | |
| BCX 56-10 | BK | Q62702-C1635 | | | | |
| BCX 56-16 | BL | Q62702-C1613 | | | | |

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

| Parameter | Symbol | Values | | | Unit |
|--|-----------|----------------|--------|--------|------|
| | | BCX 54 | BCX 55 | BCX 56 | |
| Collector-emitter voltage | V_{CE0} | 45 | 60 | 80 | V |
| Collector-base voltage | V_{CB0} | 45 | 60 | 100 | |
| Emitter-base voltage | V_{EB0} | 5 | 5 | 5 | |
| Collector current | I_C | 1 | | | A |
| Peak collector current | I_{CM} | 1.5 | | | |
| 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 ¹⁾ | $R_{th\ JA}$ | ≤ 75 | K/W |
| Junction - soldering point | $R_{th\ JS}$ | ≤ 20 | |

¹⁾ 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 $I_C = 10\text{ mA}$ | $V_{(BR)CE0}$ | | | | V |
| BCX 54 | | 45 | – | – | |
| BCX 55 | | 60 | – | – | |
| BCX 56 | | 80 | – | – | |
| Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$ | $V_{(BR)CB0}$ | | | | |
| BCX 54 | | 45 | – | – | |
| BCX 55 | | 60 | – | – | |
| BCX 56 | | 100 | – | – | |
| Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$ | $V_{(BR)EB0}$ | 5 | – | – | |
| Collector cutoff current $V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 150\text{ °C}$ | I_{CB0} | – | – | 100 | nA |
| | | – | – | 20 | μA |
| Emitter cutoff current $V_{EB} = 4\text{ V}$ | I_{EB0} | – | – | 20 | nA |
| DC current gain ¹⁾ $I_C = 5\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 150\text{ mA}, V_{CE} = 2\text{ V}$ BCX 54, BCX 55, BCX 56 BCX 54-10, BCX 55-10, BCX 56-10 BCX 54-16, BCX 55-16, BCX 56-16 $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ | h_{FE} | 25 | – | – | – |
| | | 40 | – | 250 | |
| | | 63 | 100 | 160 | |
| | | 100 | 160 | 250 | |
| | | 25 | – | – | |
| Collector-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ | V_{CEsat} | – | – | 0.5 | V |
| Base-emitter voltage ¹⁾ $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ | V_{BE} | – | – | 1 | |

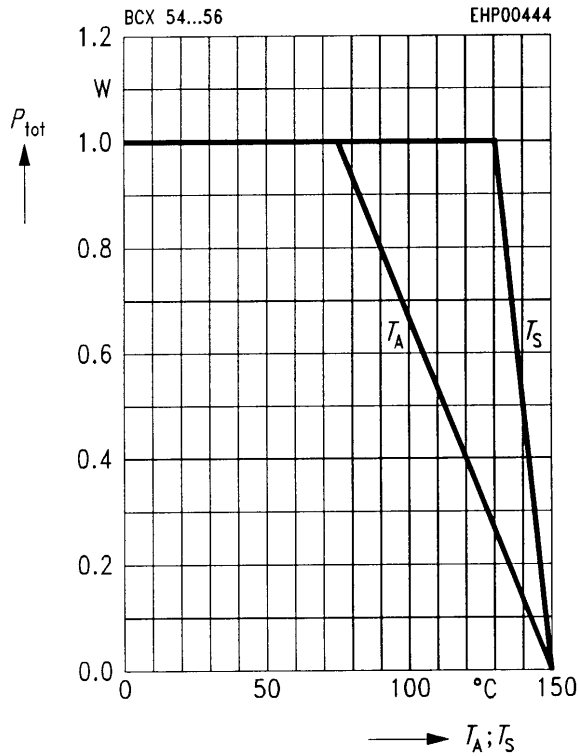
AC characteristics

| | | | | | |
|---|-------|---|-----|---|-----|
| Transition frequency $I_C = 50\text{ mA}, V_{CE} = 10\text{ V}, f = 20\text{ MHz}$ | f_T | – | 100 | – | MHz |
|---|-------|---|-----|---|-----|

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

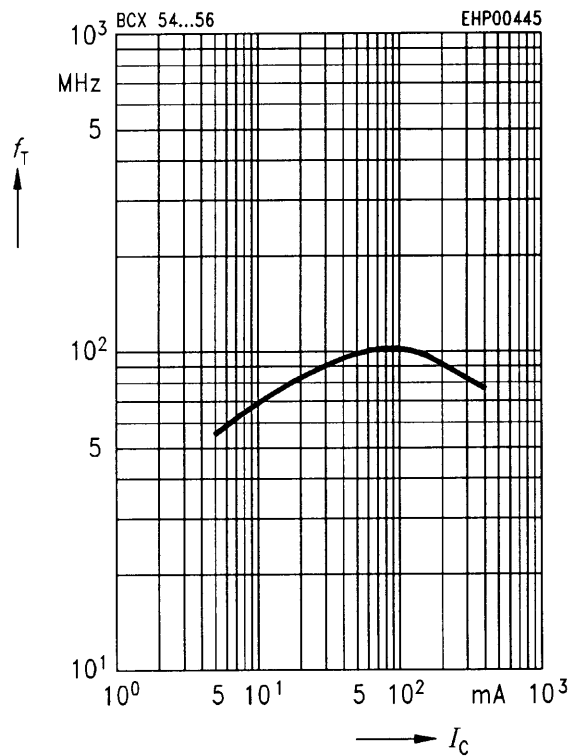
Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy

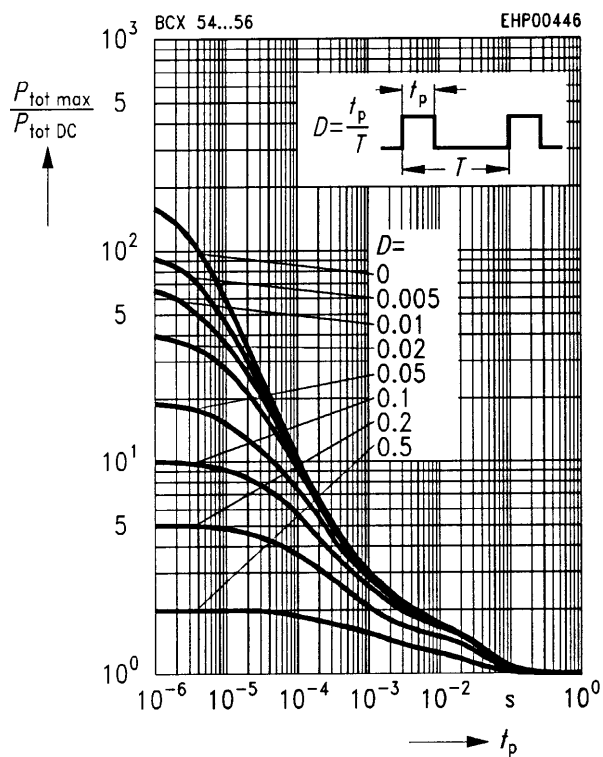


Transition frequency $f_T = f(I_C)$

$V_{CE} = 10\text{ V}$

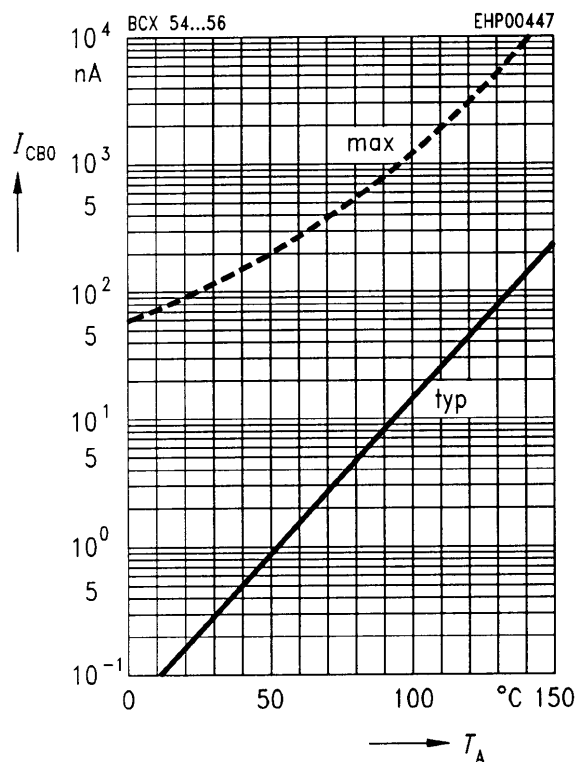


Permissible pulse load $P_{tot\ max}/P_{tot\ DC} = f(t_p)$



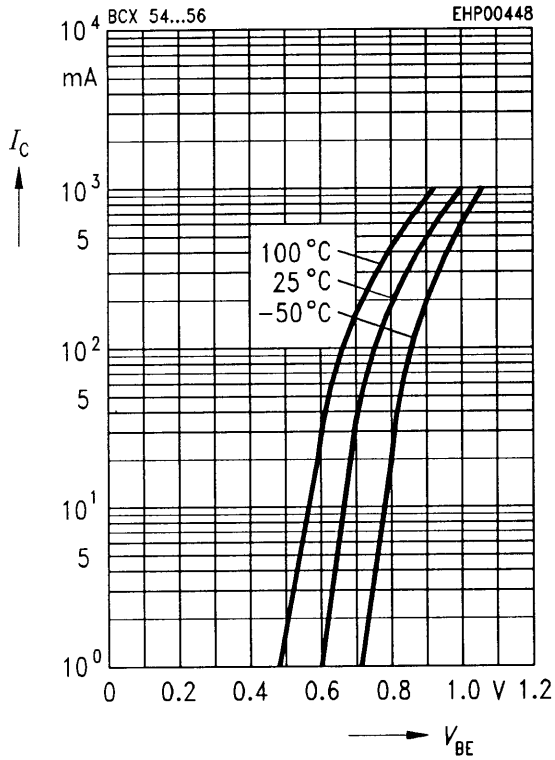
Collector cutoff current $I_{CB0} = f(T_A)$

$V_{CB} = 30\text{ V}$



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

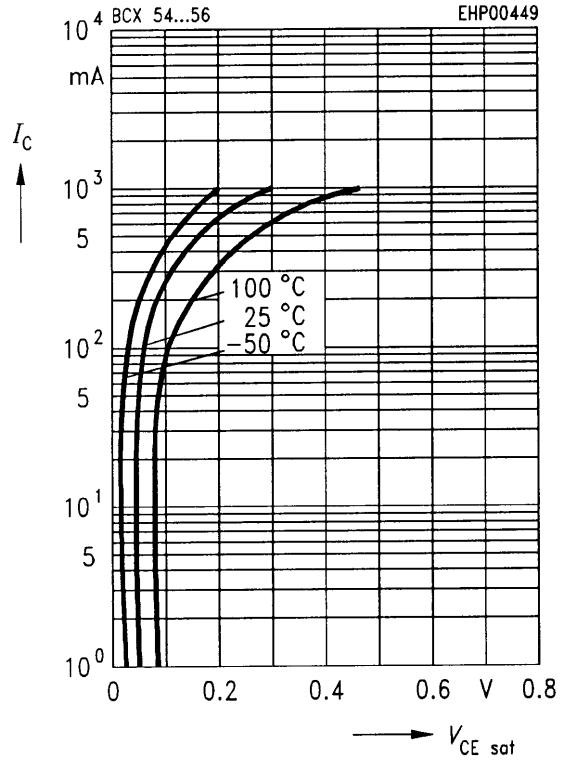
$V_{CE} = 2\text{ V}$



Collector-emitter saturation voltage $I_C = f(V_{CEsat})$

$I_C = f(V_{CEsat})$

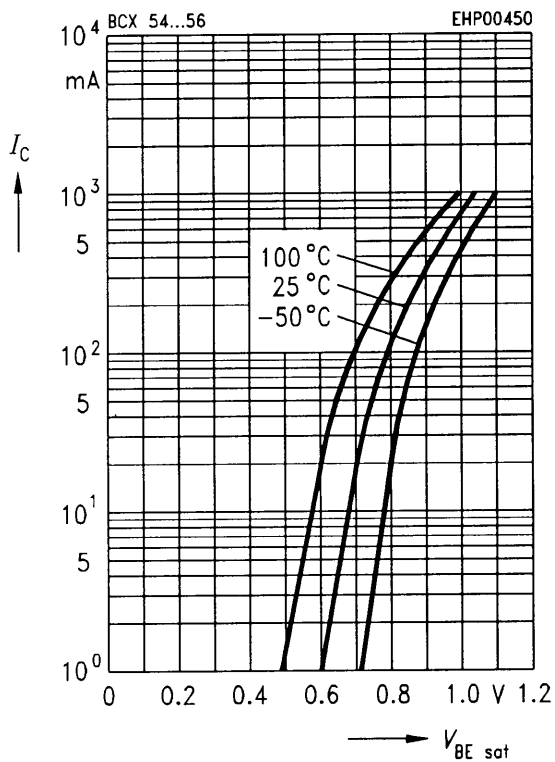
$h_{FE} = 10$



Base-emitter saturation voltage $I_C = f(V_{BEsat})$

$I_C = f(V_{BEsat})$

$h_{FE} = 10$



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

$V_{CE} = 2\text{ V}$

