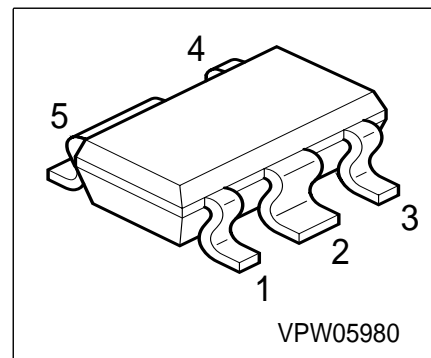


PNP Silicon AF Transistor

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BCP 54M...BCP 56M(NPN)



| Type | Marking | Ordering Code | Pin Configuration | | | | | Package |
|---------|---------|---------------|-------------------|-------|-------|--------|-------|---------|
| | | | 1 = B | 2 = C | 3 = E | 4 n.c. | 5 = C | |
| BCP 51M | AAAs | Q62702-C2592 | 1 = B | 2 = C | 3 = E | 4 n.c. | 5 = C | SCT-595 |
| BCP 52M | AEs | Q62702-C2593 | | | | | | |
| BCP 53M | AHs | Q62702-C2594 | | | | | | |

Maximum Ratings

| Parameter | Symbol | BCP 51M | BCP 52M | BCP 53M | Unit |
|---|-----------|------------|---------|---------|------------------|
| Collector-emitter voltage | V_{CEO} | 45 | 60 | 80 | V |
| Collector-base voltage | V_{CBO} | 45 | 60 | 100 | |
| Emitter-base voltage | V_{EBO} | 5 | 5 | 5 | |
| DC collector current | I_C | 1 | | | mA |
| Peak collector current | I_{CM} | 1.5 | | | A |
| Base current | I_B | 100 | | | mA |
| Peak base current | I_{BM} | 200 | | | |
| Total power dissipation, $T_S \leq 77 \text{ }^\circ\text{C}$ | P_{tot} | 1.7 | | | W |
| Junction temperature | T_j | 150 | | | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -65...+150 | | | |

Thermal Resistance

| | | | |
|--------------------------------|------------|-----|-----|
| Junction ambient ¹⁾ | R_{thJA} | ≤98 | K/W |
| Junction - soldering point | R_{thJS} | ≤43 | |

1) Package mounted on pcb 40mm x 40mm x 1.5mm / 6cm² Cu

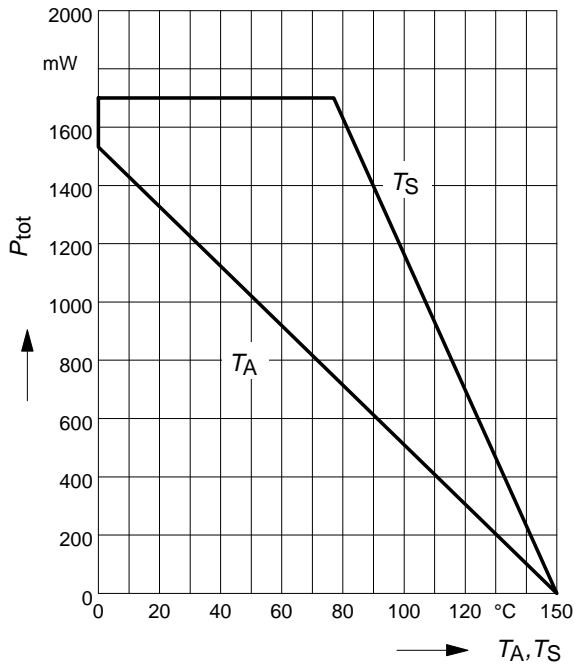
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

| Parameter | Symbol | Values | | | Unit |
|--|---------------|--------|------|------|---------------|
| | | min. | typ. | max. | |
| DC Characteristics | | | | | |
| Collector-emitter breakdown voltage $I_C = 10\text{ mA}$, $I_B = 0$ | $V_{(BR)CEO}$ | | | | V |
| BCP 51M | | 45 | - | - | |
| BCP 52M | | 60 | - | - | |
| BCP 53M | | 80 | - | - | |
| Collector-base breakdown voltage $I_C = 100\ \mu\text{A}$, $I_B = 0$ | $V_{(BR)CBO}$ | | | | |
| BCP 51M | | 45 | - | - | |
| BCP 52M | | 60 | - | - | |
| BCP 53M | | 100 | - | - | |
| Emitter-base breakdown voltage $I_E = 10\ \mu\text{A}$, $I_C = 0$ | $V_{(BR)EBO}$ | 5 | - | - | |
| Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$ | I_{CBO} | - | - | 100 | nA |
| Collector cutoff current $V_{CB} = 30\text{ V}$, $I_E = 0$, $T_A = 150^\circ\text{C}$ | I_{CBO} | - | - | 20 | μA |
| DC current gain 1) $I_C = 5\text{ mA}$, $V_{CE} = 2\text{ V}$ | h_{FE} | 25 | - | - | - |
| DC current gain 1) $I_C = 150\text{ mA}$, $V_{CE} = 2\text{ V}$ | h_{FE} | 40 | - | 250 | |
| DC current gain 1) $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$ | h_{FE} | 25 | - | - | |
| Collector-emitter saturation voltage1) $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | V_{CEsat} | - | - | 0.5 | V |
| Base-emitter voltage 1) $I_C = 500\text{ mA}$, $V_{CE} = 2\text{ V}$ | $V_{BE(ON)}$ | - | - | 1 | |
| AC Characteristics | | | | | |
| Transition frequency $I_C = 50\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 100\text{ MHz}$ | f_T | - | 100 | - | MHz |

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

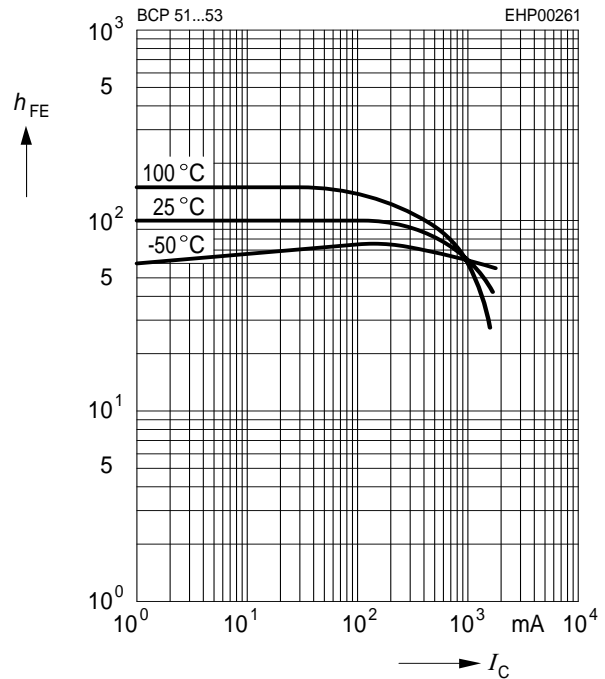
Total power dissipation $P_{tot} = f(T_A^*; T_S)$

* Package mounted on epoxy

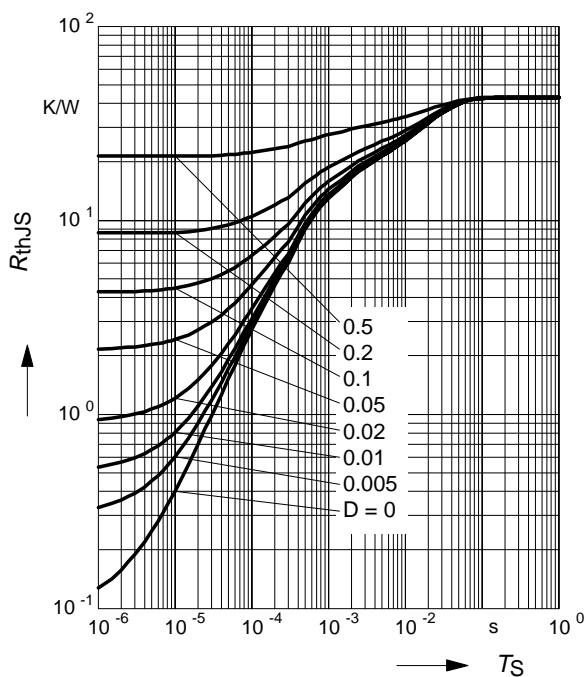


DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 2V$

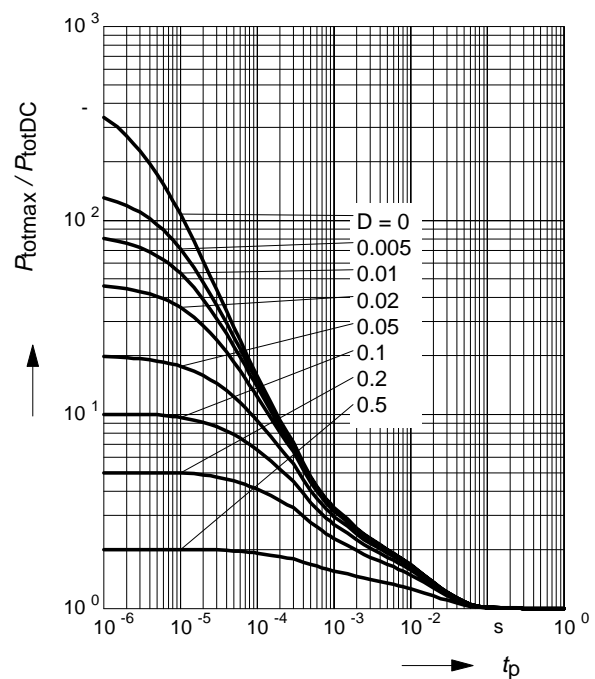


Permissible Pulse Load $R_{thJS} = f(t_p)$



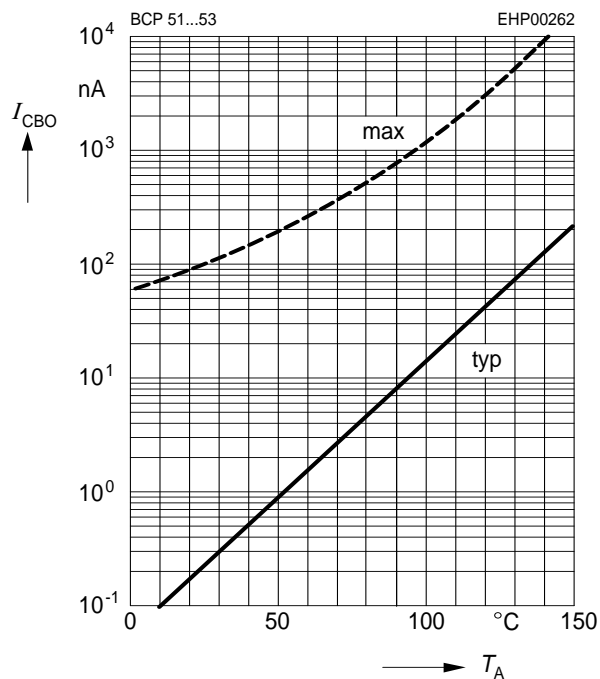
Permissible Pulse Load

$P_{totmax} / P_{totDC} = f(t_p)$



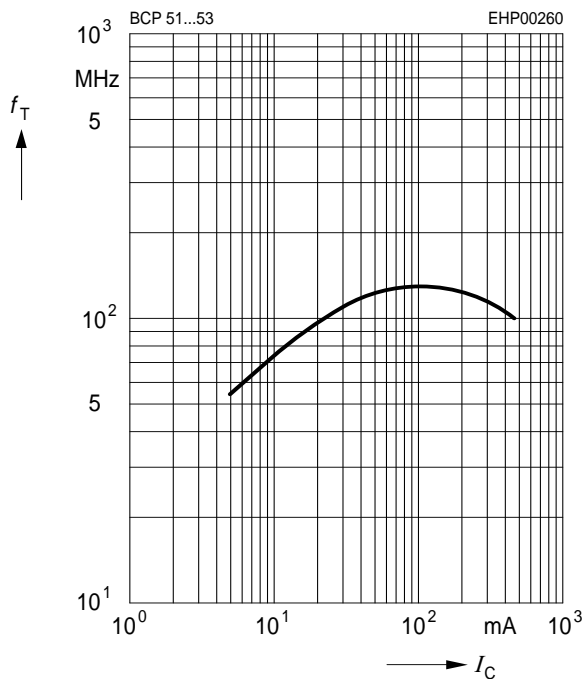
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 30V$



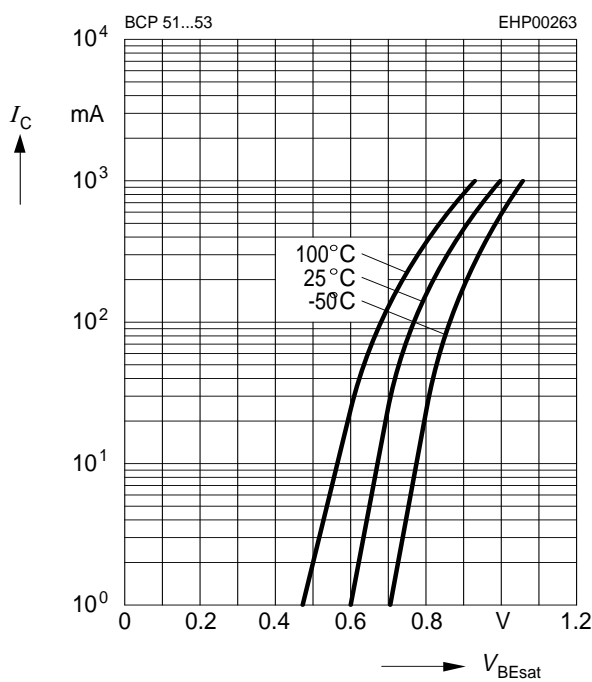
Transition frequency $f_T = f(I_C)$

$V_{CE} = 10V$



Base-emitter saturation voltage

$I_C = f(V_{BEsat}), h_{FE} = 10$



Collector-emitter saturation voltage

$I_C = f(V_{CEsat}), h_{FE} = 10$

