# SILICON PLANAR EPITAXIAL TRANSISTORS

P-N-P transistors, in a SOT-23 plastic envelope, intended for application in thick and thin-film circuits. These transistors are intended for general purposes as well as saturated switching and driver applications for industrial service.
N-P-N complements are BCX19 and BCX20 respectively.

## QUICK REFERENCE DATA

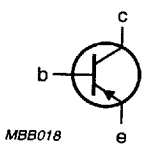
| | | | BCX17 | BCX18 | |
|---|---|---|---|---|---|
| Collector-emitter voltage ($V_{BE}$ = 0) | $-V_{CES}$ | max. | 50 | 30 | V |
| Collector-emitter voltage (open base) | $-V_{CEO}$ | max. | 45 | 25 | V |
| Collector current (peak value) | $-I_{CM}$ | max. | 1000 | | mA |
| Total power dissipation up to $T_{amb}$ = 25 °C | $P_{tot}$ | max. | 250 | | mW |
| Junction temperature | $T_j$ | max. | 150 | | °C |
| D.C. current gain<br>$-I_C$ = 100 mA; $-V_{CE}$ = 1 V | $h_{FE}$ | | 100 to 600 | | |
| Transition frequency<br>$-I_C$ = 10 mA; $-V_{CE}$ = 5 V; f = 35 MHz | $f_T$ | typ. | 100 | | MHz |

## MECHANICAL DATA

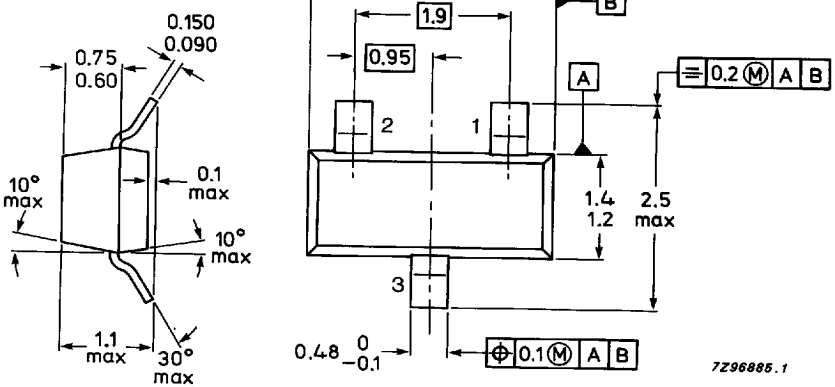
Fig. 1 SOT-23.

**Pinning:**

1 = base
2 = emitter
3 = collector




Dimensions in mm




TOP VIEW

**Marking code**

BCX17 = T1p
BCX18 = T2p

Reverse pinning types are available on request.

See also *Soldering recommendations.*

## RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

| | | | BCX17 | BCX18 | |
|---|---|---|---|---|---|
| Collector-emitter voltage ($V_{BE}$ = 0) | $-V_{CES}$ | max. | 50 | 30 | V |
| Collector-emitter voltage $-I_C$ = 10 mA (see Fig. 2) | $-V_{CEO}$ | max. | 45 | 25 | V |
| Emitter-base voltage (open collector) | $-V_{EBO}$ | max. | 5 | 5 | V |
| Collector current (d.c.) | $-I_C$ | max. | 500 | | mA |
| Collector current (peak value) | $-I_{CM}$ | max. | 1000 | | mA |
| Emitter current (peak value) | $I_{EM}$ | max. | 1000 | | mA |
| Base current (d.c.) | $-I_B$ | max. | 100 | | mA |
| Base current (peak value) | $-I_{BM}$ | max. | 200 | | mA |
| Total power dissipation up to $T_{amb}$ = 25 °C* | $P_{tot}$ | max. | 250 | | mW |
| Storage temperature | $T_{stg}$ | | −65 to + 150 | | °C |
| Junction temperature | $T_j$ | max. | 150 | | °C |

## THERMAL RESISTANCE

| | | | | |
|---|---|---|---|---|
| From junction to ambient | $R_{th\ j\text{-}a}$ | = | 500 | K/W |

## CHARACTERISTICS

$T_j$ = 25 °C unless otherwise specified

| | | | | |
|---|---|---|---|---|
| Collector cut-off current $I_E$ = 0; $-V_{CB}$ = 20 V | $-I_{CBO}$ | < | 100 | nA |
| $I_E$ = 0; $-V_{CB}$ = 20 V; $T_j$ = 150 °C | $-I_{CBO}$ | < | 5 | μA |
| Emitter cut-off current $I_C$ = 0; $-V_{EB}$ = 5 V | $-I_{EBO}$ | < | 10 | μA |
| Base-emitter voltage ▲ $-I_C$ = 500 mA; $-V_{CE}$ = 1 V | $-V_{BE}$ | < | 1,2 | V |
| Saturation voltage $-I_C$ = 500 mA; $-I_B$ = 50 mA | $-V_{CEsat}$ | < | 620 | mV |

* Mounted on a ceramic substrate of 8 mm x 10 mm x 0,7 mm.

▲ $-V_{BE}$ decreases by about 2 mV/°C with increasing temperature.

D.C. current gain

| | | | |
|---|---|---|---|
| $-I_C$ = 100 mA; $-V_{CE}$ = 1 V | $h_{FE}$ | 100 to 600 | |
| $-I_C$ = 300 mA; $-V_{CE}$ = 1 V | $h_{FE}$ | > | 70 |
| $-I_C$ = 500 mA; $-V_{CE}$ = 1 V | $h_{FE}$ | > | 40 |
| Transition frequency at f = 35 MHz | | | |
| $-I_C$ = 10 mA; $-V_{CE}$ = 5 V | $f_T$ | typ. | 100 MHz |
| Collector capacitance at f = 1 MHz | | | |
| $I_E = I_e = 0$; $-V_{CB}$ = 10 V | $C_c$ | typ. | 8 pF |

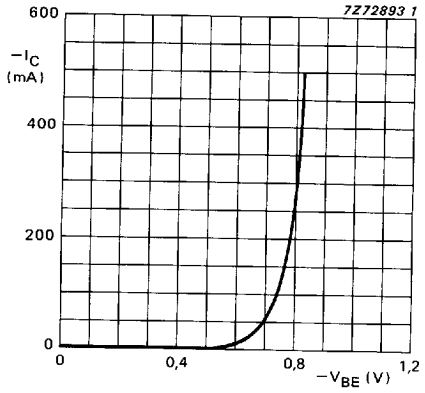



Fig. 2 $-V_{CE}$ = 1 V; $T_j$ = 25 °C; typical values.

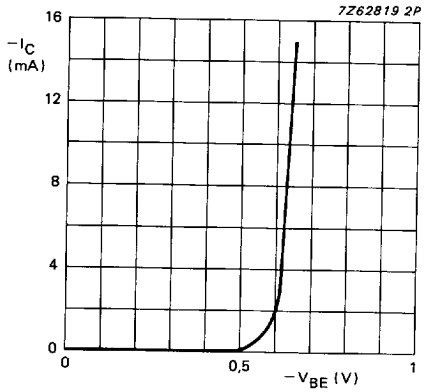



Fig. 3 $V_{CE}$ = 5 V; $T_j$ = 25 °C; typical values.

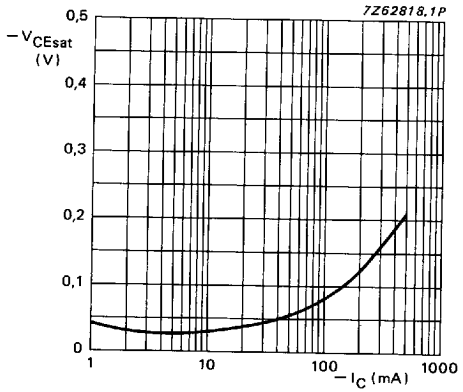



Fig. 4 $I_C/I_B$ = 10; $T_j$ = 25 °C; typical values.

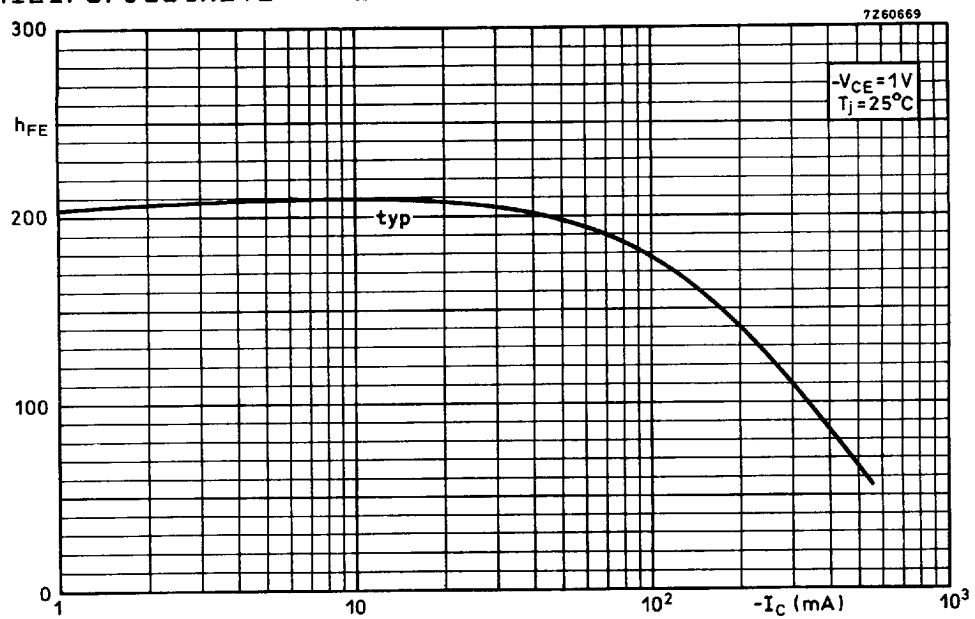



Fig. 5

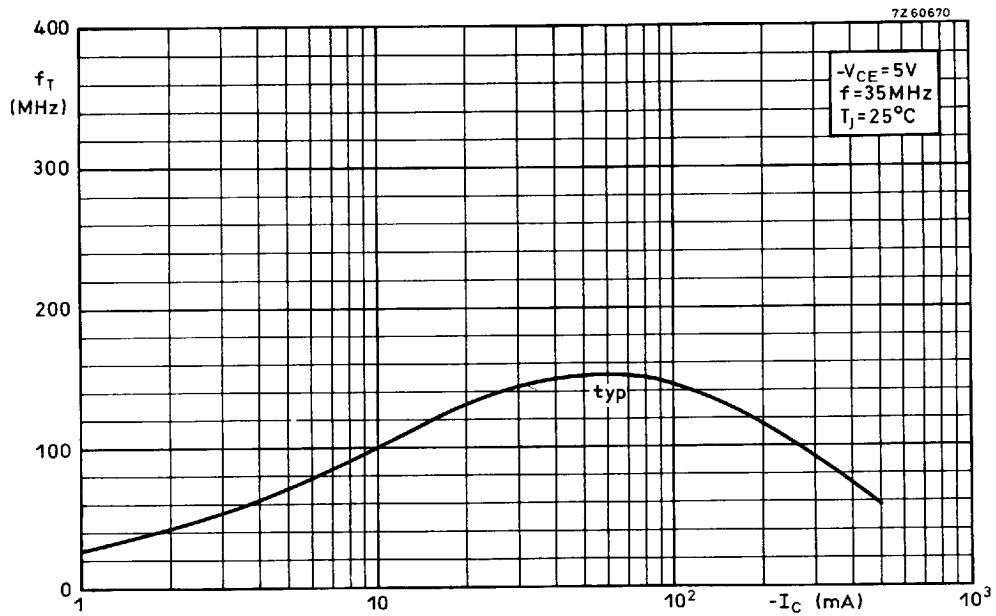



Fig. 6