

SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N transistor in a microminiature plastic envelope. It has a very low feedback capacitance and is intended for i.f. and v.h.f. applications in thick and thin-film circuits.

QUICK REFERENCE DATA

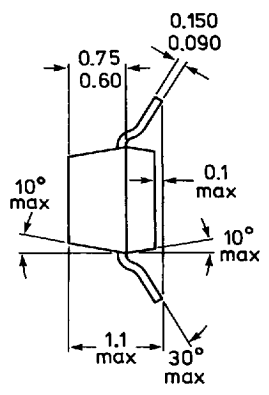
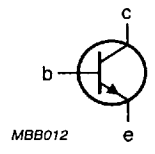
Collector-base voltage (open emitter)	V_{CBO}	max.	30 V
Collector-emitter voltage (open base)	V_{CEO}	max.	20 V
Collector current (d.c.)	I_C	max.	25 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Junction temperature	T_j	max.	150 $^\circ\text{C}$
D.C. current gain $I_C = 7\text{ mA}; V_{CE} = 10\text{ V}$	h_{FE}	>	40
Transition frequency at $f = 100\text{ MHz}$ $I_C = 5\text{ mA}; V_{CE} = 5\text{ V}$	f_T	typ.	450 MHz
Feedback capacitance at $f = 1\text{ MHz}$ $I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$	C_{re}	typ.	350 fF

MECHANICAL DATA

Fig. 1 SOT-23.

Pinning:

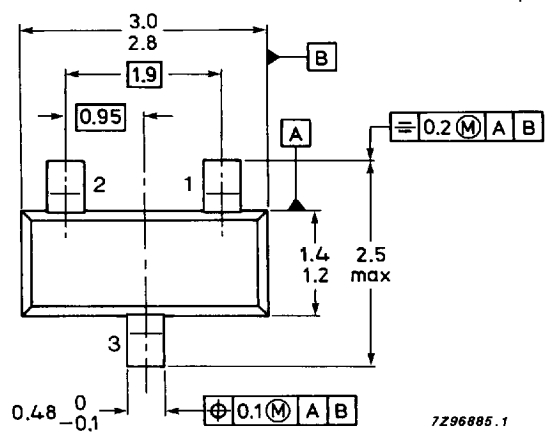
- 1 = base
- 2 = emitter
- 3 = collector



Dimensions in mm

Marking code

BFS20 = G1p



TOP VIEW

Reverse pinning types are available on request.

See also *Soldering recommendations.*

RATINGS

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

Collector-base voltage (open emitter) see Fig. 2	V_{CBO}	max.	30 V
Collector-emitter voltage (open base) see Fig. 2 $I_C = 2 \text{ mA}$	V_{CEO}	max.	20 V
Emitter-base voltage (open collector) see Fig. 2	V_{EBO}	max.	4 V
Collector current (d.c.)	I_C	max.	25 mA
Collector current (peak value)	I_{CM}	max.	25 mA
Total power dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Storage temperature	T_{stg}		-65 to +150 $^\circ\text{C}$
Junction temperature	T_j	max.	150 $^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient*	$R_{th \text{ j-a}}$	=	500 K/W
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CHARACTERISTICS $T_j = 25 \text{ }^\circ\text{C}$ unless otherwise specified

Collector cut-off current

$I_E = 0; V_{CB} = 20 \text{ V}$	I_{CBO}	<	100 nA
$I_E = 0; V_{CB} = 20 \text{ V}; T_j = 100 \text{ }^\circ\text{C}$	I_{CBO}	<	10 μA

Base-emitter voltage

$I_C = 7 \text{ mA}; V_{CE} = 10 \text{ V}$	V_{BE}	typ. <	740 mV 900 mV
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D.C. current gain

$I_C = 7 \text{ mA}; V_{CE} = 10 \text{ V}$	h_{FE}	> typ.	40 85
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Transition frequency at $f = 100 \text{ MHz}$

$I_C = 5 \text{ mA}; V_{CE} = 10 \text{ V}$	f_T	> typ.	275 MHz 450 MHz
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Collector capacitance at $f = 1 \text{ MHz}$

$I_E = I_e = 0; V_{CB} = 10 \text{ V}$	C_C	typ.	0,8 pF
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Feedback capacitance at $f = 1 \text{ MHz}$

$I_C = 1 \text{ mA}; V_{CE} = 10 \text{ V}$	$-C_{re}$	typ.	350 fF
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* Mounted on a ceramic substrate of 8 mm x 10 mm x 0,7 mm.

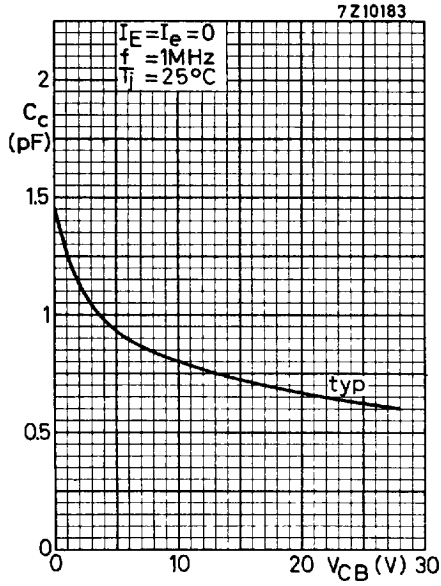


Fig. 2.

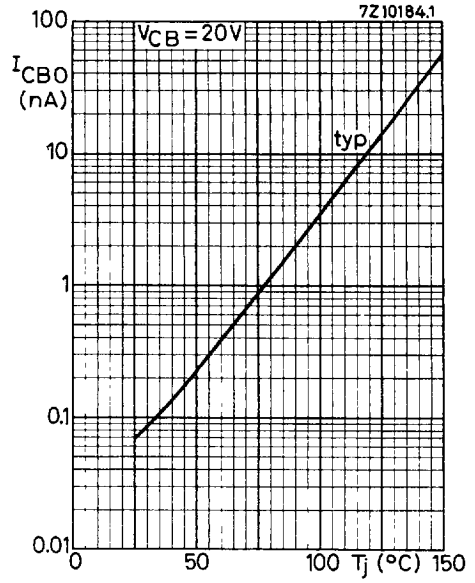


Fig. 3.

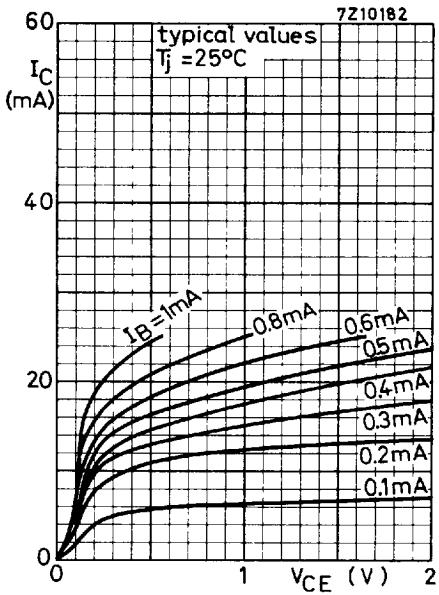


Fig. 4.

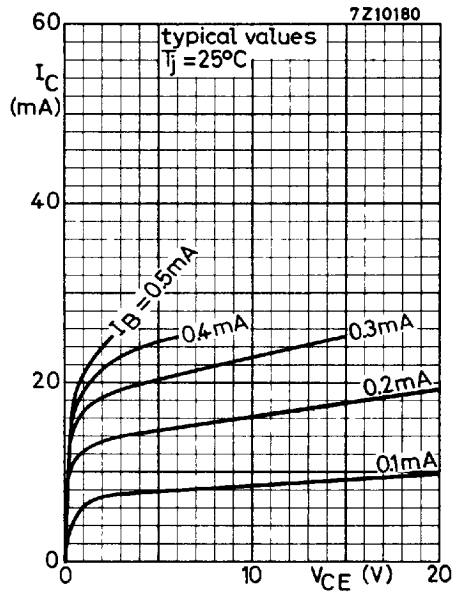


Fig. 5.

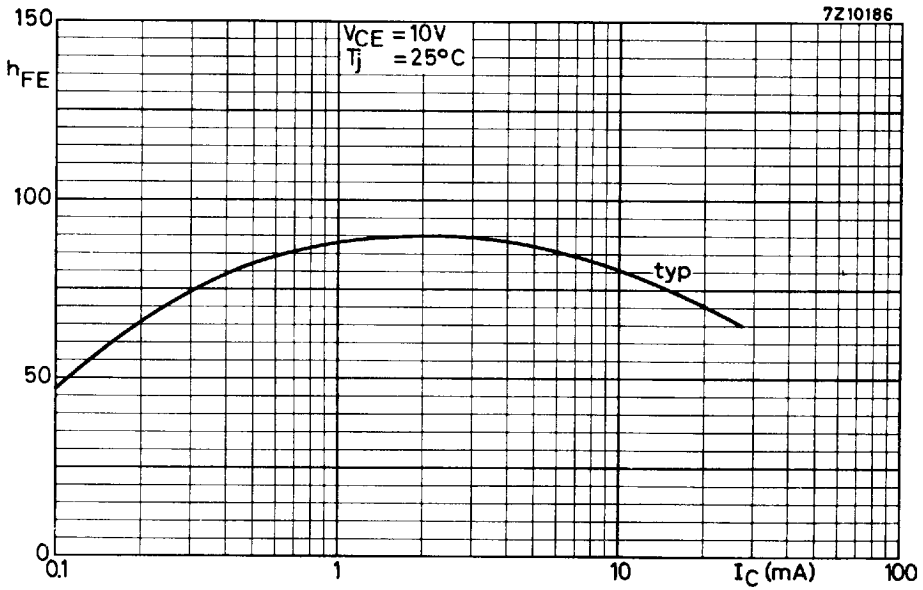


Fig. 6.

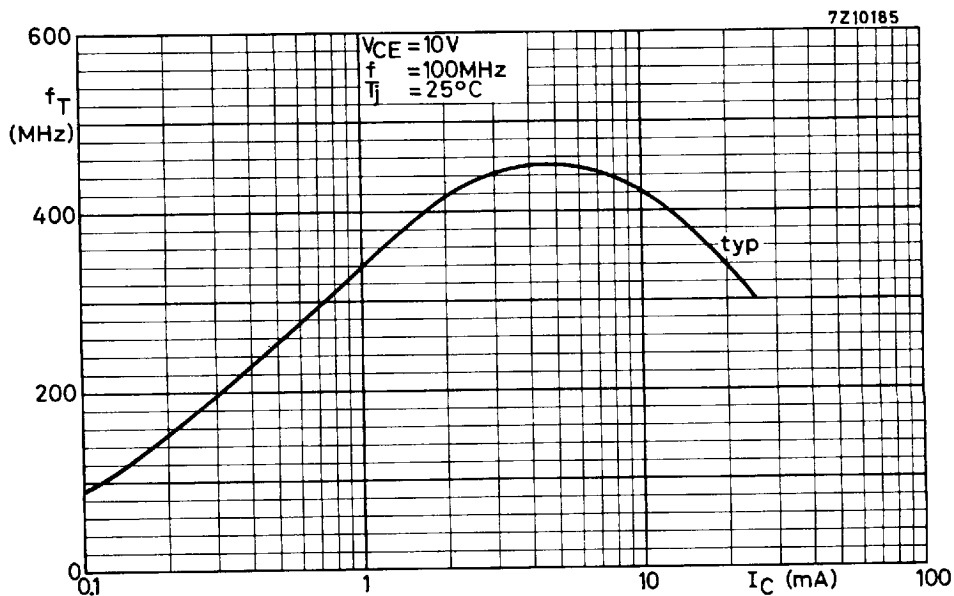


Fig. 7.

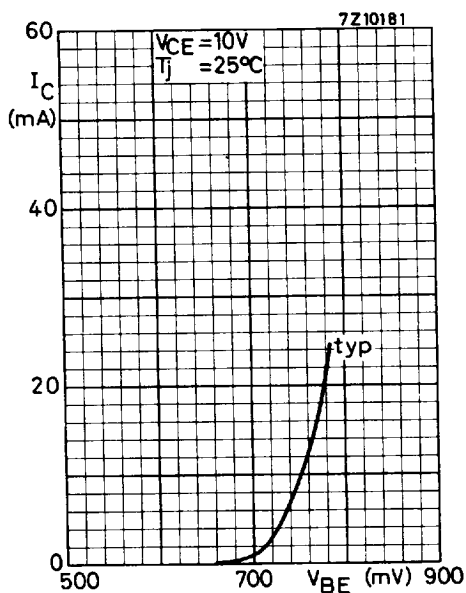


Fig. 8.