

SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N transistors in a microminiature plastic package. They are intended for general purpose and h.f. applications in thick and thin-film circuits.

QUICK REFERENCE DATA

Collector-base voltage (open emitter)	V_{CB0}	max.	30	V
Collector-emitter voltage (open base)	V_{CE0}	max.	20	V
Collector current (d.c.)	I_C	max.	30	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

$$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$$

Transition frequency at $f = 100\text{ MHz}$

$$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$$

Noise figure at $f = 100\text{ MHz}$

$$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}; G_S = 10\text{ mS}$$

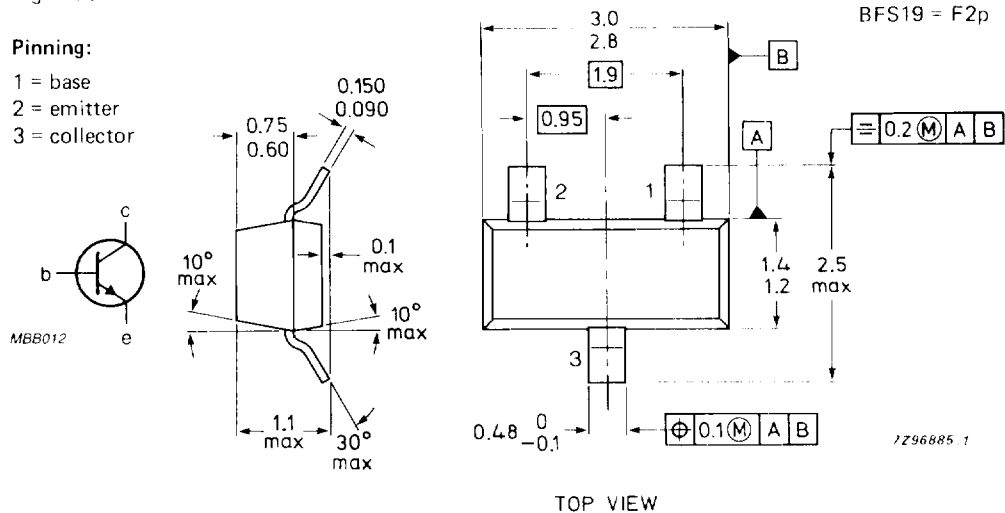
		BFS18	BFS19		
h_{FE}		35 to 125	65 to 225		
f_T	typ.	200	260	MHz	
F	typ.	4		dB	

MECHANICAL DATA

Fig. 1 SOT-23.

Pinning:

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



Reverse pinning types are available on request.

RATINGS

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

Collector-base voltage (open emitter)	V_{CBO}	max.	30	V
Collector-emitter voltage (open base) $I_C = 2 \text{ mA}$	V_{CEO}	max.	20	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5	V
Collector current (d.c.)	I_C	max.	30	mA
Collector current (peak value)	I_{CM}	max.	30	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*	$R_{th j-a}$	=	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
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$I_E = 0; V_{CB} = 20 \text{ V}; T_j = 100 \text{ }^\circ\text{C}$

I_{CBO}	<	10	μA
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Base-emitter voltage

$I_C = 1 \text{ mA}; V_{CE} = 10 \text{ V}$

V_{BE}		0,65 to 0,74	V
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D.C. current gain

$I_C = 1 \text{ mA}; V_{CE} = 10 \text{ V}$

h_{FE}		BFS18 BFS19	
		35 to 125	65 to 225

Transition frequency at $f = 100 \text{ MHz}$

$I_C = 1 \text{ mA}; V_{CE} = 10 \text{ V}$

f_T	typ.	200	260	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.	1	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.	0,85	pF
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Noise figure**

$I_C = 1 \text{ mA}; V_{CE} = 10 \text{ V};$

$G_S = 10 \text{ mS}; f = 100 \text{ MHz}$

F	typ.	4	dB
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* Mounted on an FR4 printed-circuit board 8 mm x 10 mm x 0.7 mm.

** Crystal mounted in a BF115 envelope.