

SILICON PLANAR EPITAXIAL TRANSISTORS

P-N-P transistors, in a microminiature plastic envelope, intended for low level general purpose applications in thick and thin-film circuits.

QUICK REFERENCE DATA

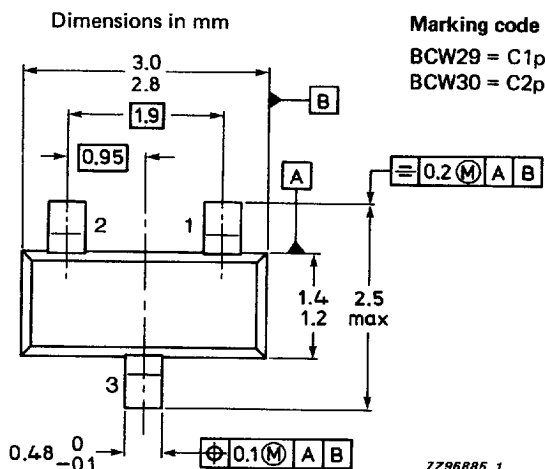
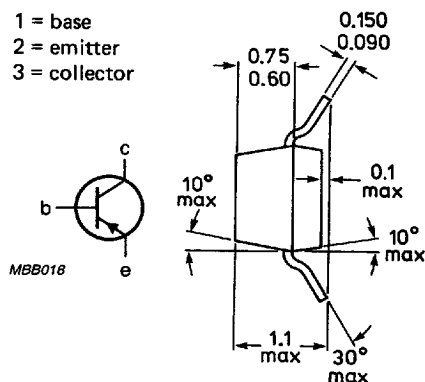
		BCW29	BCW30
D.C. current gain at $T_j = 25^\circ\text{C}$ $-I_C = 2\text{ mA}; -V_{CE} = 5\text{ V}$	$h_{FE} >$	120	215
	$h_{FE} <$	260	500
Collector-base voltage (open emitter)	$-V_{CBO}$ max.	32	V
Collector-emitter voltage (open base)	$-V_{CEO}$ max.	32	V
Collector current (peak value)	$-I_{CM}$ max.	200	mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot} max.	250	mW
Junction temperature	T_j max.	150	$^\circ\text{C}$
Transition frequency at $f = 35\text{ MHz}$ $-I_C = 10\text{ mA}; -V_{CE} = 5\text{ V}$	f_T typ.	150	MHz
Noise figure at $R_S = 2\text{ k}\Omega$ $-I_C = 200\text{ }\mu\text{A}; -V_{CE} = 5\text{ V};$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	F	< 10	dB

MECHANICAL DATA

Fig. 1 SOT-23.

Pinning:

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



TOP VIEW

Reverse pinning types are available on request.

See also *Soldering recommendations*.

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC134)

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	32 V
Collector-emitter voltage ($V_{BE} = 0$)	$-V_{CES}$	max.	32 V
Collector-emitter voltage (open base)			
$-I_C = 2 \text{ mA}$	$-V_{CEO}$	max.	32 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5 V
Collector current (d.c.)	$-I_C$	max.	100 mA
Collector current (peak value)	$-I_{CM}$	max.	200 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	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

$T_j = 25^\circ\text{C}$ unless otherwise specified

Collector cut-off current

$I_E = 0; -V_{CB} = 32 \text{ V}$

$-I_{CBO} < 100 \text{ nA}$

$I_E = 0; -V_{CB} = 32 \text{ V}; T_j = 100^\circ\text{C}$

$-I_{CBO} < 10 \text{ }\mu\text{A}$

Base-emitter voltage

$-I_C = 2 \text{ mA}; -V_{CE} = 5 \text{ V}$

$-V_{BE} \quad 600 \text{ to } 750 \text{ mV}$

Saturation voltages

$-I_C = 10 \text{ mA}; -I_B = 0,5 \text{ mA}$

$-V_{CEsat} \text{ typ. } 80 \text{ mV}$
 $< 300 \text{ mV}$

$-V_{BEsat} \text{ typ. } 720 \text{ mV}$

$-I_C = 50 \text{ mA}; -I_B = 2,5 \text{ mA}$

$-V_{CEsat} \text{ typ. } 150 \text{ mV}$
 $-V_{BEsat} \text{ typ. } 810 \text{ mV}$

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

D.C. current gain

$$-I_C = 10 \mu A; -V_{CE} = 5 V$$

$$-I_C = 2 mA; -V_{CE} = 5 V$$

Collector-capacitance at $f = 1 \text{ MHz}$

$$I_E = I_e = 0; -V_{CB} = 10 V$$

Transition frequency at $f = 35 \text{ MHz}$

$$-I_C = 10 mA; -V_{CE} = 5 V$$

Noise figure at $R_S = 2 \text{ k}\Omega$

$$-I_C = 200 \mu A; -V_{CE} = 5 V$$

$$f = 1 \text{ kHz}; B = 200 \text{ Hz}$$

	BCW29	BCW30
h_{FE}	typ. 90	150
h_{FE}	> 120	215
h_{FE}	< 260	500
C_c	typ. 4,5	pF
f_T	typ. 150	MHz
F	< 10	dB

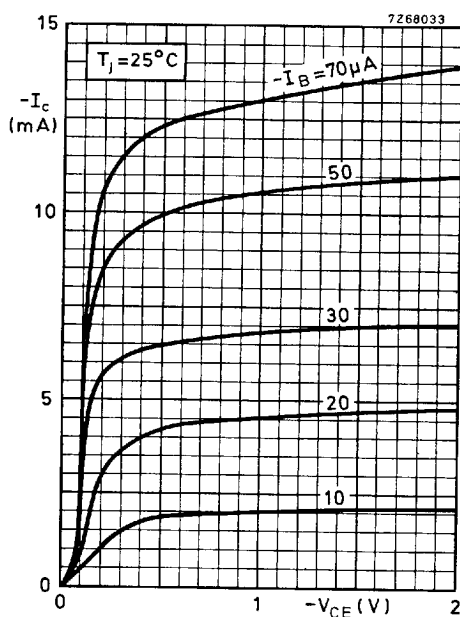


Fig. 2

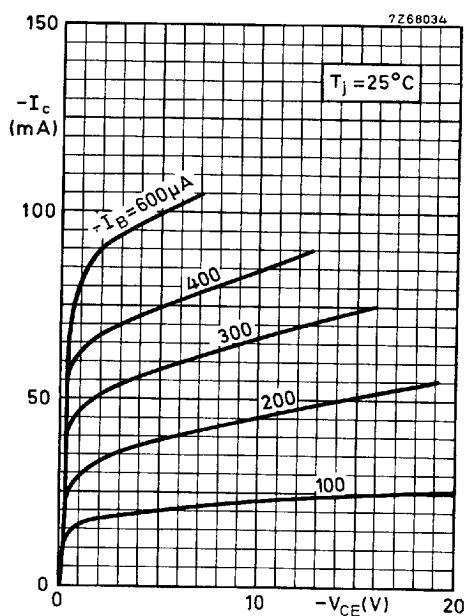


Fig. 3

BCW29
BCW30



AMER PHILIPS/DISCRETE

67E D

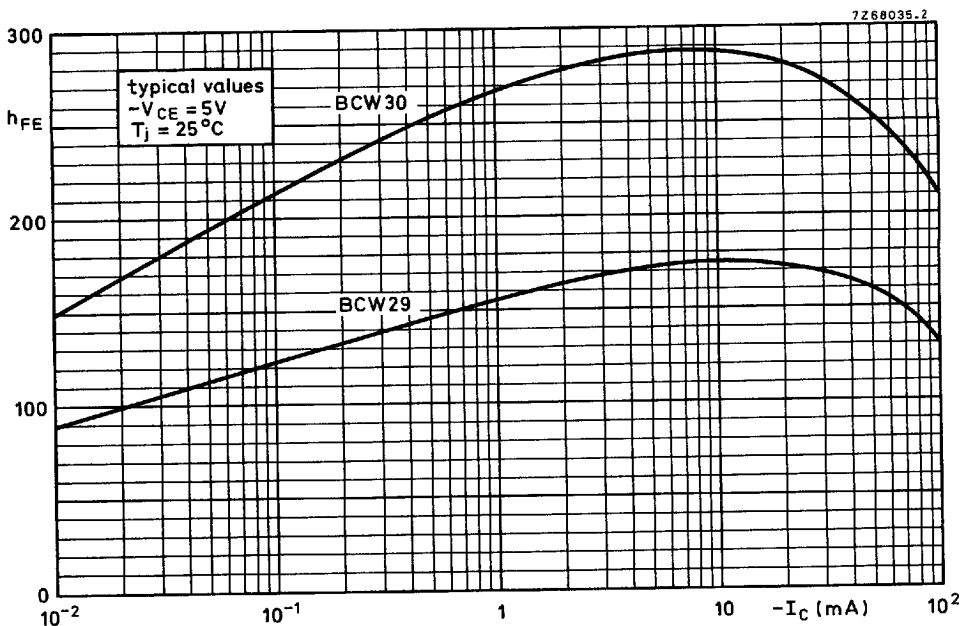


Fig. 4

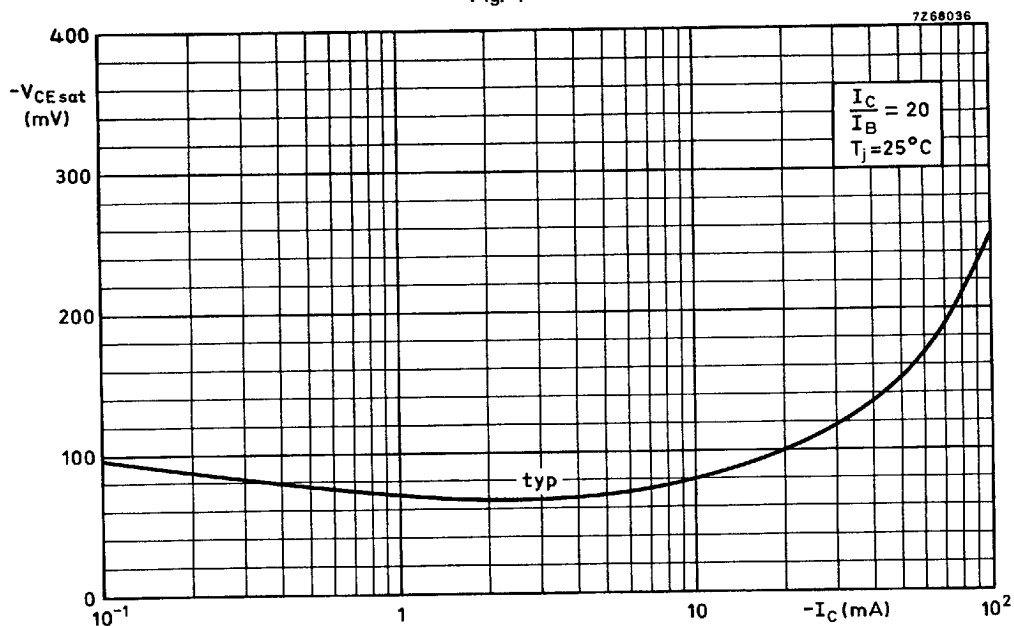


Fig. 5

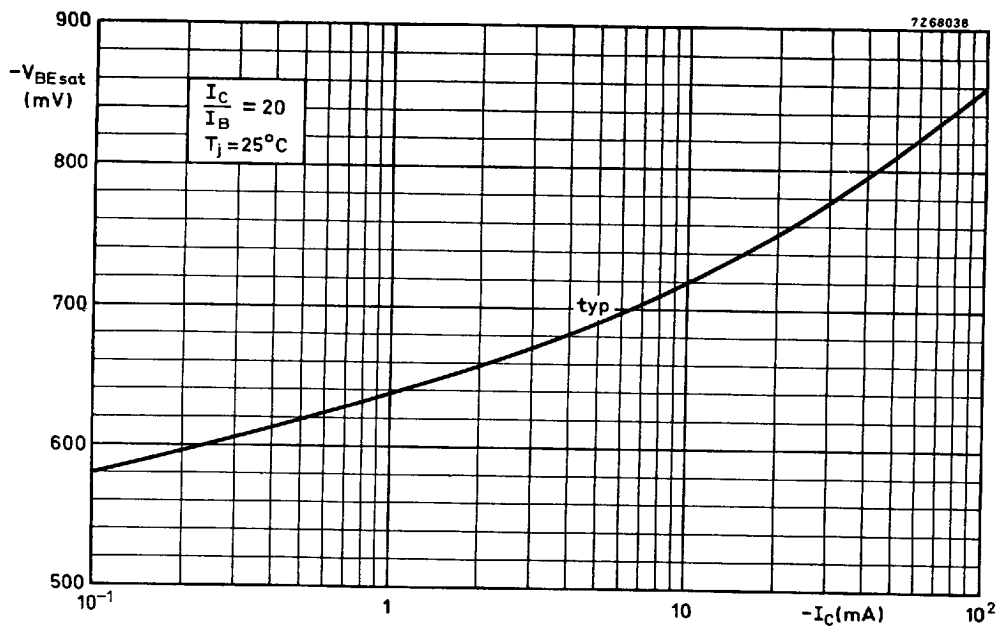


Fig. 6

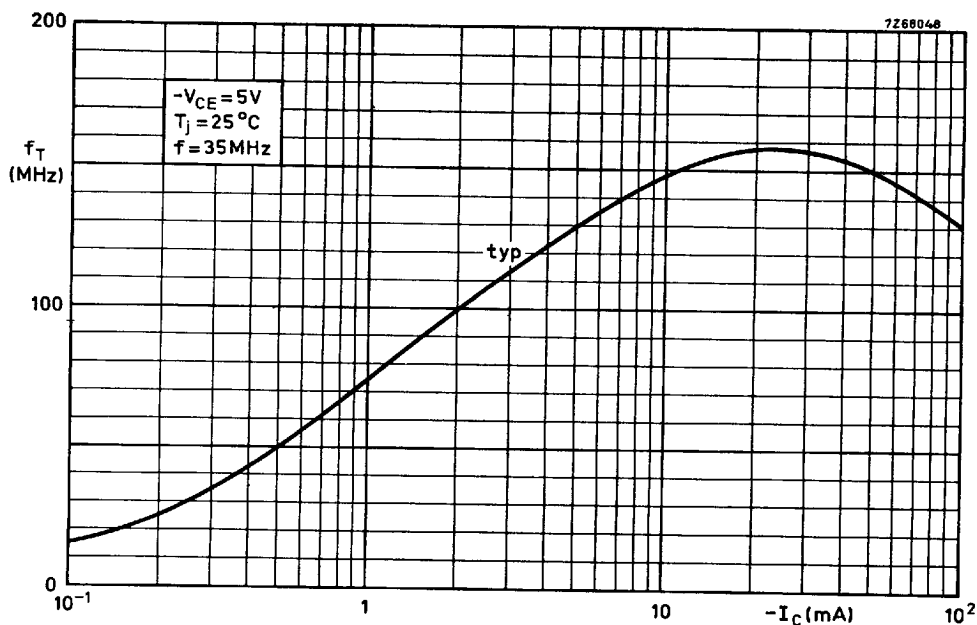


Fig. 7

BCW29
BCW30

AMER PHILIPS/DISCRETE

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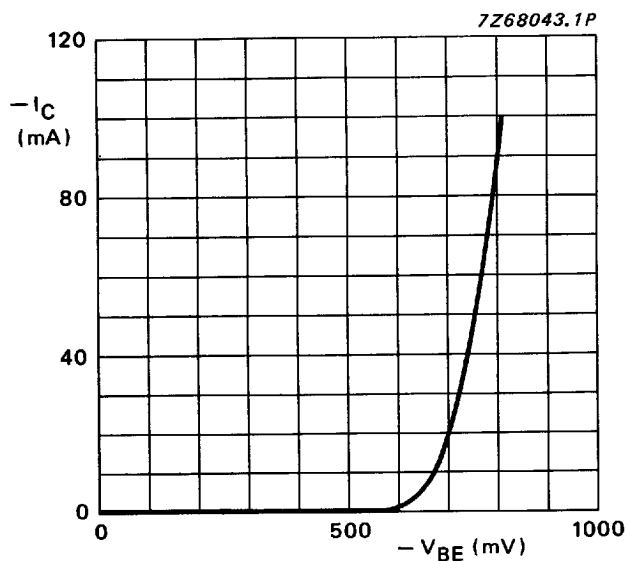


Fig. 8 $V_{CE} = 5$ V; $T_j = 25^\circ\text{C}$; typical values.

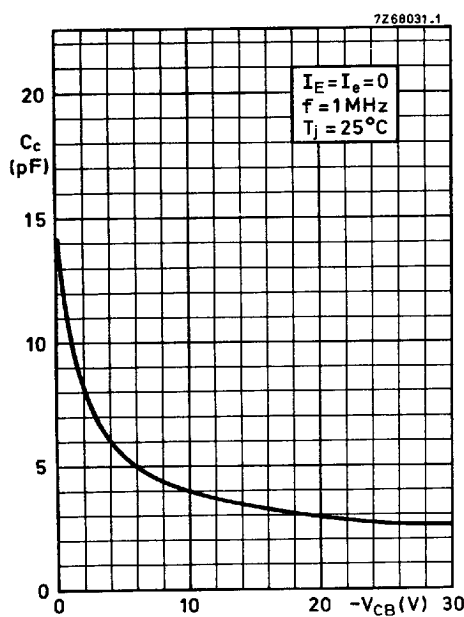


Fig. 9

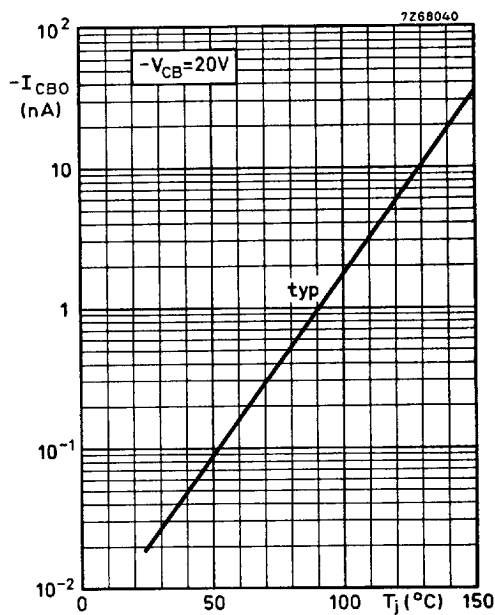


Fig. 10