

## SILICON PLANAR EPITAXIAL TRANSISTORS

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

### QUICK REFERENCE DATA

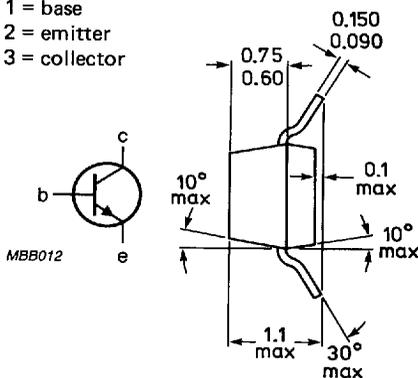
		BCW71	BCW72
D.C. current gain at $T_j = 25^\circ\text{C}$ $I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	$h_{FE}$	> 110 < 220	200 450
Collector-base voltage (open emitter)	$V_{CBO}$	max. 50	V
Collector-emitter voltage (open base)	$V_{CEO}$	max. 45	V
Collector current (peak value)	$I_{CM}$	max. 200	mA
Total 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. 300	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:

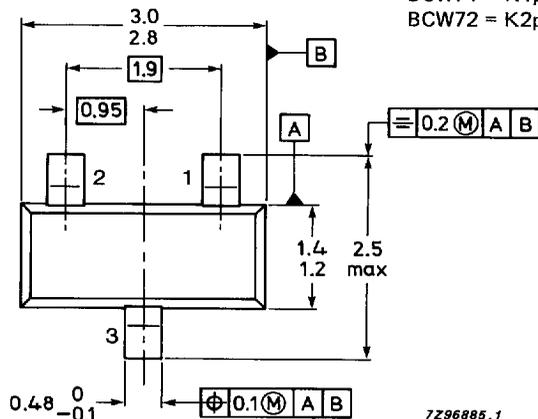
- 1 = base
- 2 = emitter
- 3 = collector



Dimensions in mm

Marking code

BCW71 = K1p  
 BCW72 = K2p



Reverse pinning types are available on request.

TOP VIEW

See also *Soldering recommendations*.

BCW71  
BCW72



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**RATINGS**

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

Collector-base voltage (open emitter)	$V_{CBO}$	max.	50 V
Collector-emitter voltage (open base) $I_C = 2 \text{ mA}$	$V_{CEO}$	max.	45 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 $T_{amb} = 25 \text{ }^\circ\text{C}$	$P_{tot}$	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\*  $R_{th \text{ j-a}} = 500 \text{ K/W}$

**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 $\mu\text{A}$
Base emitter voltage $I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$	$V_{BE}$		550 to 700 mV
Saturation voltages $I_C = 10 \text{ mA}; I_B = 0,5 \text{ mA}$	$V_{CEsat}$	typ.	120 mV
	$V_{CEsat}$	<	250 mV
$I_C = 50 \text{ mA}; I_B = 2,5 \text{ mA}$	$V_{BEsat}$	typ.	750 mV
	$V_{CEsat}$	typ.	210 mV
	$V_{BEsat}$	typ.	850 mV

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

Silicon planar epitaxial transistors

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BCW71  
BCW72

D.C. current gain

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

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

Collector capacitance at  $f = 1 MHz$

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

Transition frequency at  $f = 35 MHz$

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

Noise figure at  $R_S = 2 k\Omega$

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

$f = 1 kHz; B = 200 Hz$

	BCW71	BCW72
$h_{FE}$ typ.	90	150
$h_{FE} >$	110	200
$h_{FE} <$	220	450
$C_c$ typ.	2,5	pF
$f_T$ typ.	300	MHz
F	<	10 dB

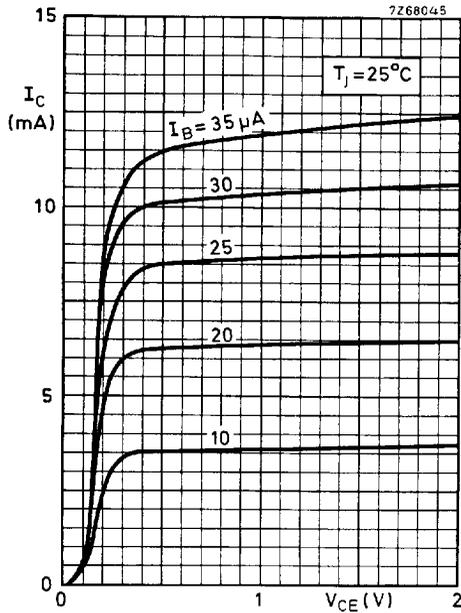


Fig. 2

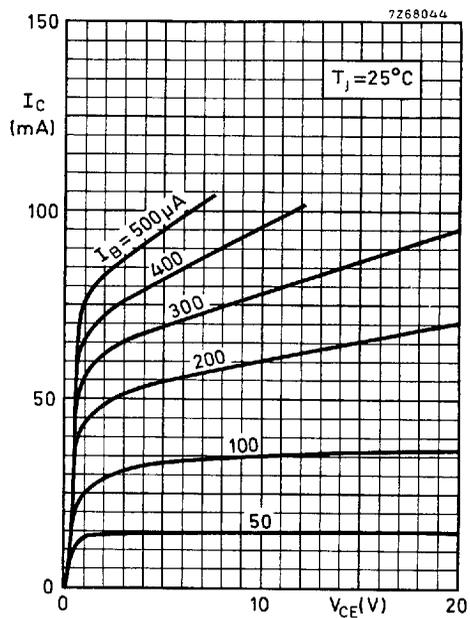


Fig. 3

BCW71  
BCW72



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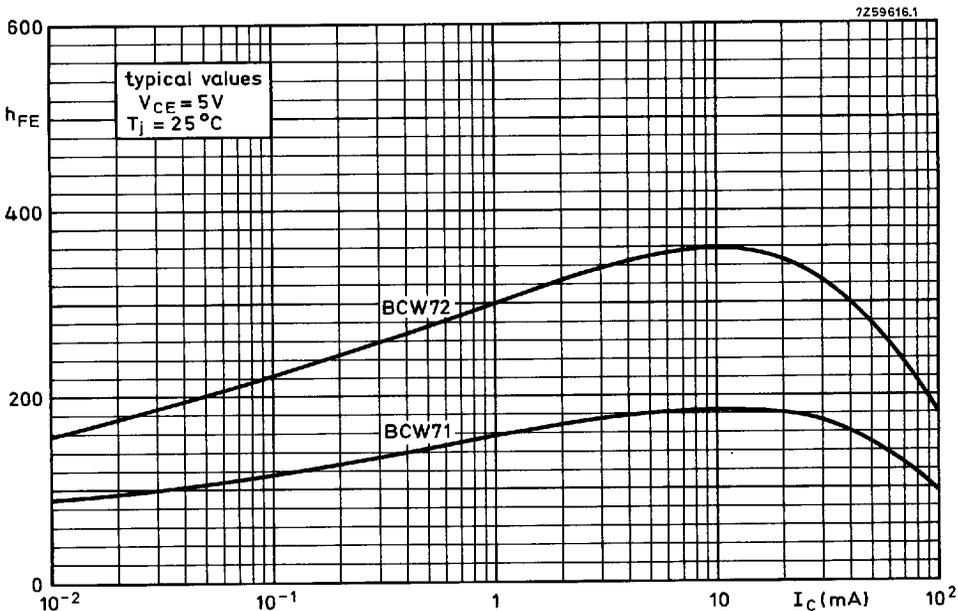


Fig. 4 D.C. current gain.

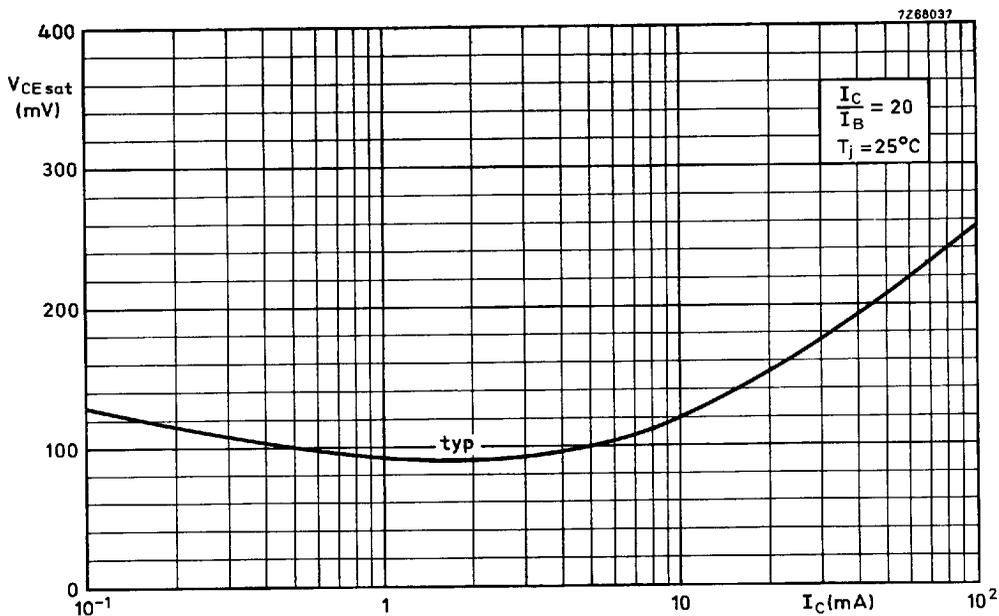


Fig. 5

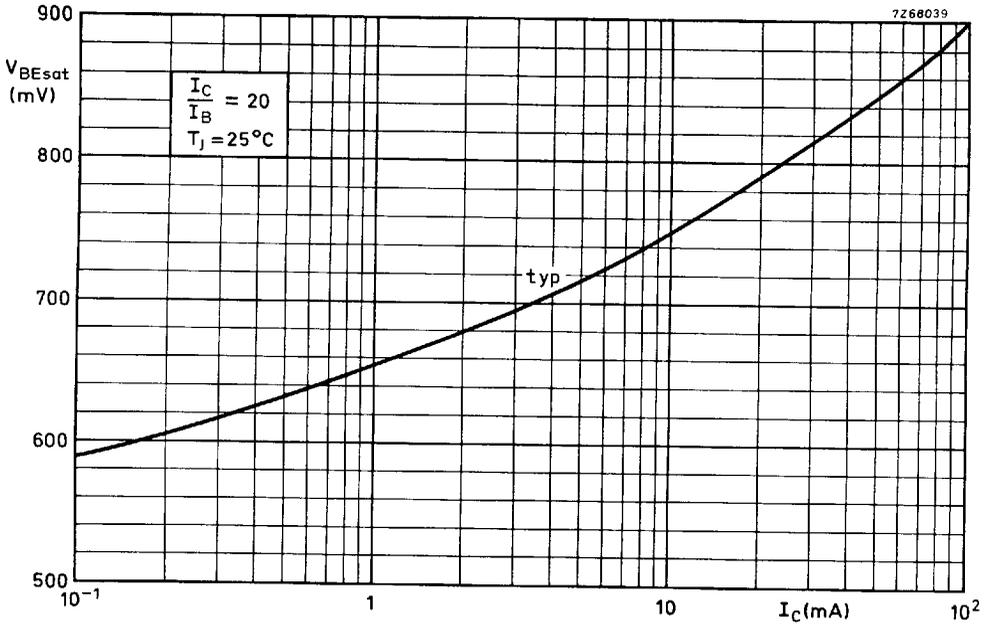


Fig. 6

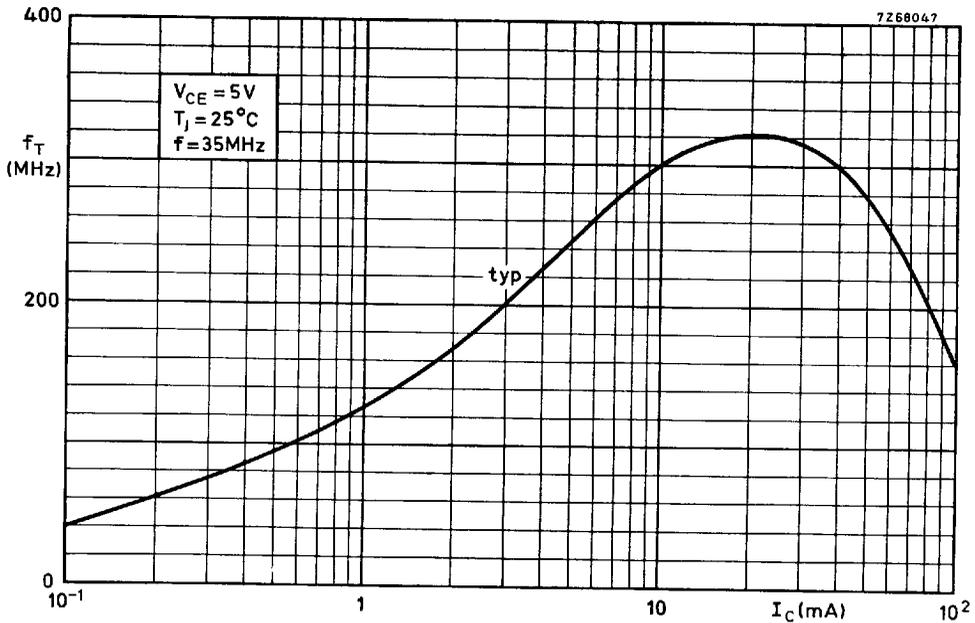


Fig. 7

BCW71  
BCW72



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67E D

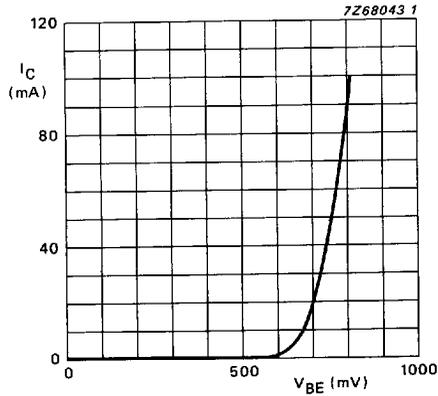


Fig. 8 V<sub>CE</sub> = 5 V; T<sub>j</sub> = 25 °C; typical values.

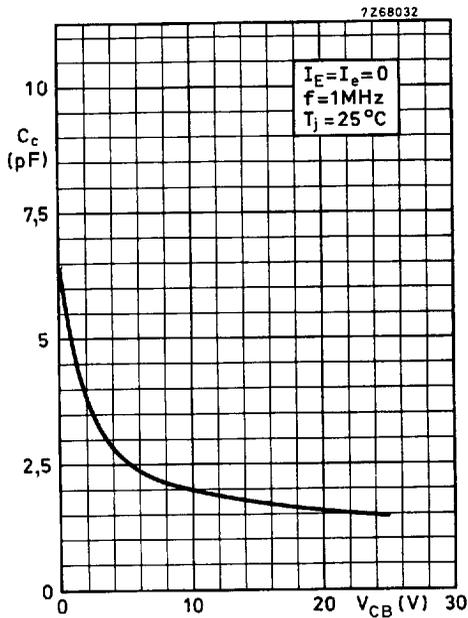


Fig. 9

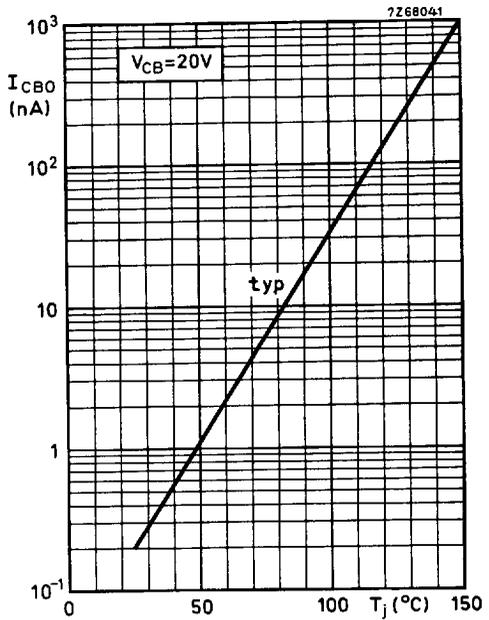


Fig. 10