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

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	80 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	60 V
Collector current (peak value)	$-I_{CM}$	max.	200 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 at T_j = 25 °C $-I_C$ = 2 mA; $-V_{CE}$ = 5 V	h_{FE}	> <	120 260
Transition frequency at f = 35 MHz $-I_C$ = 10 mA; $-V_{CE}$ = 5 V	f_T	typ.	150 MHz
Noise figure at R_S = 2 kΩ $-I_C$ = 200 μA; $-V_{CE}$ = 5 V; f = 1 kHz; B = 200 Hz	F	<	10 dB

MECHANICAL DATA

Fig. 1 SOT-23.

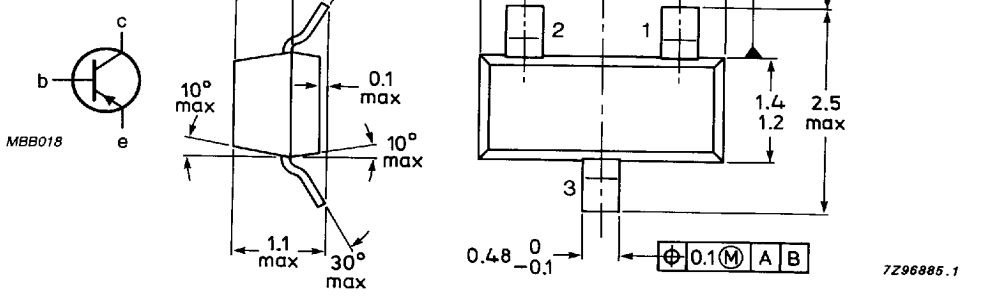
Dimensions in mm

Marking code

BCW89 = H3p

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 (IEC 134)

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	80 V
Collector-emitter voltage (V_{BE} = 0)	$-V_{CES}$	max.	60 V
Collector-emitter voltage (open base) $-I_C$ = 2 mA	$-V_{CEO}$	max.	60 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 °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 = 100 °C	$-I_{CBO}$	<	10 μA
Base-emitter voltage			
$-I_C$ = 2 mA; $-V_{CE}$ = 5 V; T_j = 25 °C	$-V_{BE}$		600 to 750 mV
Saturation voltages			
$-I_C$ = 10 mA; $-I_B$ = 0,5 mA	$-V_{CEsat}$	typ.	80 mV
		<	300 mV
$-I_C$ = 50 mA; $-I_B$ = 2,5 mA	$-V_{BEsat}$	typ.	720 mV
	$-V_{CEsat}$	typ.	150 mV
	$-V_{BEsat}$	typ.	810 mV
D.C. current gain			
$-I_C$ = 10 μA; $-V_{CE}$ = 5 V	h_{FE}	typ.	90
		>	120
$-I_C$ = 2 mA; $-V_{CE}$ = 5 V	h_{FE}	<	260
Collector capacitance at f = 1 MHz $I_E = I_e$ = 0; $-V_{CB}$ = 10 V	C_c	typ.	4,5 pF
Transition frequency at f = 35 MHz $-I_C$ = 10 mA; $-V_{CE}$ = 5 V	f_T	typ.	150 MHz
Noise figure at R_S = 2 kΩ $-I_C$ = 200 μA; $-V_{CE}$ = 5 V f = 1 kHz; B = 200 Hz	F	<	10 dB

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