

SILICON PLANAR EPITAXIAL TRANSISTORS

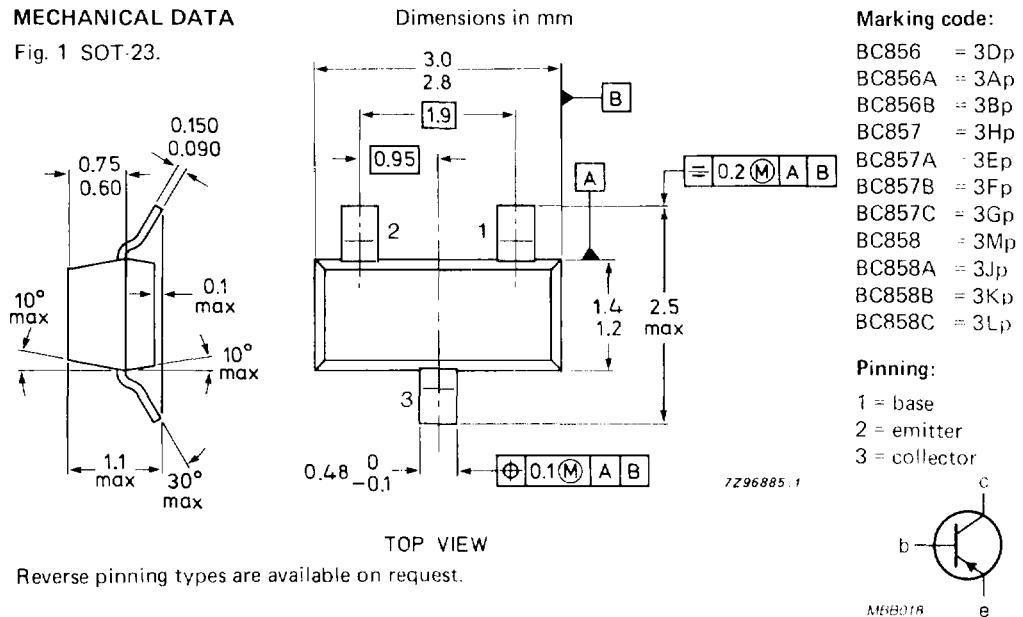
P-N-P transistors, in a SOT-23 plastic package.

QUICK REFERENCE DATA

		BC856	BC857	BC858
Collector-emitter voltage (+V _{BE} = 1 V)	-V _{CEX}	max. 80	50	30 V
Collector-emitter voltage (open base)	-V _{CEO}	max. 65	45	30 V
Collector current (peak value)	-I _{CM}	max.	200	mA
Total power dissipation up to T _{amb} = 60 °C	P _{tot}	max.	250	mW
Junction temperature	T _j	max.	150	°C
DC current gain	h _{fe}		75 to 800	
Transition frequency at f = 100 MHz -I _C = 10 mA; -V _{CE} = 5 V	f _T	>	100	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.



RATINGS

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

		BC856	BC857	BC858
Collector-base voltage (open emitter)	$-V_{CBO}$	max. 80	50	30 V
Collector-emitter voltage (+ $V_{BE} = 1$ V)	$-V_{CEX}$	max. 80	50	30 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max. 65	45	30 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max. 5	5	5 V
Collector current (d.c.)	$-I_C$	max.	100	mA
Collector current (peak value)	$-I_{CM}$	max.	200	mA
Emitter current (peak value)	I_{EM}	max.	200	mA
Base current (peak value)	$-I_{BM}$	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 CHARACTERISTICS

Thermal resistance

From junction to ambient	R_{thj-a}	=	500	K/W
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CHARACTERISTICS

$T_j = 25$ °C unless otherwise specified

Collector cut-off current

$I_E = 0; -V_{CB} = 30$ V; $T_j = 25$ °C	$-I_{CBO}$	typ.	1	nA
		<	15	nA
$T_j = 150$ °C	$-I_{CBO}$	<	4	μ A

Base-emitter voltage [▲]

$-I_C = 2$ mA; $-V_{CE} = 5$ V	$-V_{BE}$	typ.	650	mV
			600 to 750	mV
$-I_C = 10$ mA; $-V_{CE} = 5$ V	$-V_{BE}$	<	820	mV

[▲] $-V_{BE}$ decreases by about 2 mV/K with increasing temperature.

* Mounted on an FR4 printed-circuit board 8 mm x 10 mm x 0.7 mm.

Saturation voltages *

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

$-V_{CEsat}$	typ.	75 mV
	<	300 mV

$-V_{BEsat}$	typ.	700 mV
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$-I_C = 100 \text{ mA}; -I_B = 5 \text{ mA}$

$-V_{CEsat}$	typ.	250 mV
	<	650 mV

$-V_{BEsat}$	typ.	850 mV
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Knee voltage

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

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

C_c	typ.	4,5 pF
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Transition frequency at $f = 100 \text{ MHz}$

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

f_T	>	100 MHz
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Small-signal current gain at $f = 1 \text{ kHz}$

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

h_{fe}		125 to 800
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Noise figure at $R_S = 2 \text{ k}\Omega$

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

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

F	typ.	2 dB
	<	10 dB

D.C. current gain

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

BC856/857

BC858

BC856A/857A/858A

BC856B/857B/858B

BC857C/858C

h_{FE}		125 to 800
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h_{FE}		125 to 250
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h_{FE}		220 to 475
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h_{FE}		420 to 800
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* $-V_{BEsat}$ decreases by about 1,7 mV/K with increasing temperature.