SILICON PLANAR EPITAXIAL TRANSISTORS

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

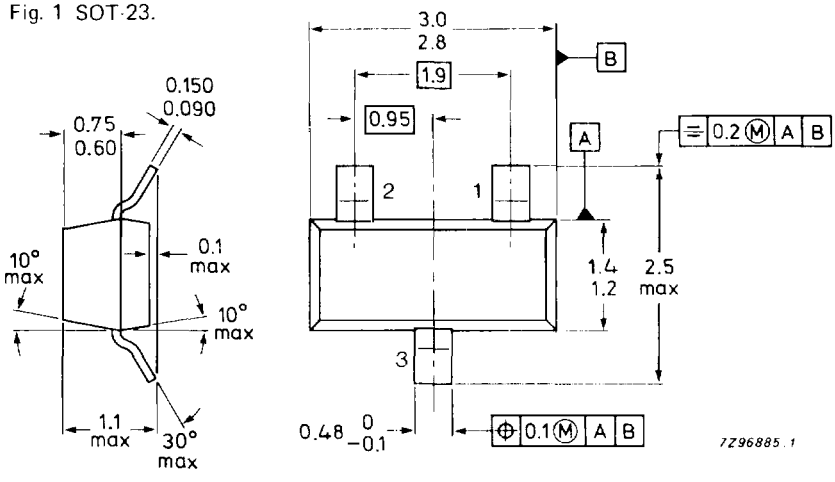
QUICK REFERENCE DATA

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

Dimensions in mm



TOP VIEW

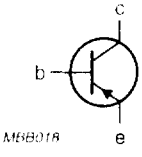
Reverse pinning types are available on request.

Marking code:

BC856	= 3Dp
BC856A	= 3Ap
BC856B	= 3Bp
BC857	= 3Hp
BC857A	= 3Ep
BC857B	= 3Fp
BC857C	= 3Gp
BC858	= 3Mp
BC858A	= 3Jp
BC858B	= 3Kp
BC858C	= 3Lp

Pinning:

1 = base
2 = emitter
3 = collector



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	$R_{th\,j\text{-}a}$	=	500	K/W

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	μA
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 mA; $-I_B$ = 0,5 mA	$-V_{CEsat}$	typ.	75 mV
		<	300 mV
	$-V_{BEsat}$	typ.	700 mV
$-I_C$ = 100 mA; $-I_B$ = 5 mA	$-V_{CEsat}$	typ.	250 mV
		<	650 mV
	$-V_{BEsat}$	typ.	850 mV

Knee voltage

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 = 100 MHz			
$-I_C$ = 10 mA; $-V_{CE}$ = 5 V	f_T	>	100 MHz
Small-signal current gain at f = 1 kHz			
$-I_C$ = 2 mA; $-V_{CE}$ = 5 V	h_{fe}		125 to 800
Noise figure at R_S = 2 kΩ			
$-I_C$ = 200 μA; $-V_{CE}$ = 5 V			
f = 1 kHz; B = 200 Hz	F	typ.	2 dB
		<	10 dB

D.C. current gain

$-I_C$ = 2 mA; $-V_{CE}$ = 5 V	BC856/857 BC858	h_{FE}	125 to 800
	BC856A/857A/858A	h_{FE}	125 to 250
	BC856B/857B/858B	h_{FE}	220 to 475
	BC857C/858C	h_{FE}	420 to 800

* $-V_{BEsat}$ decreases by about 1,7 mV/K with increasing temperature.