SILICON PLANAR EPITAXIAL TRANSISTORS

General purpose n-p-n transistors in a plastic SOT-23 package.

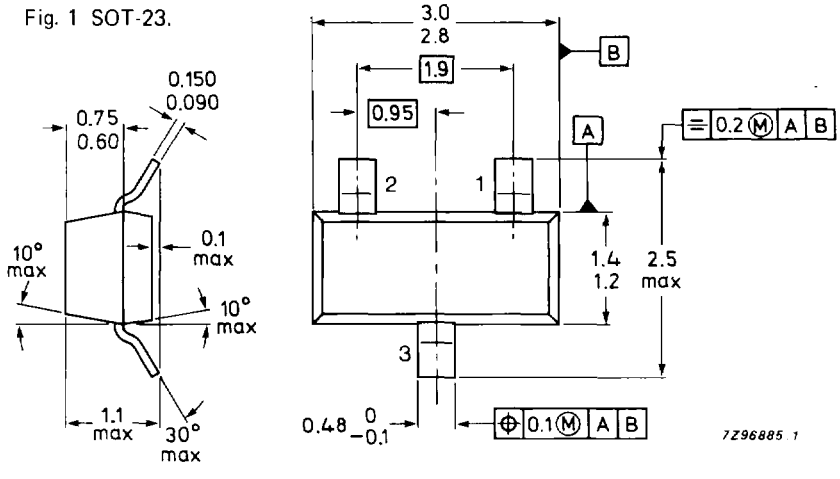
QUICK REFERENCE DATA

			BC846	BC847	BC848	
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	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	200	200	mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	250	250	250	mW
Junction temperature	T_j	max.	150	150	150	°C
DC current gain I_C = 2 mA; V_{CE} = 5 V	h_{fe}	>	110	110	110	
		<	450	800	800	
Transition frequency at f = 100 MHz I_C = 10 mA; V_{CE} = 5 V	f_T	>	100	> 100	> 100	MHz
Noise figure at R_S = 2 kΩ I_C = 200 μA; V_{CE} = 5 V f = 1 kHz; B = 200 Hz	F	typ.	2	2	2	dB

MECHANICAL DATA

Fig. 1 SOT-23.

Dimensions in mm



TOP VIEW

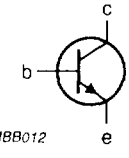
Reverse pinning types are available on request.

Marking code:

BC846	= 1Dp
BC846A	= 1Ap
BC846B	= 1Bp
BC847	= 1Hp
BC847A	= 1Ep
BC847B	= 1Fp
BC847C	= 1Gp
BC848	= 1Mp
BC848A	= 1Jp
BC848B	= 1Kp
BC848C	= 1Lp

Pinning:

1 = base
2 = emitter
3 = collector



RATINGS

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

			BC846	BC847	BC848	
Collector-base voltage (open emitter)	V_{CBO}	max.	80	50	30	V
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	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.	6	6	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 RESISTANCE

From junction to ambient* $R_{th\ j\text{-}a}$ = 500 K/W

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

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector cut-off current				
I_E = 0; V_{CB} = 30 V	I_{CBO}	<	15	nA
I_E = 0; V_{CB} = 30 V; T_j = 150 °C	I_{CBO}	<	5	μA
Base-emitter voltage*				
I_C = 2 mA; V_{CE} = 5 V	V_{BE}	typ.	660	mV
		580 to	700	mV
I_C = 10 mA; V_{CE} = 5 V	V_{BE}	<	770	mV
Saturation voltage**				
I_C = 10 mA; I_B = 0,5 mA	V_{CEsat}	typ.	90	mV
		<	250	mV
	V_{BEsat}	typ.	700	mV
I_C = 100 mA; I_B = 5 mA	V_{CEsat}	typ.	200	mV
		<	600	mV
	V_{BEsat}	typ.	900	mV
Collector capacitance at f = 1 MHz				
$I_E = I_e$ = 0; V_{CB} = 10 V	C_c	typ.	2,5	pF
Transition frequency at f = 100 MHz				
I_C = 10 mA; V_{CE} = 5 V	f_T	>	100	MHz

* V_{BE} decreases by about 2 mV/K with increasing temperature.

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

Small signal current gain at f = 1 kHz

I_C = 2 mA; V_{CE} = 5 V	h_{fe}		110 – 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

DC current gain

			BC846	BC847 BC848	BC846A BC847A BC848A	BC846B BC847B BC848B	BC847C BC848C
I_C = 10 μA; V_{CE} = 5 V	h_{FE}	typ.			90	150	270
		>	110	110	110	200	420
I_C = 2 mA; V_{CE} = 5 V	h_{FE}	typ.			180	290	520
		<	450	800	220	450	800