SILICON PLANAR EPITAXIAL TRANSISTORS

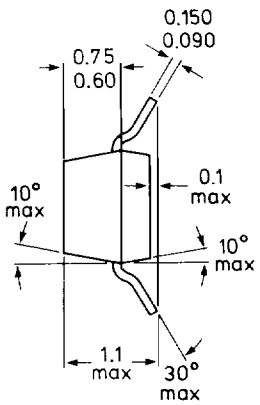
N-P-N transistors in a plastic SOT-23 package.

QUICK REFERENCE DATA

			BC849	BC850	
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max.	30	50	V
Collector-emitter voltage (open base)	V_{CEO}	max.	30	45	V
Collector current (peak value)	I_{CM}	max.	200	200	mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	250	250	mW
Junction temperature	T_j	max.	150	150	°C
DC current gain					
I_C = 2 mA; V_{CE} = 5 V	h_{fe}	>	200	200	
		<	800	800	
Transition frequency					
I_C = 10 mA; V_{CE} = 5 V, f = 100 MHz	f_T	>	100	> 100	MHz
Noise figure at R_S = 2 kΩ					
I_C = 200 μA; V_{CE} = 5 V					
f = 30 Hz to 15 kHz	F	typ.	1,4	1,4	dB
		<	4	3	dB
f = 1 kHz; B = 200 Hz	F	typ.	1,2	1	dB
f = 10 Hz to 50 Hz (equivalent noise voltage)	V_n	<	–	0,135	μV

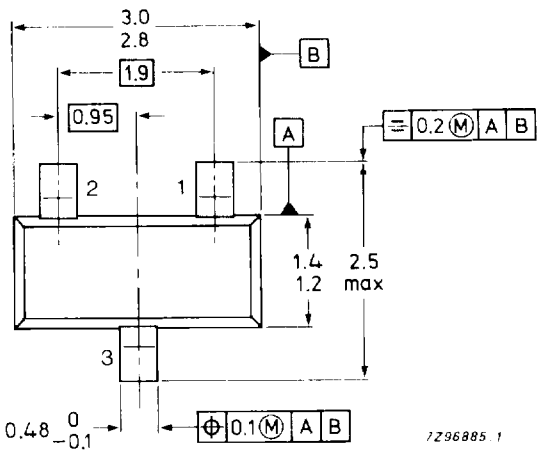
MECHANICAL DATA

Fig. 1 SOT-23.



Reverse pinning types are available on request.

Dimensions in mm



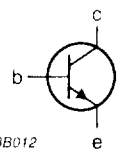
TOP VIEW

Marking code:

BC849 = 2Dp
BC849B = 2Bp
BC849C = 2Cp
BC850 = 2Hp
BC850B = 2Fp
BC850C = 2Gp

Pinning:

1 = base
2 = emitter
3 = collector



RATINGS

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

			BC849	BC850	
Collector-base voltage (open emitter)	V_{CBO}	max.	30	50	V
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max.	30	50	V
Collector-emitter voltage (open base)	V_{CEO}	max.	30	45	V
Emitter-base voltage (open collector)	V_{EBO}	max.	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 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 voltages**				
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}		200 – 800		
Noise figure at R_S = 2 kΩ			BC849	BC850	
I_C = 200 μA; V_{CE} = 5 V					
f = 30 Hz to 15 kHz	F	typ.	1,4	1,4	dB
		<	4	3	dB
f = 1 kHz; B = 200 Hz	F	typ.	1,2	1	dB
		<	4	4	dB
Equivalent noise voltage at R_S = 2 kΩ					
I_C = 200 μA; V_{CE} = 5 V					
f = 10 Hz to 50 Hz; T_{amb} = 25 °C	V_n	max.	–	0,135	μV
			BC849B BC850B	BC849C BC850C	BC849 BC850
D.C. current gain					
I_C = 10 μA; V_{CE} = 5 V	h_{FE}	typ.	150	270	
		>	200	420	200
I_C = 2 mA; V_{CE} = 5 V	h_{FE}	typ.	290	520	
		<	450	800	800