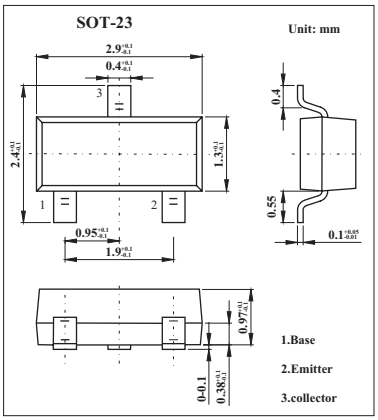
NPN General Purpose Transistors

BC849, BC850



Features

- Low current (max. 100 mA)
- Low voltage (max. 45 V).

Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
collector-base voltage	V_{CBO}	30	V
		50	V
collector-emitter voltage	V_{CEO}	30	V
		45	V
emitter-base voltage	V_{EBO}	5	V
collector current (DC)	I_C	100	mA
peak collector current	I_{CM}	200	mA
peak base current	I_{BM}	200	mA
total power dissipation T_{amb} ≤25 ℃ *	P_{tot}	250	mW
storage temperature	T_{stg}	-65 to 150	℃
junction temperature	T_j	150	℃
operating ambient temperature	T_{amb}	-65 to 150	℃
thermal resistance from junction to ambient *	$R_{th(j-a)}$	500	K/W

* Transistor mounted on an FR4 printed-circuit board.

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Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
collector cut-off current	I_{CBO}	I_E = 0; V_{CB} = 30 V			15	nA
		I_E = 0; V_{CB} = 30 V; T_j = 150 □C			5	μA
emitter cut-off current	I_{EBO}	I_C = 0; V_{EB} = 5 V			100	nA
DC current gain BC849B; BC850B	h_{FE}	I_C = 10 μA; V_{CE} = 5 V;		240		
BC849C; BC850C				450		
DC current gain BC849B; BC850B		I_C = 2 mA; V_{CE} = 5 V;	200	290	450	
BC849C; BC850C			420	520	800	
collector-emitter saturation voltage	V_{CEsat}	I_C = 10 mA; I_B = 0.5 mA		90	250	mV
		I_C = 100 mA; I_B = 5 mA		200	600	mV
base-emitter saturation voltage	V_{BEsat}	I_C = 10 mA; I_B = 0.5 mA; *1		700		mV
		I_C = 100 mA; I_B = 5 mA; *1		900		mV
base-emitter voltage	V_{BE}	I_C = 2 mA; V_{CE} = 5 V; *2	580	660	700	mV
		I_C = 10 mA; V_{CE} = 5 V;*2			770	mV
collector capacitance	C_c	I_E = i_e = 0; V_{CB} = 10 V; f = 1 MHz		2.5		pF
emitter capacitance	C_e	I_C = i_c = 0; V_{EB} = 500 mV; f = 1 MHz		11		pF
transition frequency	fT	I_C = 10 mA; V_{CE} = 5 V; f = 100 MHz	100			MHz
noise figure	F	I_C = 200 μA; V_{CE} = 5 V; R_S = 2 kΩ,f = 10 Hz to 15.7 kHz			4	dB
		I_C = 200 μA; V_{CE} = 5 V; R_S = 2 kΩ,f = 1 kHz; B = 200 Hz			4	dB

*1 V_{BEsat} decreases by about 1.7 mV/K with increasing temperature.

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

h_{FE} Classification

TYPE	BC849B	BC849C	BC850B	BC850C
Marking	2B	2C	2F	2G