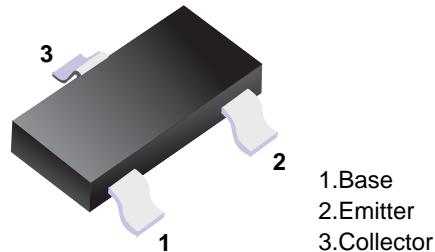


**■ NPN Transistors****■ Features**

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

**■ Simplified outline(SOT-23)****■ Absolute Maximum Ratings Ta = 25°C**

Parameter	Symbol	Rating	Unit
collector-base voltage	V <sub>CBO</sub>	30	V
		50	V
collector-emitter voltage	V <sub>CEO</sub>	30	V
		45	V
emitter-base voltage	V <sub>EBO</sub>	5	V
collector current (DC)	I <sub>c</sub>	100	mA
peak collector current	I <sub>CM</sub>	200	mA
peak base current	I <sub>BM</sub>	200	mA
total power dissipation T <sub>amb</sub> ≤ 25 °C *	P <sub>tot</sub>	250	mW
storage temperature	T <sub>stg</sub>	-65 to 150	°C
junction temperature	T <sub>j</sub>	150	°C
operating ambient temperature	T <sub>amb</sub>	-65 to 150	°C
thermal resistance from junction to ambient *	R <sub>th(j-a)</sub>	500	K/W

\* Transistor mounted on an FR4 printed-circuit board.

■ Electrical Characteristics  $T_a = 25^\circ C$

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
collector cut-off current	$I_{CBO}$	$I_E = 0; V_{CB} = 30 V$			15	nA
		$I_E = 0; V_{CB} = 30 V; T_j = 150^\circ C$			5	$\mu A$
emitter cut-off current	$I_{EBO}$	$I_C = 0; V_{EB} = 5 V$			100	nA
DC current gain BC849B; BC850B BC849C; BC850C	$h_{FE}$	$I_C = 10 \mu A; V_{CE} = 5 V;$		240		
				450		
		$I_C = 2 mA; V_{CE} = 5 V;$	200	290	450	
			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	$f_T$	$I_C = 10 mA; V_{CE} = 5 V; f = 100 MHz$	100			MHz
noise figure	$F$	$I_C = 200 \mu A; V_{CE} = 5 V; R_s = 2 k\Omega, f = 10 Hz to 15.7 kHz$			4	dB
		$I_C = 200 \mu A; V_{CE} = 5 V; R_s = 2 k\Omega, f = 1 kHz; B = 200 Hz$			4	dB

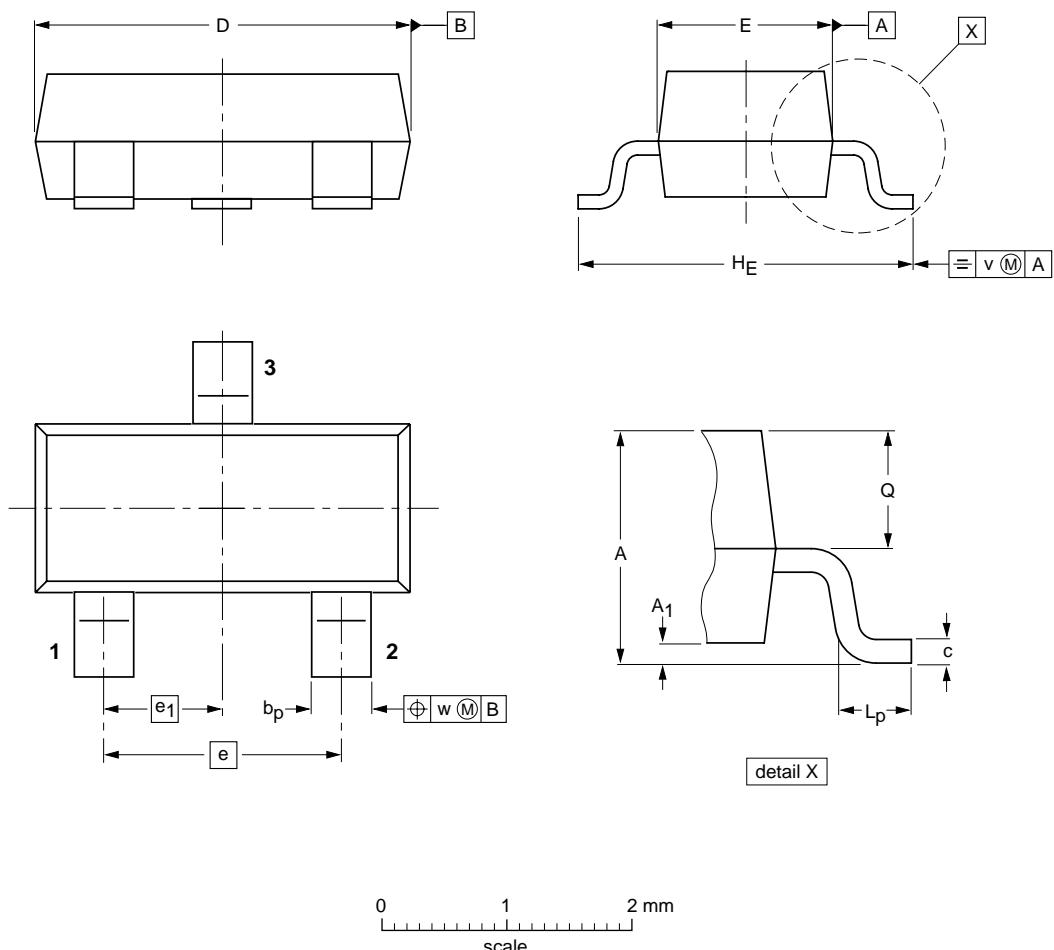
\*1  $V_{BEsat}$  decreases by about 1.7 mV/K with increasing temperature.

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

■ hFE Classification

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

## ■ SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	$A_1$ max.	$b_p$	c	D	E	e	$e_1$	$H_E$	$L_p$	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

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