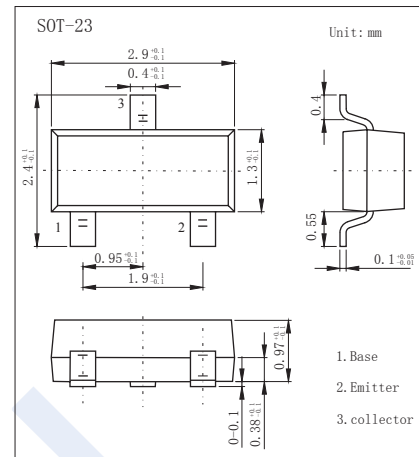


## NPN Transistors

### BC849~BC850 (KC849~KC850)

#### ■ Features

- Low current (max. 100 mA)
- Low voltage (max. 45 V).
- PNP complements: BC859 and BC860.



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Collector - Base Voltage	BC849 BC850	V <sub>CB0</sub>	30	V
			50	
Collector - Emitter Voltage	BC849 BC850	V <sub>CE0</sub>	30	
			45	
Emitter - Base Voltage	VEBO	5		
Collector Current - Continuous	I <sub>c</sub>	100	mA	
Peak Collector Current	I <sub>CM</sub>	200		
Peak Base Current	I <sub>BM</sub>	200		
Collector Power Dissipation (Note.1)	P <sub>c</sub>	250	mW	
Thermal Resistance From Junction to Ambient (Note.1)	R <sub>thja</sub>	500	K/W	
Junction Temperature	T <sub>J</sub>	150	°C	
Storage Temperature Range	T <sub>stg</sub>	-55 to 150		

Note.1: Transistor mounted on an FR4 printed-circuit board.

## NPN Transistors

### BC849~BC850 (KC849~KC850)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	BC849 BC850	V <sub>CB0</sub> I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	30			V
			50			
Collector- emitter breakdown voltage	BC849 BC850	V <sub>CE0</sub> I <sub>c</sub> = 1 mA, I <sub>B</sub> = 0	30			V
			45			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0	5			
Collector-base cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0			15	nA
		V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0, T <sub>J</sub> =150°C			5	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> =0			100	nA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =10 mA, I <sub>B</sub> =0.5mA (Note.1)		90	250	mV
		I <sub>C</sub> =100 mA, I <sub>B</sub> =5mA (Note.1)		200	500	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =10 mA, I <sub>B</sub> =0.5mA (Note.2)		700		mV
		I <sub>C</sub> =100 mA, I <sub>B</sub> =5mA (Note.2)		900		
Base-Emitter Voltage	V <sub>BE</sub>	I <sub>C</sub> =2 mA, V <sub>CE</sub> =5V (Note.2)	580	660	700	mV
		I <sub>C</sub> =10 mA, V <sub>CE</sub> =5V (Note.2)			770	
DC current gain	BC849B,BC850B BC849C,BC850C	h <sub>FE</sub> V <sub>CE</sub> = 5V, I <sub>C</sub> = 10μA		240		
				450		
DC current gain	BC849B,BC850B BC849C,BC850C	h <sub>FE</sub> V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA	200	290	450	
			420	520	800	
Collector capacitance	C <sub>c</sub>	V <sub>CB</sub> = 10V, I <sub>C</sub> =I <sub>C</sub> = 0, f=1MHz		2.5		pF
Emitter capacitance	C <sub>e</sub>	V <sub>EB</sub> = 0.5V, I <sub>E</sub> =I <sub>E</sub> = 0, f=1MHz		11		pF
Noise Figure	NF	I <sub>C</sub> =200μA, V <sub>CE</sub> =5V, R <sub>S</sub> =2KΩ; f=10Hz to 15.7KHz			4	dB
		I <sub>C</sub> =200μA, V <sub>CE</sub> =5V, R <sub>S</sub> =2KΩ; f=1KHz, B=200Hz			4	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA, f=100MHz	100			MHz

Note.1: V<sub>BE(sat)</sub> decreases by about 1.7 mV/K with increasing temperature.

Note.2: V<sub>BE</sub> decreases by about 2 mV/K with increasing temperature.

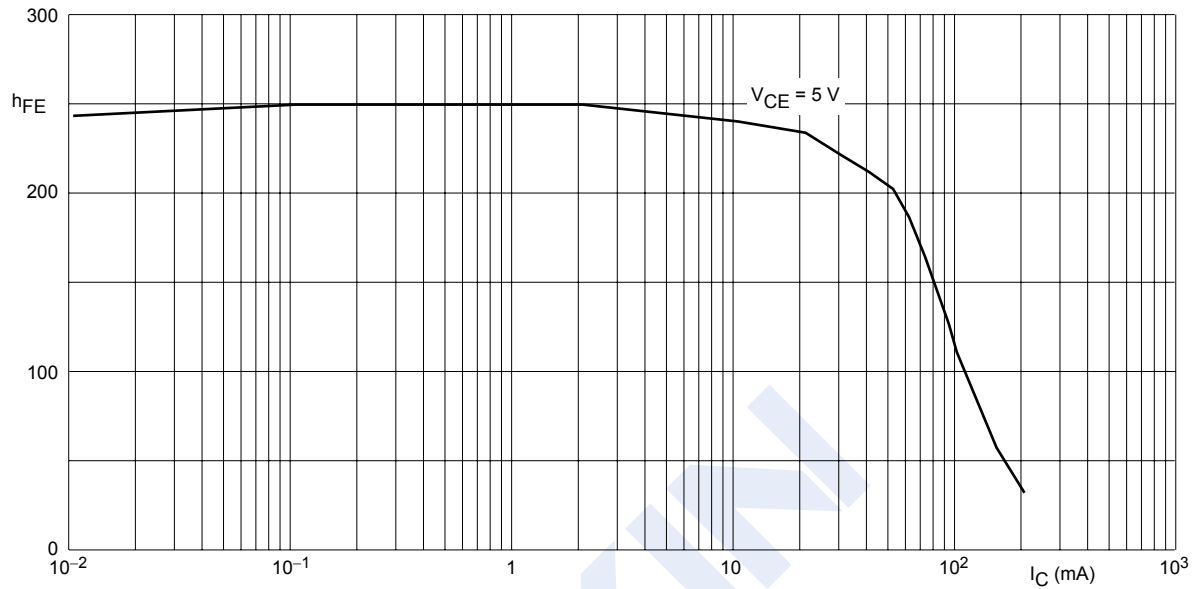
■ Classification of h<sub>FE</sub>

Type	BC849B	BC849C	BC850B	BC850C
Range	200-450	420-800	200-450	420-800
Marking	2B*	2C*	2F*	2G*

## NPN Transistors

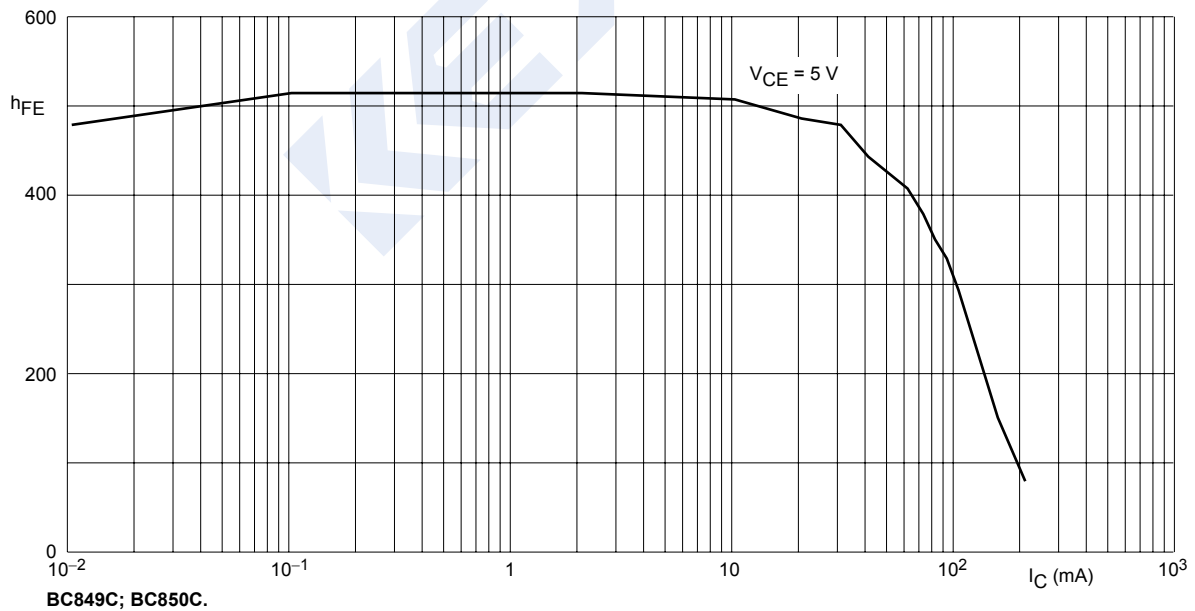
### BC849~BC850 (KC849~KC850)

#### ■ Typical Characteristics



BC849B; BC850B.

Fig.2 DC current gain; typical values.



BC849C; BC850C.

Fig.3 DC current gain; typical values.