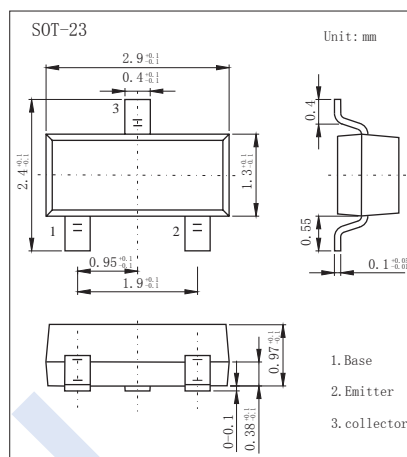


PNP Transistors

BC859~BC860 (KC859~KC860)

■ Features

- Low current (max. 100 mA)
- Low voltage (max. 45 V).
- NPN complements: BC849 and BC850.

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	BC859	-30	V
	BC860	-50	
Collector - Emitter Voltage	BC859	-30	
	BC860	-45	
Emitter - Base Voltage	V_{EBO}	-5	
Collector Current - Continuous	I_C	-100	mA
Peak Collector Current	I_{CM}	-200	
Peak Base Current	I_{BM}	-200	
Collector Power Dissipation (Note.1)	P_C	250	W
Thermal Resistance From Junction to Ambient (Note.1)	R_{thja}	500	K/W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature range	T_{stg}	-55 to 150	

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

PNP Transistors

BC859~BC860 (KC859~KC860)

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	BC859 BC860	V_{CB0} $I_c = -100 \mu\text{A}, I_E = 0$	-30			V
			-50			
Collector- emitter breakdown voltage	BC859 BC860	V_{CE0} $I_c = -1 \text{mA}, I_B = 0$	-30			V
			-45			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100 \mu\text{A}, I_c = 0$	-5			
Collector-base cut-off current	I_{CB0}	$V_{CB} = -30 \text{V}, I_E = 0$		-1	-15	nA
		$V_{CB} = -30 \text{V}, I_E = 0, T_J = 150^\circ\text{C}$			-4	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = -5 \text{V}, I_c = 0$			-100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = -10 \text{mA}, I_B = -0.5 \text{mA}$		-75	-300	mV
		$I_c = -100 \text{mA}, I_B = -5 \text{mA}$		-250	-600	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = -10 \text{mA}, I_B = -0.5 \text{mA}$ (Note.1)		-700		mV
		$I_c = -100 \text{mA}, I_B = -5 \text{mA}$ (Note.1)		-850		
Base - emitter voltage	V_{BE}	$V_{CE} = -5 \text{V}, I_c = -2 \text{mA}$ (Note.2)	-600	-650	-750	mV
		$V_{CE} = -5 \text{V}, I_c = -10 \text{mA}$ (Note.2)			-820	
DC current gain	BC859B:BC860B BC859C:BC860C	h_{FE} $V_{CE} = -5 \text{V}, I_c = -2 \text{mA}$	220		475	
			420		800	
Collector capacitance	C_c	$V_{CB} = -10 \text{V}, I_E = I_c = 0, f = 1 \text{MHz}$		4.5		pF
Emitter capacitance	C_e	$V_{EB} = -0.5 \text{V}, I_c = I_c = 0, f = 1 \text{MHz}$		10		pF
Noise Figure	NF	$V_{CE} = -5 \text{V}, I_c = -200 \mu\text{A}, R_S = 2 \text{K}\Omega$ $f = 30 \text{Hz to } 15 \text{KHz}$			4	dB
		$V_{CE} = -5 \text{V}, I_c = -200 \mu\text{A}, R_S = 2 \text{K}\Omega$ $f = 1 \text{KHz}, B = 200 \text{Hz}$			4	
Transition frequency	f_T	$V_{CE} = -5 \text{V}, I_c = -10 \text{mA}, f = 100 \text{MHz}$	100			MHz

Note.1: $V_{BE(sat)}$ decreases by about -1.7 mV/K with increasing temperature.

Note.2: V_{BE} decreases by about -2 mV/K with increasing temperature.

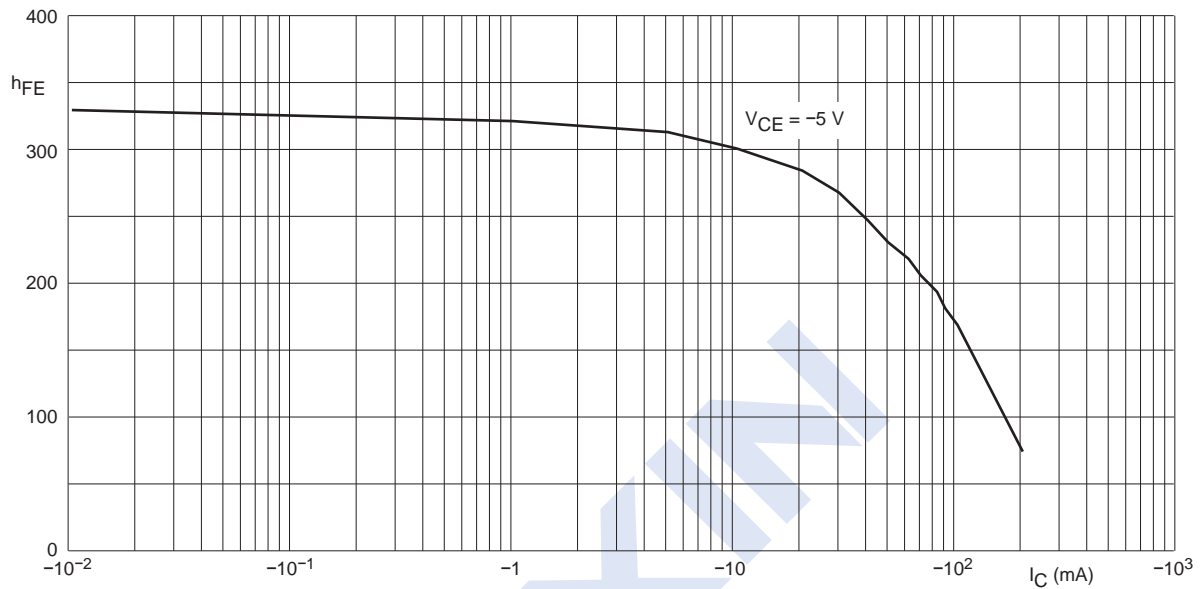
■ Classification of h_{FE}

Type	BC859B	BC859C	BC860B	BC860C
Range	220-475	420-800	220-475	420-800
Marking	4B*	4C*	4F*	4G*

PNP Transistors

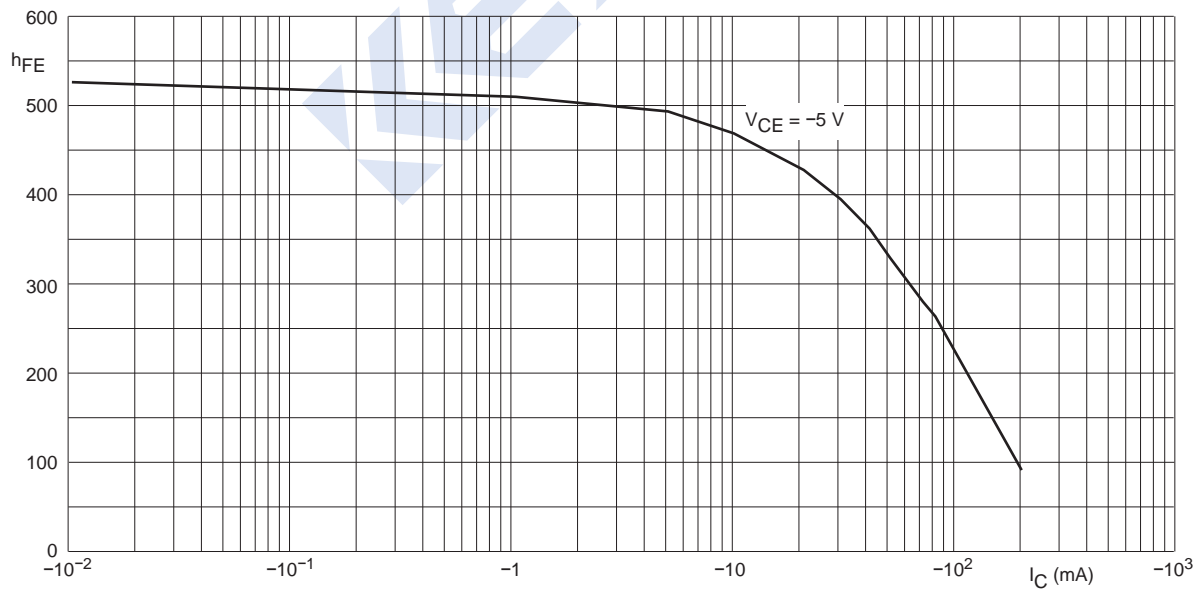
BC859~BC860 (KC859~KC860)

■ Typical Characteristics



BC859B; BC860B.

Fig.2 DC current gain; typical values.



BC859C; BC860C.

Fig.3 DC current gain; typical values.