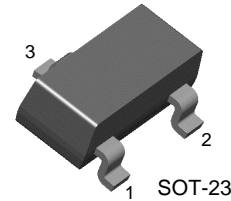


## BC856/857/858/859/860

### Switching and Amplifier Applications

- Suitable for automatic insertion in thick and thin-film circuits
- Low Noise: BC859, BC860
- Complement to BC846 ... BC850



1. Base 2. Emitter 3. Collector

### PNP Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{\text{CBO}}$	Collector-Base Voltage		
	: BC856	-80	V
	: BC857/860	-50	V
	: BC858/859	-30	V
$V_{\text{CEO}}$	Collector-Emitter Voltage		
	: BC856	-65	V
	: BC857/860	-45	V
	: BC858/859	-30	V
$V_{\text{EBO}}$	Emitter-Base Voltage	-5	V
$I_{\text{C}}$	Collector Current (DC)	-100	mA
$P_{\text{C}}$	Collector Power Dissipation	310	mW
$T_{\text{J}}$	Junction Temperature	150	$^\circ\text{C}$
$T_{\text{STG}}$	Storage Temperature	-65 ~ 150	$^\circ\text{C}$

#### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units	
$I_{\text{CBO}}$	Collector Cut-off Current	$V_{\text{CB}} = -30\text{V}, I_{\text{E}} = 0$			-15	nA	
$h_{\text{FE}}$	DC Current Gain	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -2\text{mA}$	110		800		
$V_{\text{CE}}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_{\text{C}} = -10\text{mA}, I_{\text{B}} = -0.5\text{mA}$		-90	-300	mV	
		$I_{\text{C}} = -100\text{mA}, I_{\text{B}} = -5\text{mA}$		-250	-650	mV	
$V_{\text{BE}}(\text{sat})$	Base-Emitter Saturation Voltage	$I_{\text{C}} = -10\text{mA}, I_{\text{B}} = -0.5\text{mA}$		-700		mV	
		$I_{\text{C}} = -100\text{mA}, I_{\text{B}} = -5\text{mA}$		-900		mV	
$V_{\text{BE}}(\text{on})$	Base-Emitter On Voltage	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -2\text{mA}$	-600	-660	-750	mV	
		$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -10\text{mA}$			-800	mV	
$f_{\text{T}}$	Current Gain Bandwidth Product	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -10\text{mA}$ $f = 100\text{MHz}$		150		MHz	
$C_{\text{ob}}$	Output Capacitance	$V_{\text{CB}} = -10\text{V}, I_{\text{E}} = 0, f = 1\text{MHz}$			6	pF	
NF	Noise Figure	: BC856/857/858		2	10	dB	
		: BC859/860		1	4	dB	
		: BC859	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -200\mu\text{A}$ $f = 1\text{KHz}, R_{\text{G}} = 2\text{K}\Omega$		1.2	4	dB
		: BC860	$V_{\text{CE}} = -5\text{V}, I_{\text{C}} = -200\mu\text{A}$ $R_{\text{G}} = 2\text{K}\Omega, f = 30 \sim 15000\text{Hz}$		1.2	2	dB

### **h<sub>FE</sub> Classification**

Classification	A	B	C
h <sub>FE</sub>	110 ~ 220	200 ~ 450	420 ~ 800

### **Marking Code**

Type	856A	856B	856C	857A	857B	857C	858A	858B	858C
Mark	9AA	9AB	9AC	9BA	9BB	9BC	9CA	9CB	9CC
Type	859A	859B	859C	860A	860B	860C			
Mark	9DA	9DB	9DC	9EA	9EB	9EC			

# Typical Characteristics

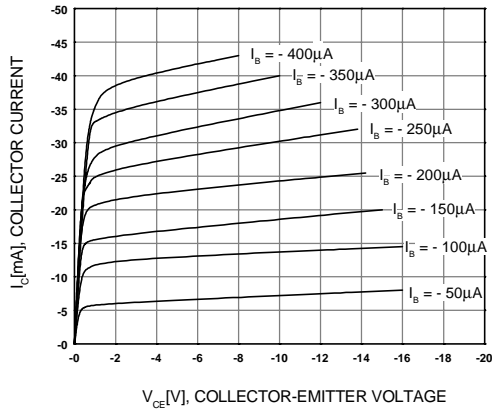


Figure 1. Static Characteristic

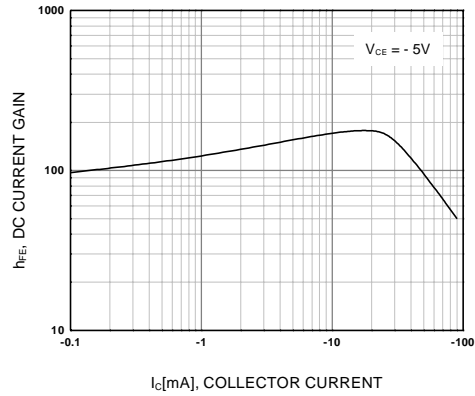


Figure 2. DC current Gain

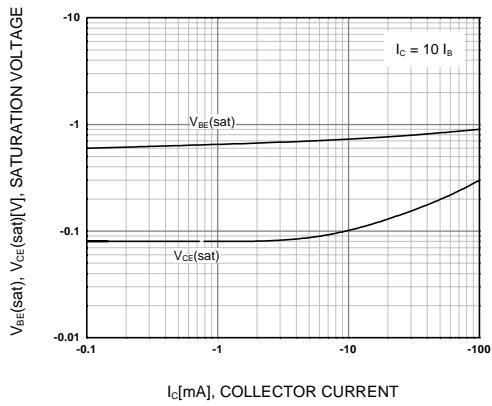


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

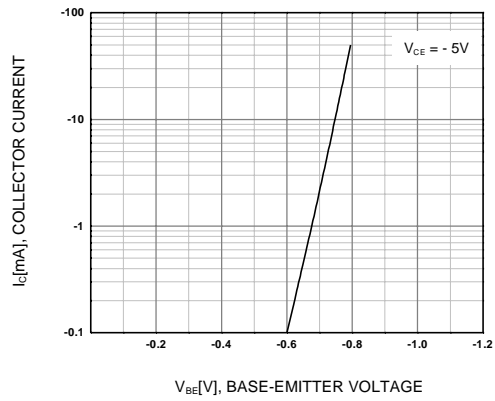


Figure 4. Base-Emitter On Voltage

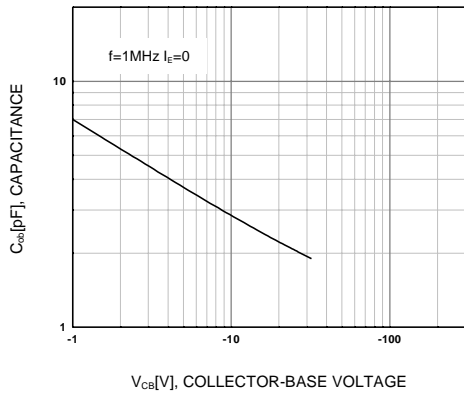


Figure 5. Collector Output Capacitance

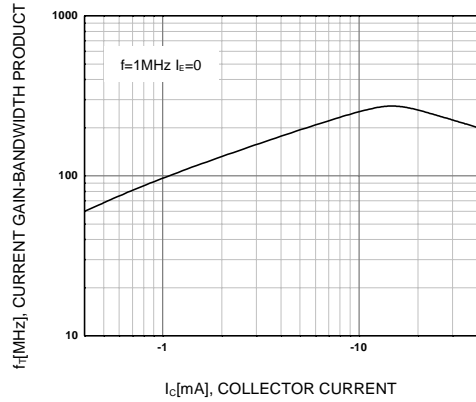
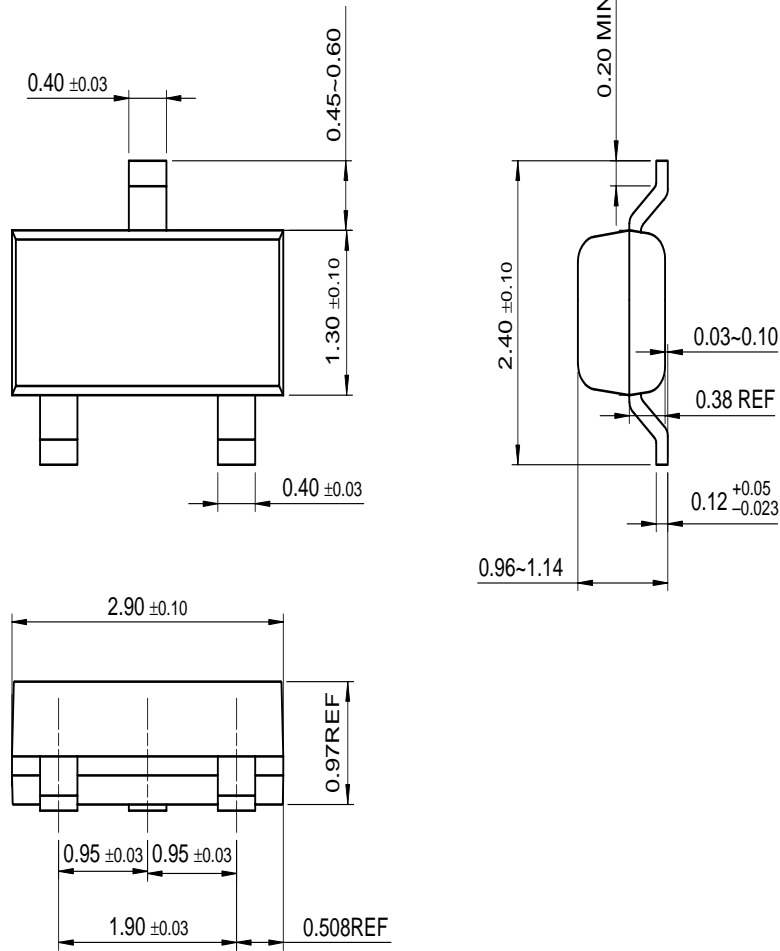


Figure 6. Current Gain Bandwidth Product

# Package Dimensions

## SOT-23



Dimensions in Millimeters

BC856/857/858/859/860

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The Power Franchise <sup>™</sup>		OPTOLOGIC <sup>®</sup>	SILENT SWITCHER <sup>®</sup>	VCX <sup>™</sup>
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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