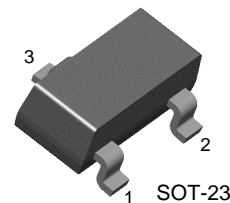


BC846/847/848/849/850

Switching and Amplifier Applications

- Suitable for automatic insertion in thick and thin-film circuits
- Low Noise: BC849, BC850
- Complement to BC856 ... BC860



1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: BC846	80	V
	: BC847/850	50	V
	: BC848/849	30	V
V_{CEO}	Collector-Emitter Voltage		
	: BC846	65	V
	: BC847/850	45	V
	: BC848/849	30	V
V_{EBO}	Emitter-Base Voltage		
	: BC846/847	6	V
	: BC848/849/850	5	V
I_{C}	Collector Current (DC)	100	mA
P_{C}	Collector Power Dissipation	310	mW
T_{J}	Junction Temperature	150	$^\circ\text{C}$
T_{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_{CBO}	Collector Cut-off Current	$V_{\text{CB}}=30\text{V}, I_{\text{E}}=0$			15	nA
h_{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	250	mV
		$I_{\text{C}}=100\text{mA}, I_{\text{B}}=5\text{mA}$		200	600	mV
$V_{\text{BE}}(\text{sat})$	Collector-Base 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	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=2\text{mA}$	580	660	700	mV
		$V_{\text{CE}}=5\text{V}, I_{\text{C}}=10\text{mA}$			720	mV
f_{T}	Current Gain Bandwidth Product	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=10\text{mA}, f=100\text{MHz}$		300		MHz
C_{ob}	Output Capacitance	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=0, f=1\text{MHz}$		3.5	6	pF
C_{ib}	Input Capacitance	$V_{\text{EB}}=0.5\text{V}, I_{\text{C}}=0, f=1\text{MHz}$		9		pF
NF	Noise Figure	: BC846/847/848		2	10	dB
		: BC849/850	$f=1\text{KHz}, R_{\text{G}}=2\text{K}\Omega$	1.2	4	dB
		: BC849	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=200\mu\text{A}$	1.4	4	dB
		: BC850	$R_{\text{G}}=2\text{K}\Omega, f=30\sim 15000\text{Hz}$	1.4	3	dB

h_{FE} Classification

Classification	A	B	C
h_{FE}	110 ~ 220	200 ~ 450	420 ~ 800

Marking Code

Type	846			847			848			849			850		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Mark	8AA	8AB	8AC	8BA	8BB	8BC	8CA	8CB	8CC	8DA	8DB	8DC	8EA	8EB	8EC

Typical Characteristics

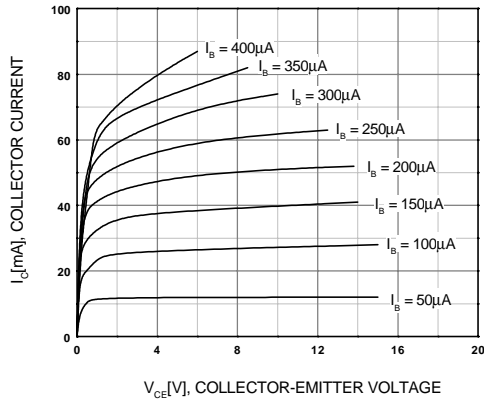


Figure 1. Static Characteristic

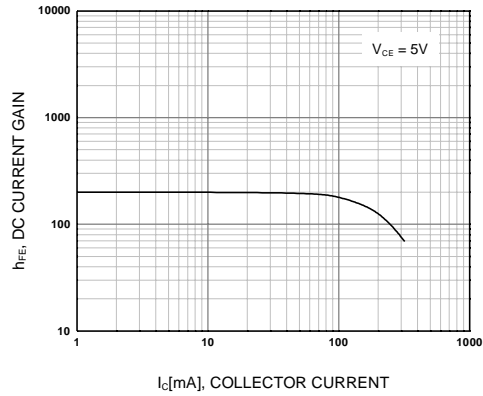


Figure 2. DC current Gain

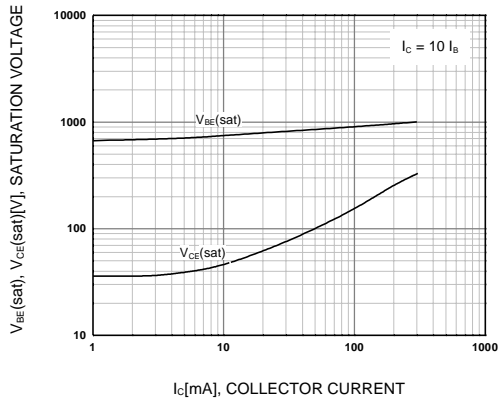


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

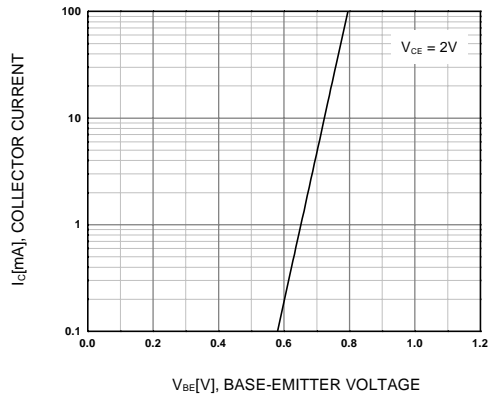


Figure 4. Base-Emitter On Voltage

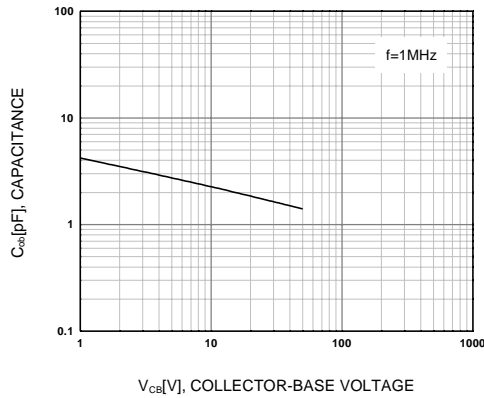


Figure 5. Collector Output Capacitance

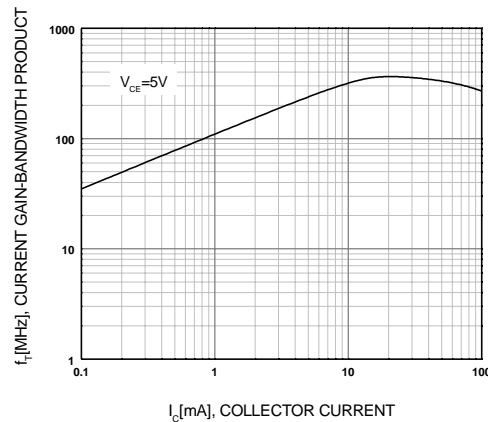
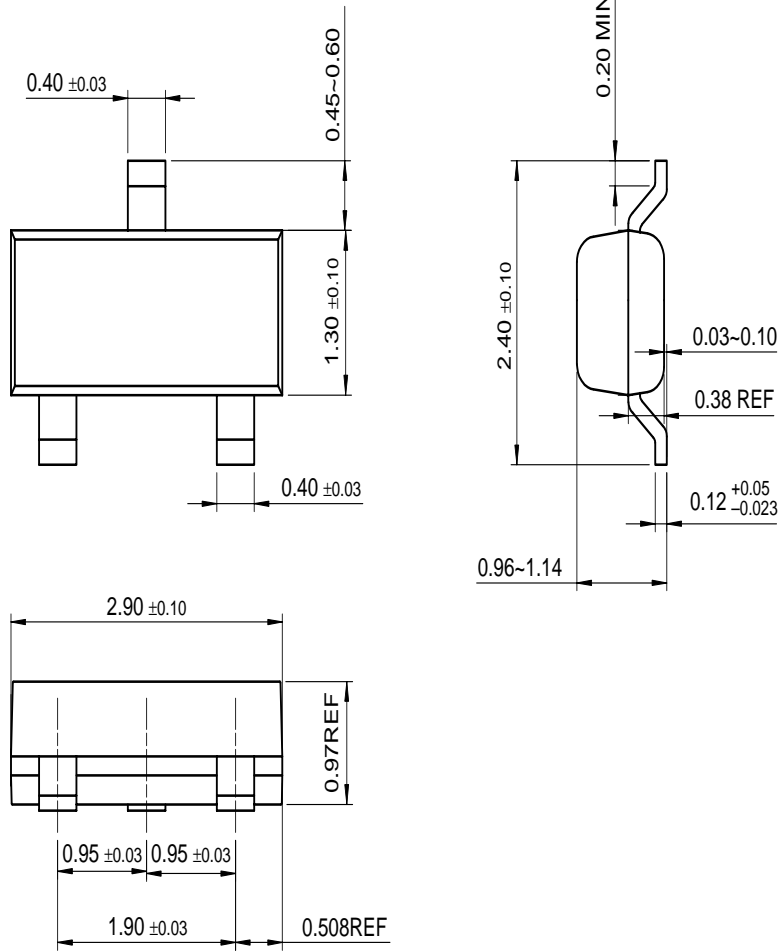


Figure 6. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters

BC846/847/848/849/850

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