



## BC846-BC850

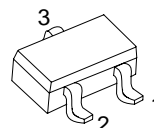
## NPN SILICON TRANSISTOR

### SWITCHING AND AMPLIFIER APPLICATION

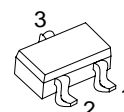
#### ■ FEATURES

\* Suitable for automatic insertion in thick and thin-film circuits.

\* Complement to BC856 ... BC860



SOT-23



SOT-323

\*Pb-free plating product number:  
BC846L/BC847L/BC848L/BC849L/BC850L

#### ■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
BC846-x-AE3-R	BC846L-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC847-x-AE3-R	BC847L-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC848-x-AE3-R	BC848L-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC849-x-AE3-R	BC849L-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC850-x-AE3-R	BC850L-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC846-x-AL3-R	BC846L-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC847-x-AL3-R	BC847L-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC848-x-AL3-R	BC848L-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC849-x-AL3-R	BC849L-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC850-x-AL3-R	BC850L-x-AL3-R	SOT-323	E	B	C	Tape Reel

BC846L-x-AE3-R	(1)Packing Type (2)Package Type (3)Rank (4)Lead Plating	(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323 (3) x: refer to Classification of $h_{FE}$ (4) L: Lead Free Plating, Blank: Pb/Sn
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#### ■ MARKING

BC846	BC847	BC848	BC849	BC850

□: Rank Code, refer to Classification of  $h_{FE}$

# BC846-BC850

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATING (Ta=25 °C, unless otherwise specified)

PARAMETER		SYMBOL	VALUE	UNIT
Collector-Base Voltage	BC846	V <sub>CBO</sub>	80	V
	BC847 / BC850		50	V
	BC848 / BC849		30	V
Collector-Emitter Voltage	BC846	V <sub>CEO</sub>	65	V
	BC847 / BC850		45	V
	BC848 / BC849		30	V
Emitter-Base Voltage	BC846 / BC847	V <sub>EBO</sub>	6	V
	BC848 / BC849 / BC850		5	V
Collector Current (DC)		I <sub>C</sub>	100	mA
Collector Dissipation	SOT-23	P <sub>D</sub>	310	mW
	SOT-323		200	mW
Junction Temperature		T <sub>J</sub>	+150	°C
Storage Temperature		T <sub>STG</sub>	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

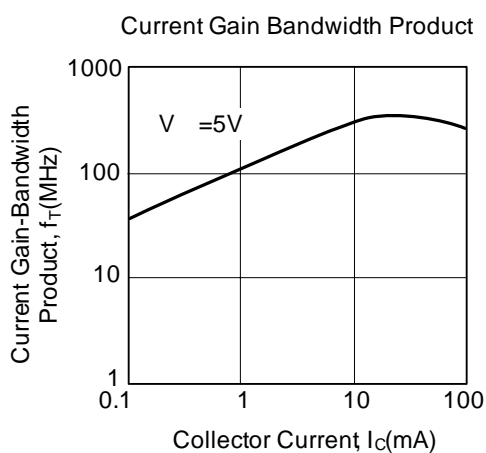
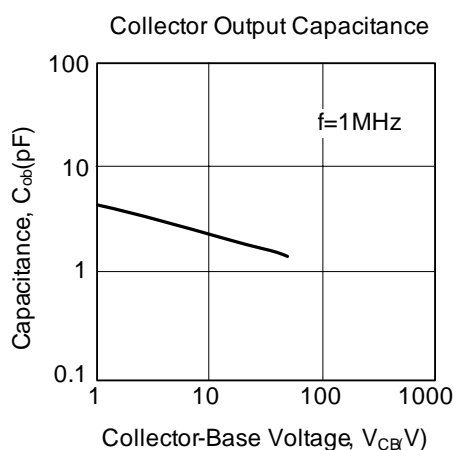
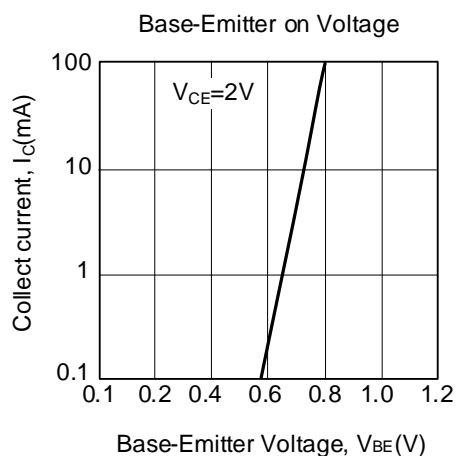
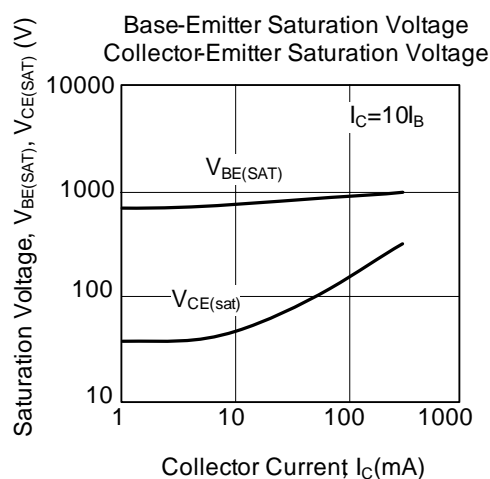
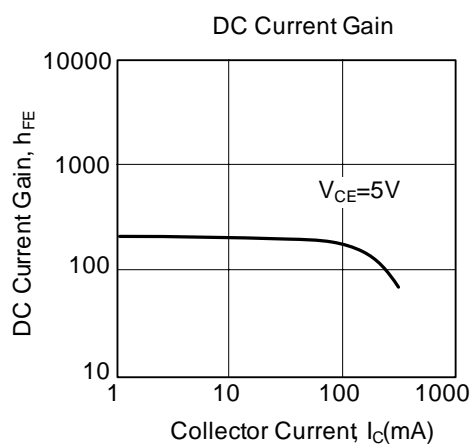
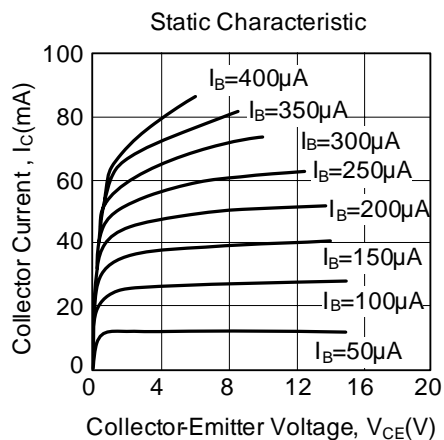
### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-Off Current		I <sub>CBO</sub>	V <sub>CB</sub> =30V, I <sub>E</sub> =0			15	nA
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA	110		800	
Collector-Emitter Saturation Voltage		V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA		90	250	mV
			I <sub>C</sub> =100mA, I <sub>B</sub> =5.0mA		200	600	mV
Collector-Base Saturation Voltage		V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA		700		mV
			I <sub>C</sub> =100mA, I <sub>B</sub> =5.0mA		900		mV
Base-Emitter On Voltage		V <sub>BE(ON)</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2.0mA	580	660	700	mV
			V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA			720	mV
Current Gain Bandwidth Product		f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA f=100MHz		300		MHz
Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1.0MHz		3.5	6	pF
Input Capacitance		C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz		9		pF
Noise Figure	BC846/BC847/BC848	NF	V <sub>CE</sub> =5V, I <sub>C</sub> =200μA, f=1KHz, R <sub>G</sub> =2KΩ V <sub>CE</sub> =5V, I <sub>C</sub> =200μA, R <sub>G</sub> =2KΩ, f=30~15000Hz		2	10	dB
	BC849/BC850				1.2	4	dB
	BC849				1.4	4	dB
	BC850				1.4	3	dB

### ■ CLASSIFICATION OF h<sub>FE</sub>

RANK	A	B	C
RANGE	110-220	200-450	420-800

# ■ TYPICAL CHARACTERISTICS



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