



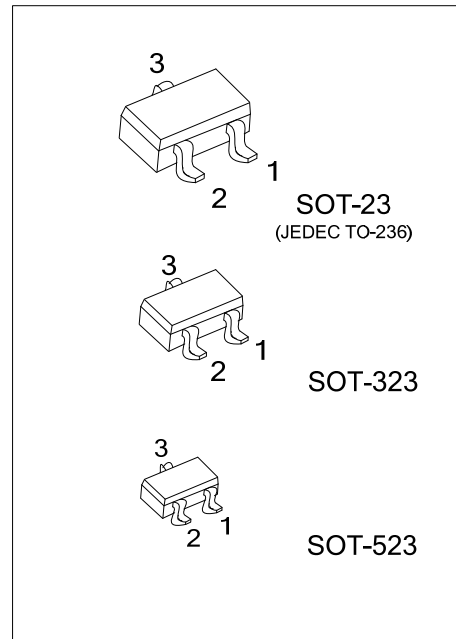
## BC846-BC850

## NPN SILICON TRANSISTOR

### SWITCHING AND AMPLIFIER APPLICATION

#### FEATURES

- \* Suitable for automatic insertion in thick and thin-film circuits.
- \* Complement to BC856 ... BC860



#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
BC846G-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC847G-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC848G-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC849G-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC850G-x-AE3-R	SOT-23	E	B	C	Tape Reel
BC846G-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC847G-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC848G-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC849G-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC850G-x-AL3-R	SOT-323	E	B	C	Tape Reel
BC846G-x-AN3-R	SOT-523	E	B	C	Tape Reel
BC847G-x-AN3-R	SOT-523	E	B	C	Tape Reel
BC848G-x-AN3-R	SOT-523	E	B	C	Tape Reel
BC849G-x-AN3-R	SOT-523	E	B	C	Tape Reel
BC850G-x-AN3-R	SOT-523	E	B	C	Tape Reel

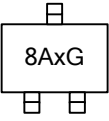
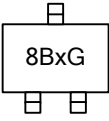
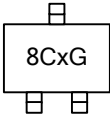
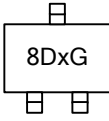
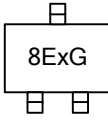
Note: Pin Assignment: C: Collector B: Base E: Emitter

<p>BC846G-x-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) x: refer to Classification of <math>h_{FE}</math> (4) G: Halogen Free and Lead Free</p>
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# BC846-BC850

## NPN SILICON TRANSISTOR

### MARKING

BC846	BC847	BC848	BC849	BC850
				

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

# BC846-BC850

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATING ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	VALUE	UNIT
Collector-Base Voltage	BC846	$V_{CBO}$	80	V
	BC847 / BC850		50	V
	BC848 / BC849		30	V
Collector-Emitter Voltage	BC846	$V_{CEO}$	65	V
	BC847 / BC850		45	V
	BC848 / BC849		30	V
Emitter-Base Voltage	BC846 / BC847	$V_{EBO}$	6	V
	BC848 / BC849 / BC850		5	V
Collector Current (DC)	Continuous	$I_C$	100	mA
	Peak (1)	$I_{CM}$	300	mA
Collector Dissipation	SOT-23	$P_D$	310	mW
	SOT-323		200	mW
	SOT-523		150	mW
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^{\circ}\text{C}$

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.

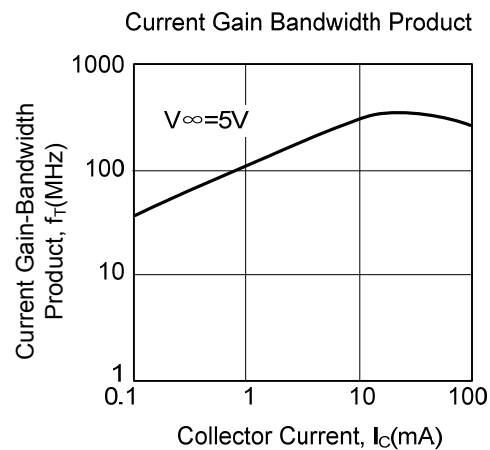
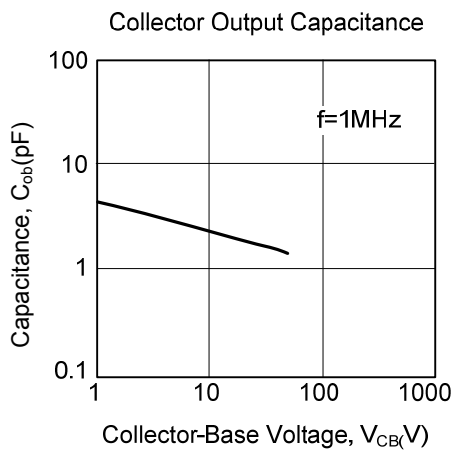
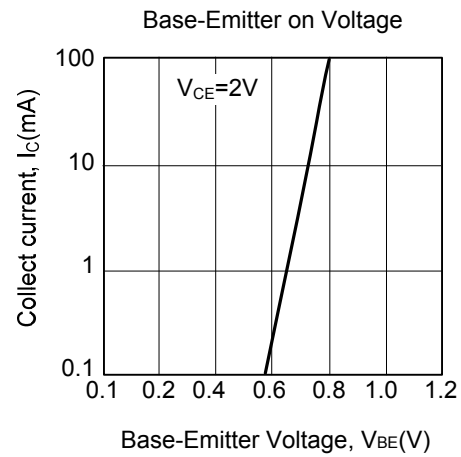
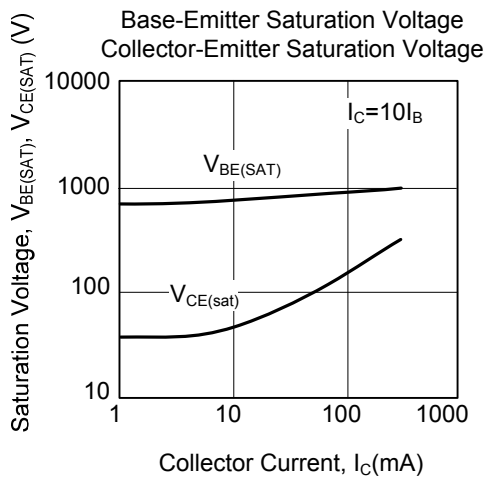
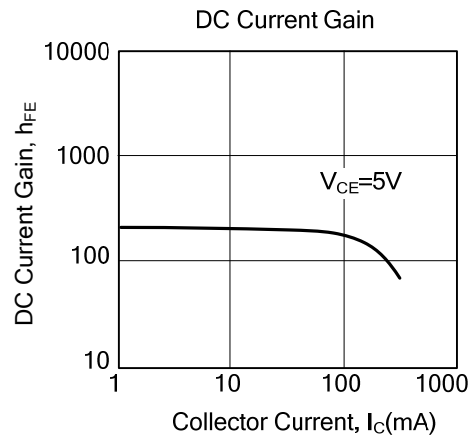
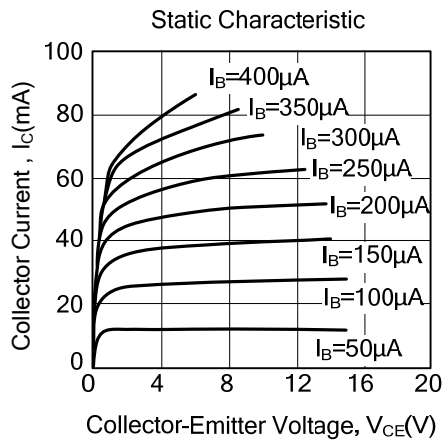
### ■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=10\mu\text{A}, I_E=0$	50			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=2\text{mA}, I_B=0$	45			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30\text{V}, I_E=0$			15	nA
Collector Cutoff Current	$I_{CEO}$	$V_{CE}=40\text{V}$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$	110		800	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		90	250	mV
		$I_C=100\text{mA}, I_B=5.0\text{mA}$		200	600	mV
Collector-Base Saturation Voltage	$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$		700		mV
		$I_C=100\text{mA}, I_B=5.0\text{mA}$		900		mV
Base-Emitter On Voltage	$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$	580	660	700	mV
		$V_{CE}=5.0\text{V}, I_C=10\text{mA}$			720	mV
Current Gain Bandwidth Product	$f_T$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$		300		MHz
Output Capacitance	$C_{OB}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		3.5	6	pF
Input Capacitance	$C_{IB}$	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		9		pF
Noise Figure	BC846/BC847/BC848 BC849/BC850 BC849 BC850	NF $V_{CE}=5\text{V}, I_C=200\mu\text{A}, f=1\text{KHz}, R_G=2\text{K}\Omega$ $V_{CE}=5\text{V}, I_C=200\mu\text{A}, R_G=2\text{K}\Omega, f=30\sim 15000\text{Hz}$		2	10	dB
				1.2	4	dB
				1.4	4	dB
				1.4	3	dB

### ■ CLASSIFICATION OF $h_{FE}$

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

## TYPICAL CHARACTERISTICS



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