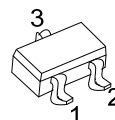
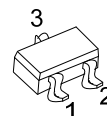
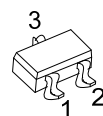
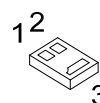


**BC846-BC850****NPN SILICON TRANSISTOR****SWITCHING AND AMPLIFIER APPLICATION****■ FEATURES**

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

* Complement to BC856 ... BC860

**SOT-23**
(JEDEC TO-236)**SOT-323****SOT-523****X2DFN1006-3****■ ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BC846L-x-AE3-R	BC846G-x-AE3-R	SOT-23	B	E	C	Tape Reel
BC847L-x-AE3-R	BC847G-x-AE3-R	SOT-23	B	E	C	Tape Reel
BC848L-x-AE3-R	BC848G-x-AE3-R	SOT-23	B	E	C	Tape Reel
BC849L-x-AE3-R	BC849G-x-AE3-R	SOT-23	B	E	C	Tape Reel
BC850L-x-AE3-R	BC850G-x-AE3-R	SOT-23	B	E	C	Tape Reel
BC846L-x-AL3-R	BC846G-x-AL3-R	SOT-323	B	E	C	Tape Reel
BC847L-x-AL3-R	BC847G-x-AL3-R	SOT-323	B	E	C	Tape Reel
BC848L-x-AL3-R	BC848G-x-AL3-R	SOT-323	B	E	C	Tape Reel
BC849L-x-AL3-R	BC849G-x-AL3-R	SOT-323	B	E	C	Tape Reel
BC850L-x-AL3-R	BC850G-x-AL3-R	SOT-323	B	E	C	Tape Reel
BC846L-x-AN3-R	BC846G-x-AN3-R	SOT-523	B	E	C	Tape Reel
BC847L-x-AN3-R	BC847G-x-AN3-R	SOT-523	B	E	C	Tape Reel
BC848L-x-AN3-R	BC848G-x-AN3-R	SOT-523	B	E	C	Tape Reel
BC849L-x-AN3-R	BC849G-x-AN3-R	SOT-523	B	E	C	Tape Reel
BC850L-x-AN3-R	BC850G-x-AN3-R	SOT-523	B	E	C	Tape Reel
BC846L-x-KAX-R	BC846G-x-KAX-R	X2DFN1006-3	B	E	C	Tape Reel
BC847L-x-KAX-R	BC847G-x-KAX-R	X2DFN1006-3	B	E	C	Tape Reel
BC848L-x-KAX-R	BC848G-x-KAX-R	X2DFN1006-3	B	E	C	Tape Reel
BC849L-x-KAX-R	BC849G-x-KAX-R	X2DFN1006-3	B	E	C	Tape Reel
BC850L-x-KAX-R	BC850G-x-KAX-R	X2DFN1006-3	B	E	C	Tape Reel

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

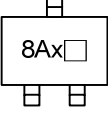
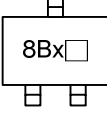
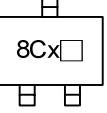
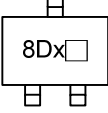
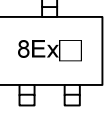
	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523
	(3)Rank	KAX: X2DFN1006-3
	(4)Green Package	(3) x: refer to Classification of h_{FE}
		(4) G: Halogen Free and Lead Free, L: Lead Free

BC846-BC850

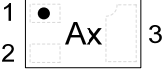
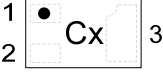
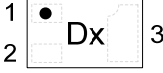
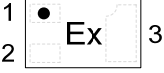
NPN SILICON TRANSISTOR

■ MARKING

For SOT-23/SOT-323/SOT-523

BC846	BC847	BC848	BC849	BC850
				

For X2DFN1006-3

BC846	BC847	BC848	BC849	BC850
				

Note: x: Rank Code, refer to Classification of h_{FE}
□: G: Halogen Free and Lead Free, L: Lead Free

BC846-BC850

NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATING (T_A=25°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 (Note 2)	SOT-23	P _D	310	mW
	SOT-323		200	mW
	SOT-523		150	mW
	X2DFN1006-3		250	mW
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-40 ~ +150	°C

Note:1. 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.

2. Transistor mounted on an FR4 printed-circuit board.

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BC846	BV _{CBO}	I _C =10μA, I _E =0	80			V
	BC847 / BC850			50			V
	BC848 / BC849			30			V
Collector-Emitter Breakdown Voltage	BC846	BV _{CEO}	I _C =2mA, I _B =0	65			V
	BC847 / BC850			45			V
	BC848 / BC849			30			V
Collector-Emitter Breakdown Voltage	BC846	BV _{CES}	I _C =2mA, V _{BE} =0V	80			V
	BC847 / BC850			50			V
	BC848 / BC849			30			V
Emitter-Base Breakdown Voltage	BC846 / BC847	BV _{EBO}	I _E =10μA, I _C =0	6			V
	BC848 / BC849			5			V
	BC850						
Collector Cut-Off Current		I _{CBO}	V _{CB} =30V, I _E =0			15	nA
Collector Cutoff Current		I _{CEO}	V _{CE} =40V			100	nA
Emitter Cutoff Current		I _{EBO}	V _{EB} =5V			100	nA
DC Current Gain		h _{FE}	V _{CE} =5.0V, I _C =2.0mA	110		800	
Collector-Emitter Saturation Voltage		V _{CE(SAT)}	I _C =10mA, I _B =0.5mA		90	200	mV
			I _C =100mA, I _B =5.0mA		200	400	mV
Collector-Base Saturation Voltage		V _{BE(SAT)}	I _C =10mA, I _B =0.5mA		700		mV
			I _C =100mA, I _B =5.0mA		900		mV
Base-Emitter On Voltage		V _{BE(ON)}	V _{CE} =5.0V, I _C =2.0mA	580	660	700	mV
			V _{CE} =5.0V, I _C =10mA			720	mV
Current Gain Bandwidth Product		f _T	V _{CE} =5.0V, I _C =10mA, f=100MHz		300		MHz
Output Capacitance		C _{OB}	V _{CB} =10V, I _E =0, f=1.0MHz		3.5	6	pF
Input Capacitance		C _{IB}	V _{EB} =0.5V, I _C =0, f=1.0MHz		9		pF

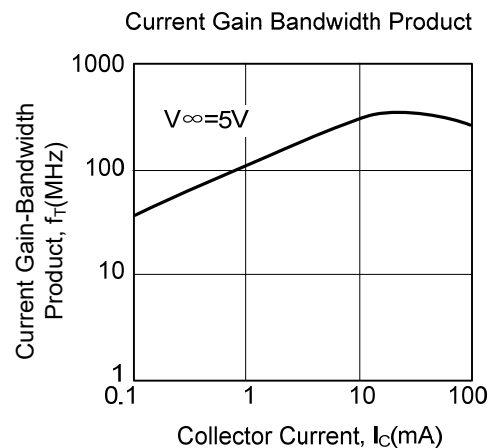
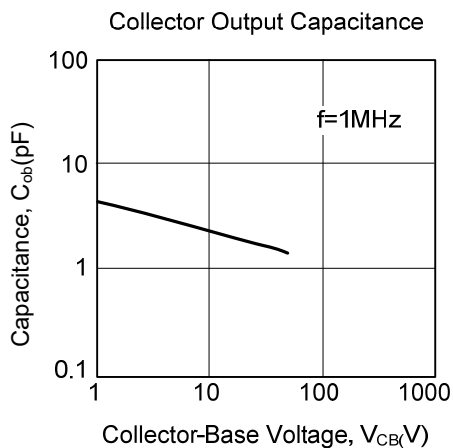
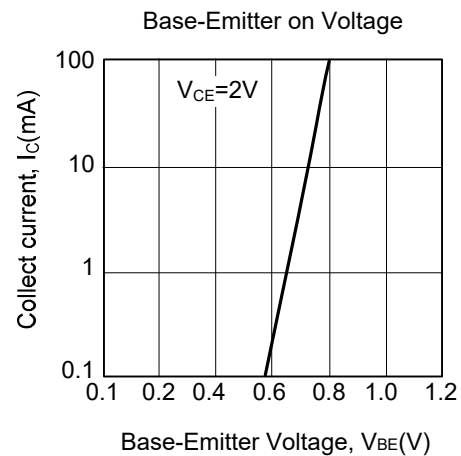
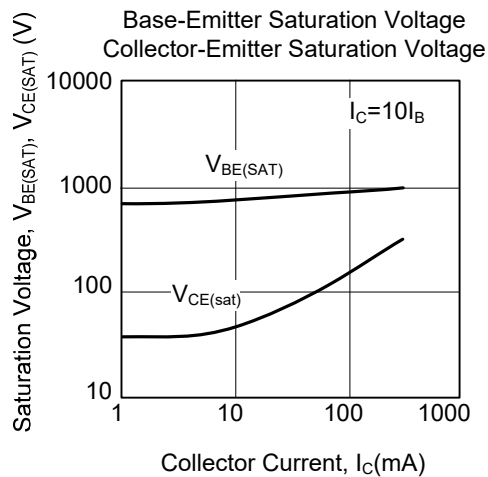
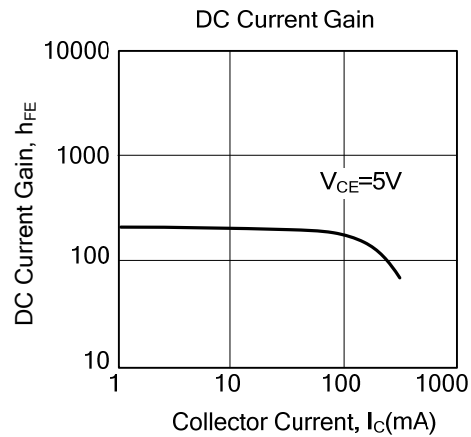
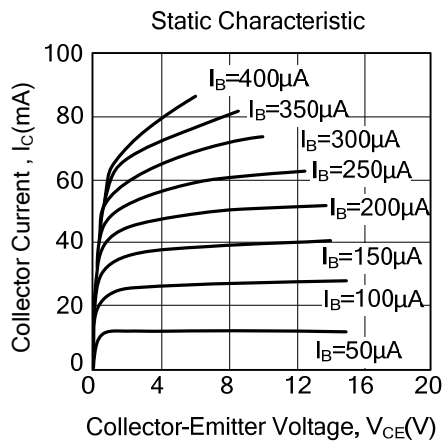
■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Noise Figure	BC846/BC847 BC848	NF	$V_{CE}=5V$, $I_C=200\mu A$, $f=1KHz$, $R_G=2K\Omega$		2	10	dB
	BC849/BC850				1.2	4	dB
	BC849		$V_{CE}=5V$, $I_C=200\mu A$,		1.4	4	dB
	BC850		$R_G=2K\Omega$, $f=30\sim 15000Hz$		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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