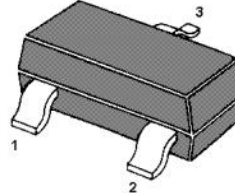




## NPN Silicon Epitaxial Transistor

for switching and amplifier applications

As complementary types the PNP transistors BC856...BC860 is recommended.



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

### Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)

Parameter	Symbol	Value	Units
Collector Base Voltage	BC846	V <sub>CB0</sub>	80 V
	BC847, BC850	V <sub>CB0</sub>	50 V
	BC848, BC849	V <sub>CB0</sub>	30 V
Collector Emitter Voltage	BC846	V <sub>CEO</sub>	65 V
	BC847, BC850	V <sub>CEO</sub>	45 V
	BC848, BC849	V <sub>CEO</sub>	30 V
Emitter Base Voltage	BC846, BC847	V <sub>EBO</sub>	6 V
	BC848, BC849, BC850	V <sub>EBO</sub>	5 V
Collector Current	I <sub>C</sub>	100	mA
Peak Collector Current	I <sub>CM</sub>	200	mA
Power Dissipation	P <sub>tot</sub>	200	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>S</sub>	- 65 to + 150	°C

### MARKING CODE

TYPE	846A	846B	846C	847A	847B	847C	848A	848B	848C	849A	849B	849C	850A	850B	850C
MARK	1A	1B	1C	1E	1F	1G	1J	1K	1L	2A	2B	2C	2E	2F	2G



**CHINA BASE**  
INTERNATIONAL

# SOT-23



# BC846-BC850

www.china-base.com.hk

### Characteristics at $T_{amb} = 25\text{ }^{\circ}\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Units	
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ mA}$	A	$h_{FE}$	110	-	220	-
	B	$h_{FE}$	200	-	450	-
	C	$h_{FE}$	420	-	800	-
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 0.5\text{ mA}$ at $I_C = 100\text{ mA}$ , $I_B = 5\text{ mA}$	$V_{CEsat}$	-	-	250	mV	
	$V_{CEsat}$	-	-	600	mV	
Base Emitter On Voltage at $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ at $I_C = 10\text{ mA}$ , $V_{CE} = 5\text{ V}$	$V_{BE(on)}$	580	-	700	mV	
	$V_{BE(on)}$	-	-	720	mV	
Collector Cutoff Current at $V_{CB} = 30\text{ V}$	$I_{CBO}$	-	-	15	nA	
Current Gain Bandwidth Product at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	300	-	MHz	
Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	-	6	pF	
Input Capacitance at $V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$	$C_{ib}$	-	9	-	pF	
Noise Figure at $I_C = 200\text{ }\mu\text{A}$ , $V_{CE} = 5\text{ V}$ , $R_G = 2\text{ K}\Omega$ , $f = 1\text{ KHz}$ at $I_C = 200\text{ }\mu\text{A}$ , $V_{CE} = 5\text{ V}$ , $R_G = 2\text{ K}\Omega$ , $f = 30\text{ } \sim 15\text{ KHz}$	BC846, BC847, BC848	NF	-	-	10	dB
	BC849, BC850	NF	-	-	4	dB
	BC849	NF	-	-	4	dB
	BC850	NF	-	-	3	dB



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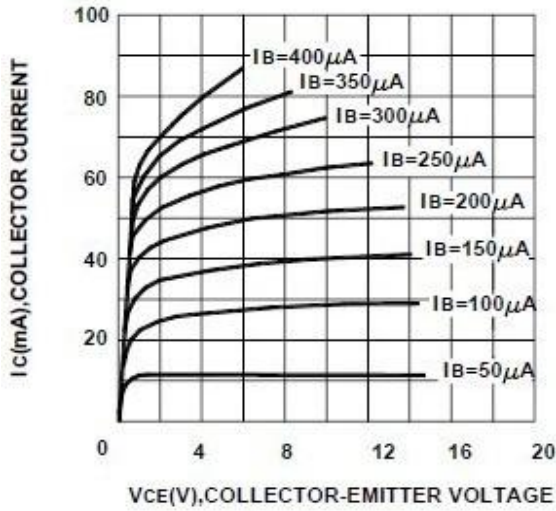
# SOT-23



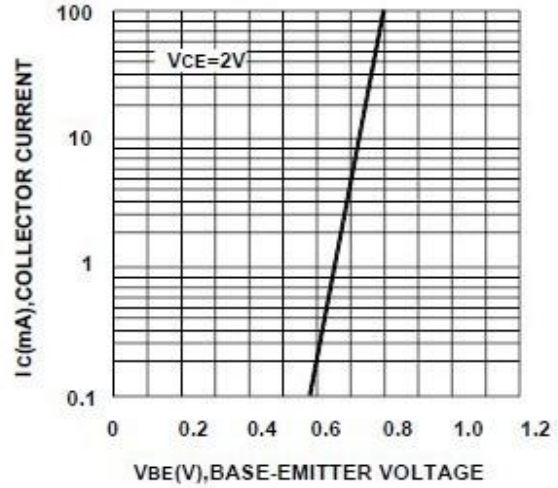
# BC846-BC850

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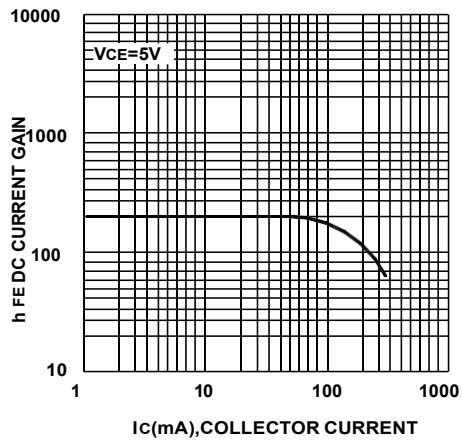
STATIC CHARACTERISTIC



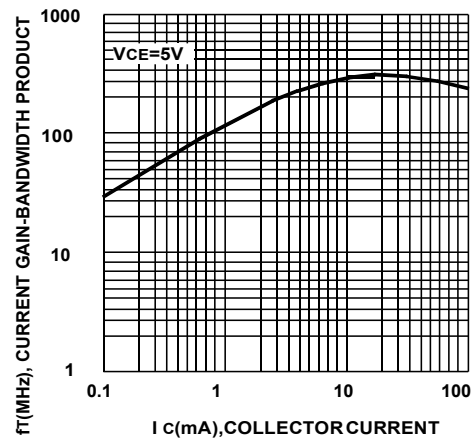
BASE-EMITTER ON VOLTAGE



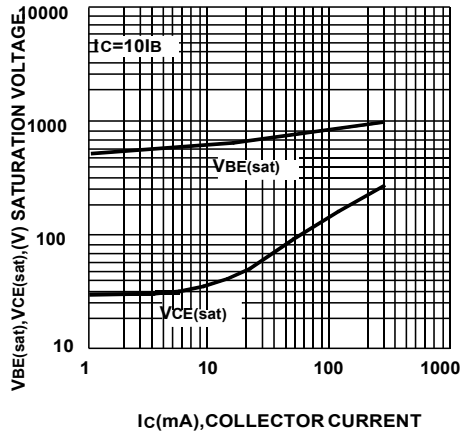
DC CURRENT GAIN



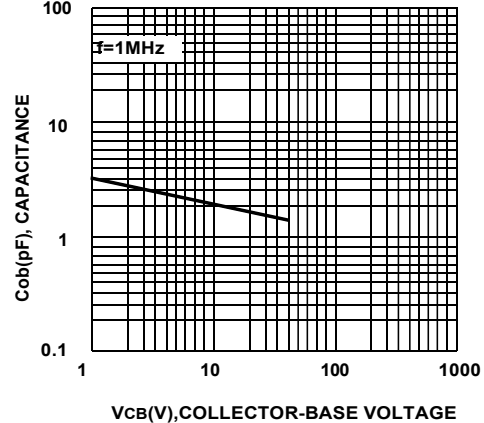
CURRENT GAIN BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE





CHINA BASE  
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SOT-23



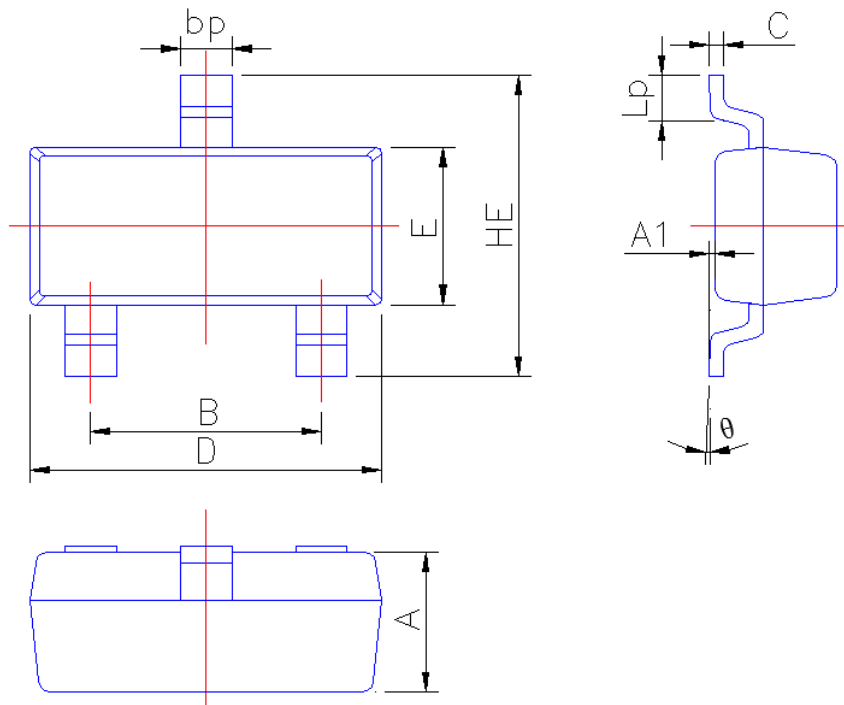
BC846-BC850

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
$\theta$	0°	5°