

**BC846/847/848/849/850 TRANSISTOR (NPN)**
**FEATURES**

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

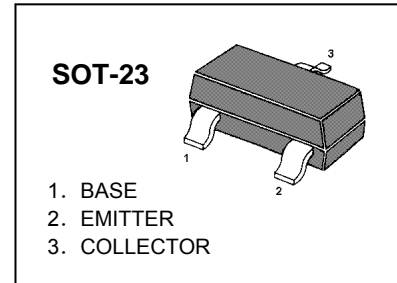
**APPLICATIONS**

- General purpose switching and amplification.

**DESCRIPTION**

NPN transistor in a SOT23 plastic package.

PNP complements: BC856 /857/858/859/860.


**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>	300	mW
Thermal Resistance from Junction to Ambient Air	R <sub>θJA</sub>	417	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>S</sub>	- 65 to + 150	°C

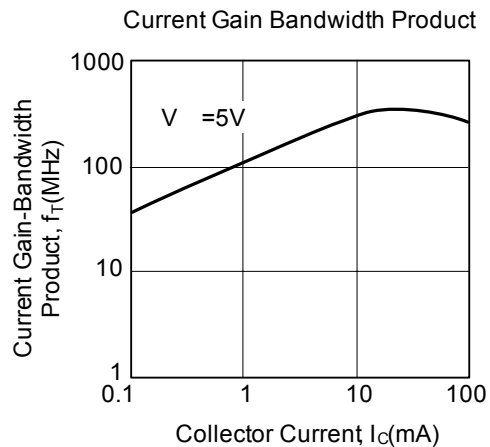
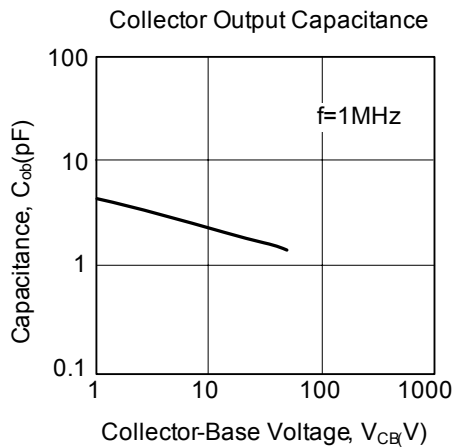
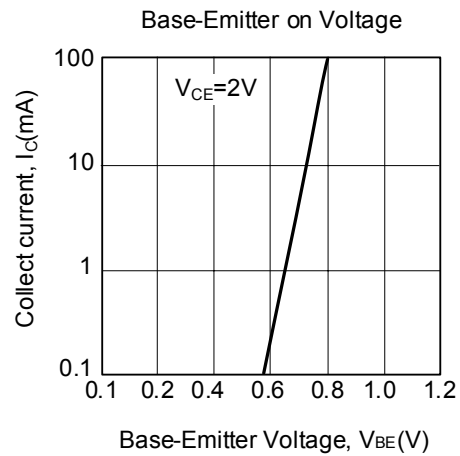
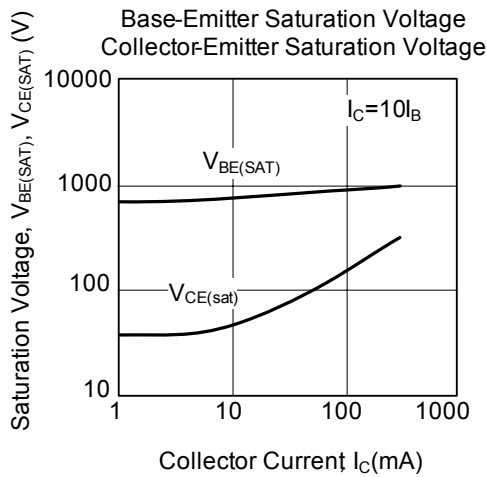
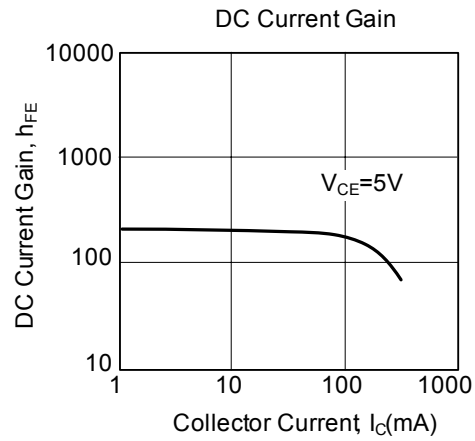
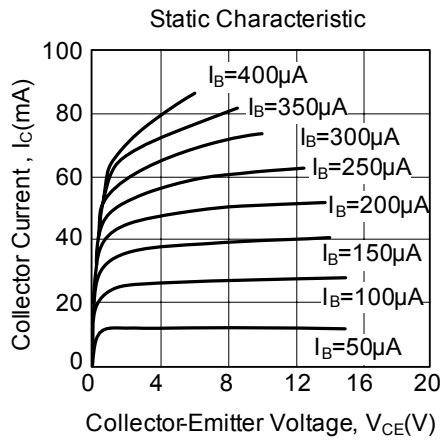
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Units
Collector-base breakdown voltage at I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0	BC846 BC847/850 BC848/849	V <sub>(BR)CBO</sub>	80 50 30		
Collector-emitter breakdown voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	BC846 BC847/850 BC848/849	V <sub>(BR)CEO</sub>	65 45 30		
Emitter-base breakdown voltage at I <sub>E</sub> = 1 μA, I <sub>C</sub> = 0	BC846/847 BC848-850	V <sub>(BR)EBO</sub>	6 5		
DC Current Gain at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA	A B C	h <sub>FE</sub> h <sub>FE</sub> h <sub>FE</sub>	110 200 420	- - -	220 450 800
Collector Emitter Saturation Voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA		V <sub>CEsat</sub>	-	-	250
at I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA		V <sub>CEsat</sub>	-	-	600
Base-emitter saturation voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA		V <sub>BEsat</sub>	-	700	850
at I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA		V <sub>BEsat</sub>	-	900	1100
Base Emitter On Voltage at I <sub>C</sub> = 2 mA, V <sub>CE</sub> = 5 V		V <sub>BE(on)</sub>	580	-	700
at I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5 V		V <sub>BE(on)</sub>	-	-	770
Collector Cutoff Current at V <sub>CB</sub> = 30 V		I <sub>CBO</sub>	-	-	15
Current Gain Bandwidth Product at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA, f = 100 MHz		f <sub>T</sub>	-	300	-
Output Capacitance at V <sub>CB</sub> = 10 V, f = 1 MHz		C <sub>ob</sub>	-	-	6
Input Capacitance at V <sub>EB</sub> = 0.5 V, f = 1 MHz		C <sub>ib</sub>	-	9	-
Noise Figure at I <sub>C</sub> = 200 μA, V <sub>CE</sub> = 5 V	BC846, BC847, BC848	NF	-	-	10
R <sub>G</sub> = 2 KΩ, f = 1 KHz	BC849, BC850	NF	-	-	4
at I <sub>C</sub> = 200 μA, V <sub>CE</sub> = 5 V,	BC849	NF	-	-	4
R <sub>G</sub> = 2 KΩ, f = 30 ~15 KHz	BC850	NF	-	-	3

**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

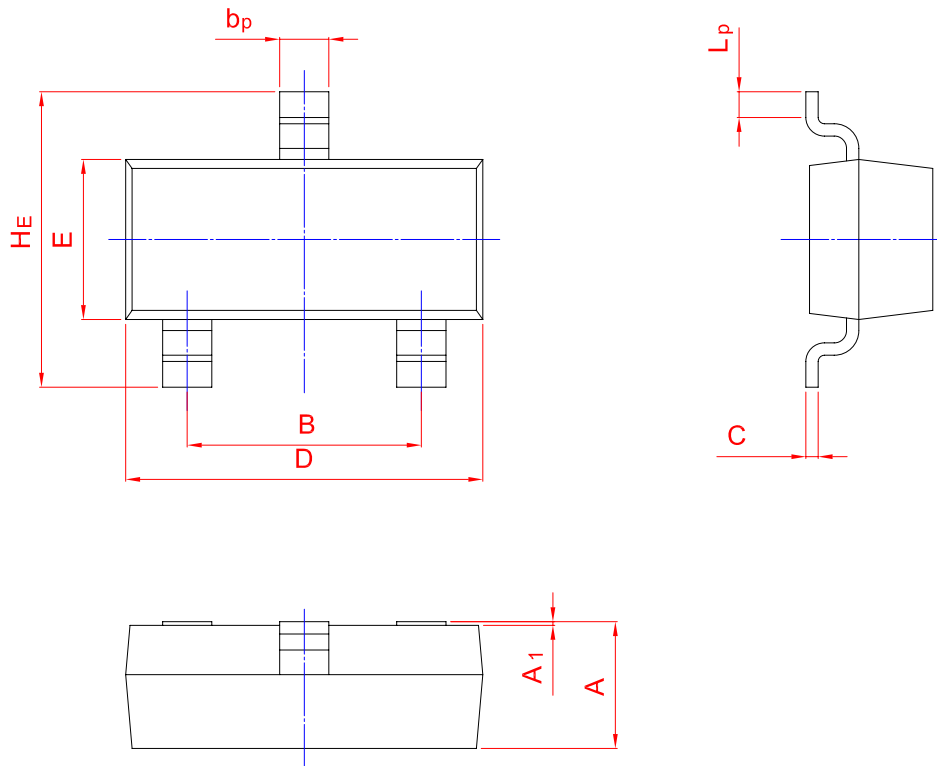
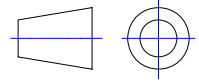
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b <sub>p</sub>	C	D	E	H <sub>E</sub>	A <sub>1</sub>	L <sub>p</sub>
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20