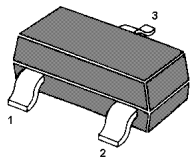
BC846/847/848/849/850 TRANSISTOR（NPN）

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.



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

DESCRIPTION

NPN transistor in a SOT23 plastic package.

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

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Parameter		Symbol	Value	Units
Collector Base Voltage	BC846	V_{CBO}	80	V
	BC847, BC850	V_{CBO}	50	V
	BC848, BC849	V_{CBO}	30	V
Collector Emitter Voltage	BC846	V_{CEO}	65	V
	BC847, BC850	V_{CEO}	45	V
	BC848, BC849	V_{CEO}	30	V
Emitter Base Voltage	BC846, BC847	V_{EBO}	6	V
	BC848, BC849, BC850	V_{EBO}	5	V
Collector Current		I_C	100	mA
Peak Collector Current		I_{CM}	200	mA
Power Dissipation		P_{tot}	300	mW
Thermal Resistance from Junction to Ambient Air		$R_{\theta JA}$	417	°C/W
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_S	- 65 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

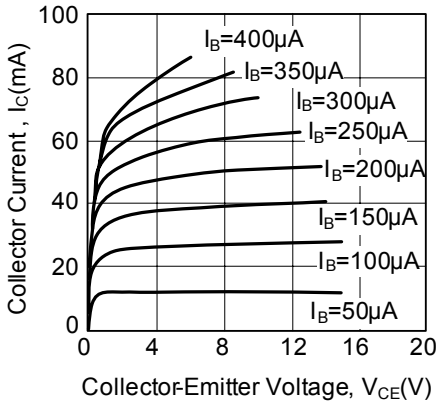
Parameter		Symbol	Min.	Typ.	Max.	Units
Collector-base breakdown voltage						
at I_C = 10 μA, I_E = 0	BC846	$V_{(BR)CBO}$	80			
	BC847/850		50			
	BC848/849		30			
Collector-emitter breakdown voltage						
at I_C = 10 mA, I_B = 0	BC846	$V_{(BR)CEO}$	65			
	BC847/850		45			
	BC848/849		30			
Emitter-base breakdown voltage						
at I_E = 1 μA, I_C = 0	BC846/847	$V_{(BR)EBO}$	6			
	BC848-850		5			
DC Current Gain						
at V_{CE} = 5 V, I_C = 2 mA	A	h_{FE}	110	-	220	-
	B	h_{FE}	200	-	450	-
	C	h_{FE}	420	-	800	-
Collector Emitter Saturation Voltage						
at I_C = 10 mA, I_B = 0.5 mA		V_{CEsat}	-	-	250	mV
at I_C = 100 mA, I_B = 5 mA		V_{CEsat}	-	-	600	mV
Base-emitter saturation voltage						
at IC = 10 mA, IB = 0.5 mA		V_{BEsat}	-	700	850	mV
at IC = 100 mA, IB = 5 mA		V_{BEsat}	-	900	1100	mV
Base Emitter On Voltage						
at I_C = 2 mA, V_{CE} = 5 V		$V_{BE(on)}$	580	-	700	mV
at I_C = 10 mA, V_{CE} = 5 V		$V_{BE(on)}$	-	-	770	mV
Collector Cutoff Current		I_{CBO}	-	-	15	nA
at V_{CB} = 30 V						
Current Gain Bandwidth Product		f_T	-	300	-	MHz
at V_{CE} = 5 V, I_C = 10 mA, f = 100 MHz						
Output Capacitance		C_{ob}	-	-	6	pF
at V_{CB} = 10 V, f = 1 MHz						
Input Capacitance		C_{ib}	-	9	-	pF
at V_{EB} = 0.5 V, f = 1 MHz						
Noise Figure						
at I_C = 200 μA, V_{CE} = 5 V	BC846, BC847, BC848	NF	-	-	10	dB
R_G = 2 KΩ, f = 1 KHz	BC849, BC850	NF	-	-	4	dB
at I_C = 200 μA,V_{CE} = 5 V,	BC849	NF	-	-	4	dB
R_G = 2 KΩ, f = 30 ~15 KHz	BC850	NF	-	-	3	dB

MARKING CODE

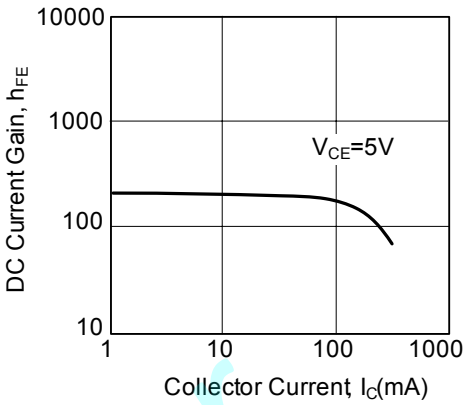
TYPE	846A	846B	846C	847A	847B	847C	848A	848B	848C	849A	849B	849C	850A	850B	850C
MARK	1A	1B	1C	1E	1F	1G	1J	1K	1L	2A	2B	2C	2E	2F	2G

Typical Characteristics

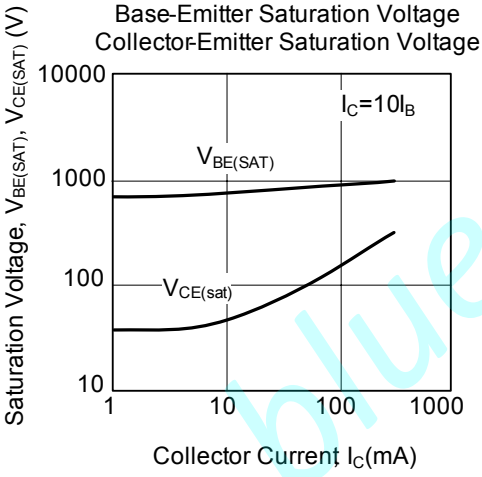
Static Characteristic



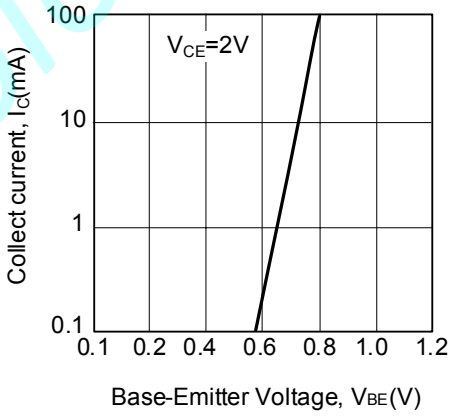
DC Current Gain



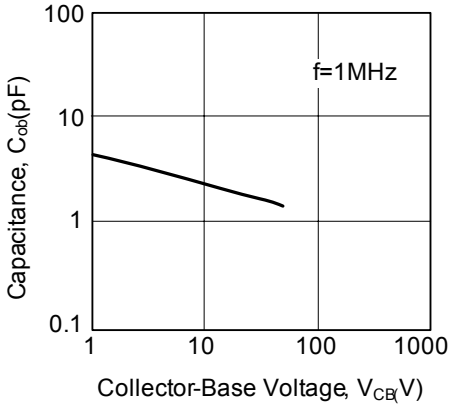
Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage



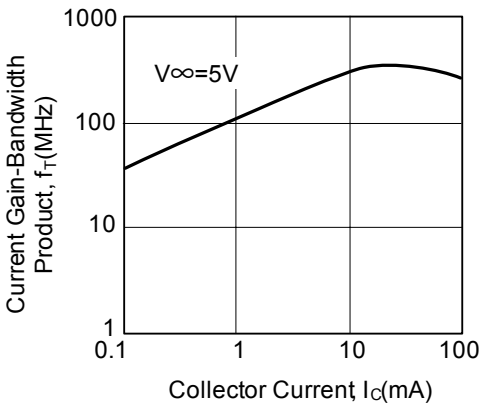
Base-Emitter on Voltage



Collector Output Capacitance

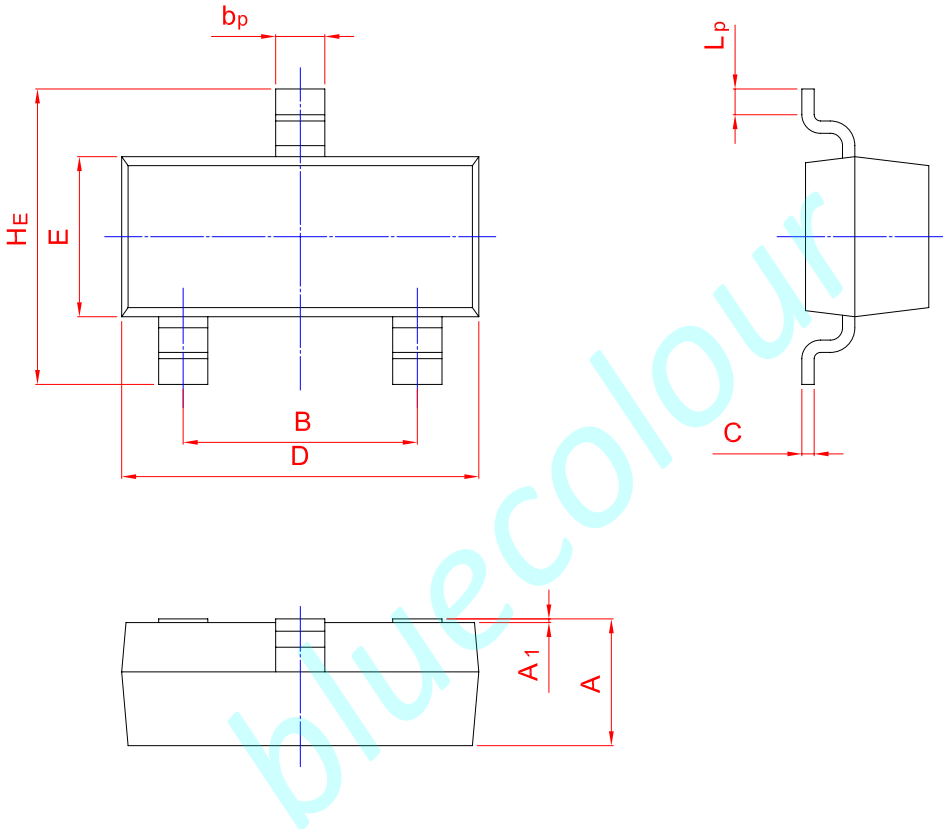


Current Gain Bandwidth Product



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20