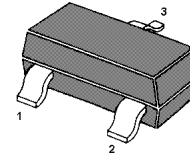


## BC856/857/858/859/860 TRANSISTOR (PNP)

### FEATURES

- Switching and Amplifier Applications
- Suitable for automatic insertion in thick and thin-film circuits
- Low Noise: BC859, BC860
- Complement to BC846 ... BC850



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

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit	
Collector Base Voltage	BC856	$-V_{CBO}$	80	V
	BC857, BC860	$-V_{CBO}$	50	V
	BC858, BC859	$-V_{CBO}$	30	V
Collector Emitter Voltage	BC856	$-V_{CEO}$	65	V
	BC857, BC860	$-V_{CEO}$	45	V
	BC858, BC859	$-V_{CEO}$	30	V
Emitter Base Voltage	$-V_{EBO}$	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	$^\circ\text{C/W}$	
Junction Temperature	$T_j$	150	$^\circ\text{C}$	
Storage Temperature Range	$T_{stg}$	- 65 to + 150	$^\circ\text{C}$	

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

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at -V <sub>CE</sub> = 5 V, -I <sub>C</sub> = 2 mA	Current Gain Group A	h <sub>FE</sub>	110	220	-
	B	h <sub>FE</sub>	200	450	-
	C	h <sub>FE</sub>	420	800	-
Collector Base Cutoff Current at -V <sub>CB</sub> = 30 V	-I <sub>CBO</sub>	-	15	nA	
Collector Base Breakdown Voltage at -I <sub>C</sub> = 10 μA	BC856	-V <sub>(BR)CBO</sub>	80	-	V
	BC857, BC860	-V <sub>(BR)CBO</sub>	50	-	V
	BC858, BC859	-V <sub>(BR)CBO</sub>	30	-	V
Collector Emitter Breakdown Voltage at -I <sub>C</sub> = 10 μA	BC856	-V <sub>(BR)CES</sub>	80	-	V
	BC857, BC860	-V <sub>(BR)CES</sub>	50	-	V
	BC858, BC859	-V <sub>(BR)CES</sub>	30	-	V
Collector Emitter Breakdown Voltage at -I <sub>C</sub> = 10 mA	BC856	-V <sub>(BR)CEO</sub>	65	-	V
	BC857, BC860	-V <sub>(BR)CEO</sub>	45	-	V
	BC858, BC859	-V <sub>(BR)CEO</sub>	30	-	V
Emitter Base Breakdown Voltage at -I <sub>E</sub> = 1 μA	-V <sub>(BR)EBO</sub>	5	-	V	
Collector Emitter Saturation Voltage at -I <sub>C</sub> = 10 mA, -I <sub>B</sub> = 0.5 mA at -I <sub>C</sub> = 100 mA, -I <sub>B</sub> = 5 mA	-V <sub>CE(sat)</sub>	-	0.3	V	
	-V <sub>CE(sat)</sub>	-	0.65	V	
Base Emitter On Voltage at -I <sub>C</sub> = 2 mA, -V <sub>CE</sub> = 5 V at -I <sub>C</sub> = 10 mA, -V <sub>CE</sub> = 5 V	-V <sub>BE(on)</sub>	0.6	0.75	V	
	-V <sub>BE(on)</sub>	-	0.82	V	
Current Gain Bandwidth Product at -V <sub>CE</sub> = 5 V, -I <sub>C</sub> = 10 mA, f = 100 MHz	f <sub>T</sub>	100	-	MHz	
Output Capacitance at -V <sub>CB</sub> = 10 V, f = 1 MHz	C <sub>ob</sub>	-	6	pF	
Noise Figure at -I <sub>C</sub> = 200 μA, -V <sub>CE</sub> = 5 V, R <sub>G</sub> = 2 KΩ, f = 1 KHz at -I <sub>C</sub> = 200 μA, -V <sub>CE</sub> = 5 V, R <sub>G</sub> = 2 KΩ, f = 30 ~15 KHz	BC856, BC857, BC858	NF	-	10	dB
	BC859, BC860	NF	-	4	
	BC859	NF	-	4	
	BC860	NF	-	2	

**MARKING CODE**

TYPE	856A	856B	856C	857A	857B	857C	858A	858B	858C	859A	859B	859C	860A	860B	860C
MARK	3A	3B	3C	3E	3F	3G	3J	3K	3L	4A	4B	4C	4E	4F	4G

## Typical Characteristics

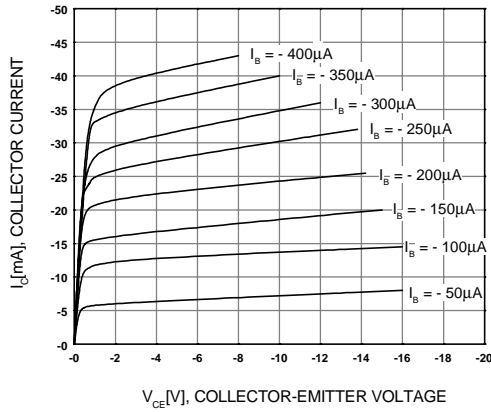


Figure 1. Static Characteristic

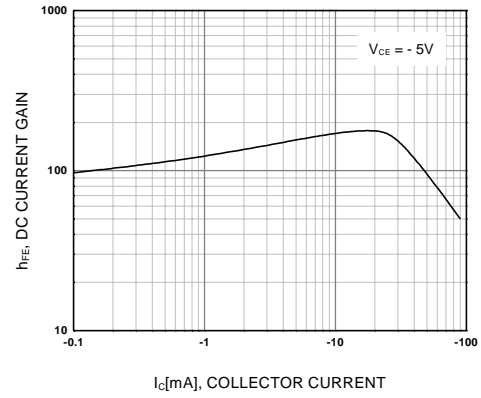


Figure 2. DC current Gain

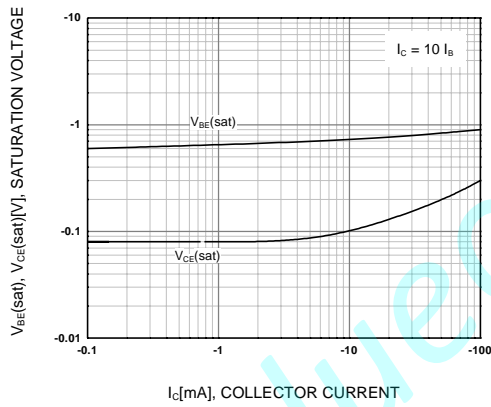


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

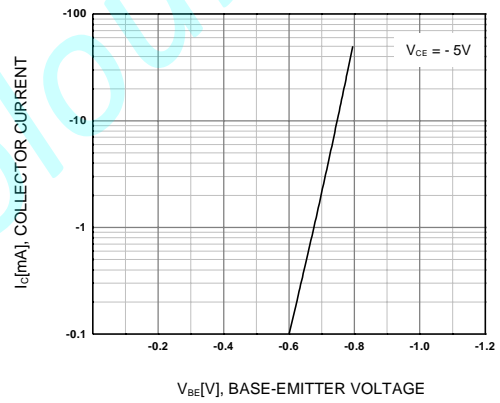


Figure 4. Base-Emitter On Voltage

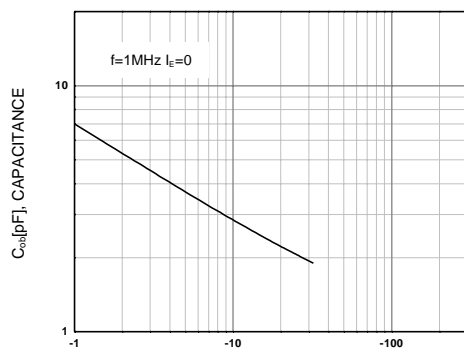


Figure 5. Collector Output Capacitance

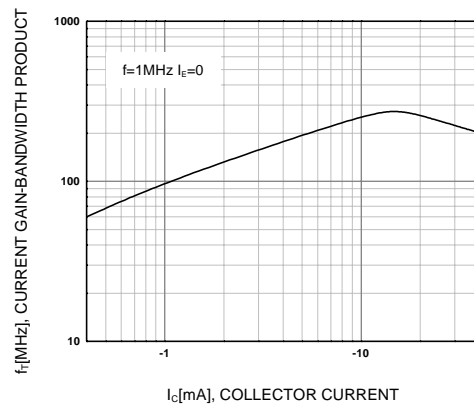
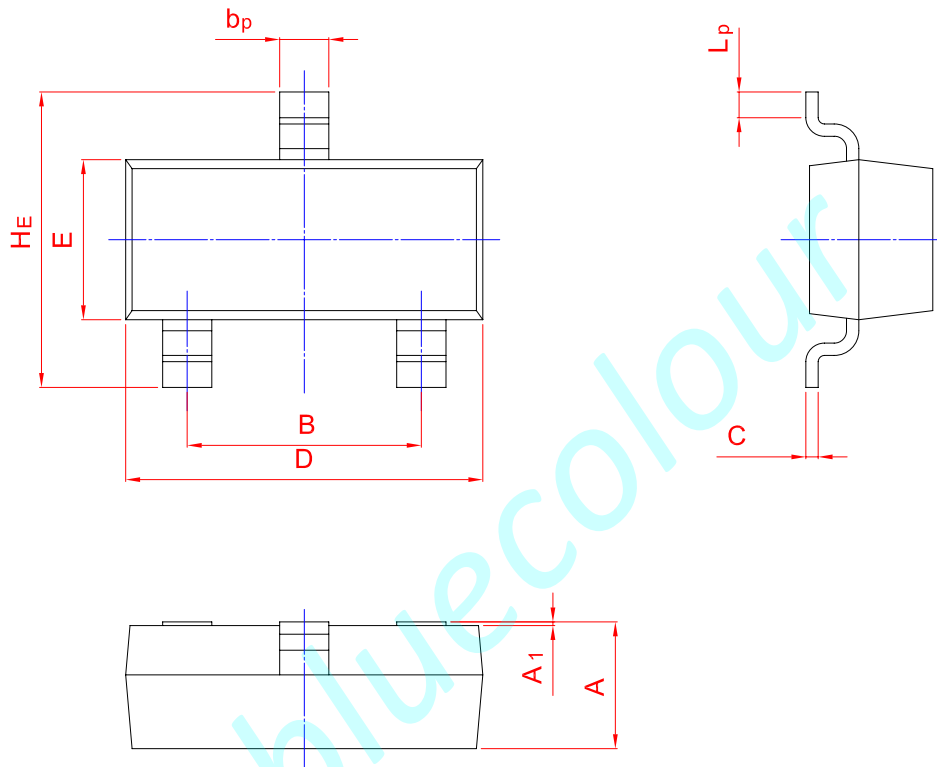
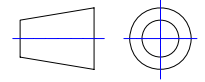


Figure 6. Current Gain Bandwidth Product

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	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