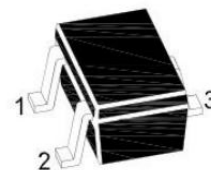




### BC856AT-BC860CT Silicon Epitaxial Transistor

for switching and amplifier applications



1.Base 2.Emitter 3.Collector  
SOT-523 Plastic Package

#### MARKING CODE

TYPE	856AT	856BT	856CT	857AT	857BT	857CT	858AT	858BT	858CT
MARKING	3A	3B	3C	3E	3F	3G	3J	3K	3L
TYPE	8459AT	859BT	859CT	860AT	860BT	860CT			
MARKING	4A	4B	4C	4E	4F	4G			

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

Parameter	Symbol	Value	Unit	
Collector Base Voltage	BC856T	-V <sub>CBO</sub>	80	V
	BC857T, BC860T	-V <sub>CBO</sub>	50	V
	BC858T, BC859T	-V <sub>CBO</sub>	30	V
Collector Emitter Voltage	BC856T	-V <sub>CEO</sub>	65	V
	BC857T, BC860T	-V <sub>CEO</sub>	45	V
	BC858T, BC859T	-V <sub>CEO</sub>	30	V
Emitter Base Voltage	-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>stg</sub>	- 65 to + 150	°C	



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

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at $-V_{CE} = 5\text{ V}$ , $-I_C = 2\text{ mA}$	Current Gain Group A				
	B	110	220	-	
	C	200	450	-	
Collector Base Cutoff Current at $-V_{CB} = 30\text{ V}$	$-I_{CBO}$	-	15	nA	
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$	BC856T	$-V_{(BR)CBO}$	80	-	V
	BC857T, BC860T	$-V_{(BR)CBO}$	50	-	V
	BC858T, BC859T	$-V_{(BR)CBO}$	30	-	V
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$	BC856T	$-V_{(BR)CES}$	80	-	V
	BC857T, BC860T	$-V_{(BR)CES}$	50	-	V
	BC858T, BC859T	$-V_{(BR)CES}$	30	-	V
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	BC856T	$-V_{(BR)CEO}$	65	-	V
	BC857T, BC860T	$-V_{(BR)CEO}$	45	-	V
	BC858T, BC859T	$-V_{(BR)CEO}$	30	-	V
Emitter Base Breakdown Voltage at $-I_E = 1\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	V	
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$ , $-I_B = 0.5\text{ mA}$ at $-I_C = 100\text{ mA}$ , $-I_B = 5\text{ mA}$	$-V_{CE(sat)}$	-	0.3	V	
	$-V_{CE(sat)}$	-	0.65	V	
Base Emitter On Voltage at $-I_C = 2\text{ mA}$ , $-V_{CE} = 5\text{ V}$ at $-I_C = 10\text{ mA}$ , $-V_{CE} = 5\text{ V}$	$-V_{BE(on)}$	0.6	0.75	V	
	$-V_{BE(on)}$	-	0.82	V	
Current Gain Bandwidth Product at $-V_{CE} = 5\text{ V}$ , $-I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	100	-	MHz	
Output Capacitance at $-V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{ob}$	-	6	pF	

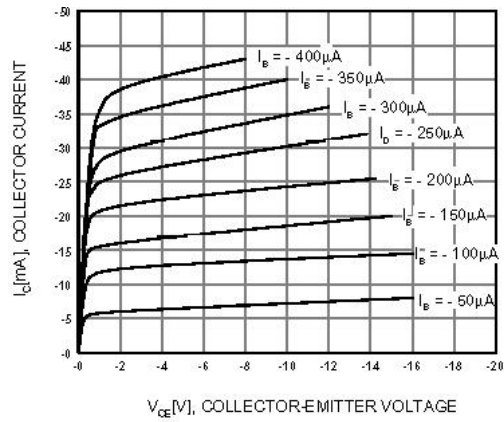


Figure 1. Static Characteristic

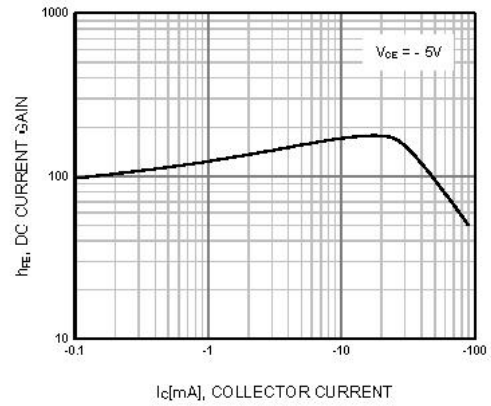


Figure 2. DC current Gain

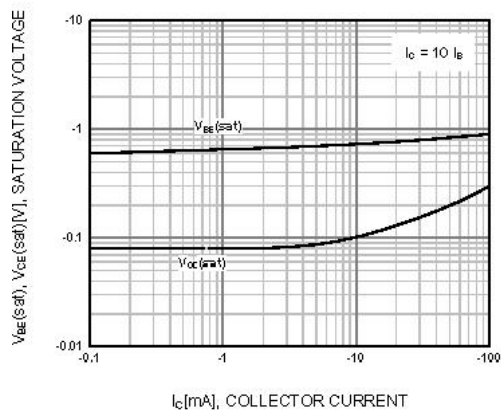


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

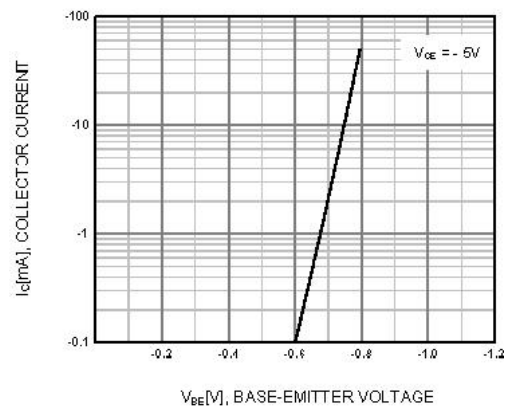


Figure 4. Base-Emitter On Voltage

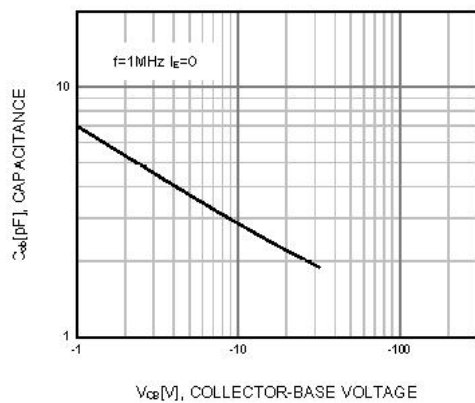


Figure 5. Collector Output Capacitance

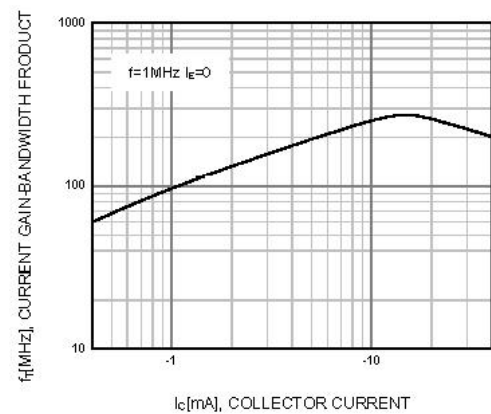
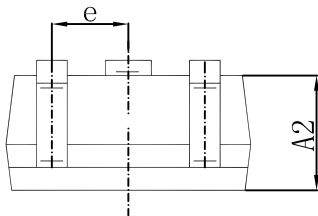
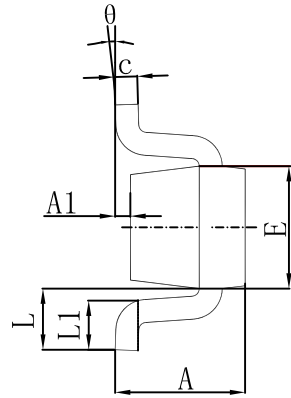
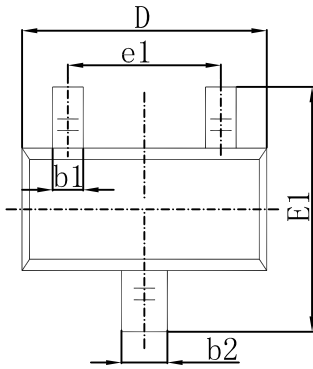


Figure 6. Current Gain Bandwidth Product

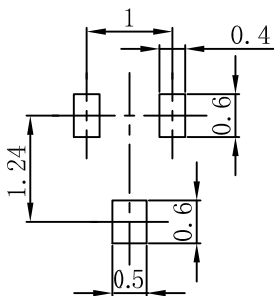


## SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

## SOT-523 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.