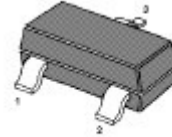


# PNP Silicon Epitaxial Transistor

for switching and amplifier applications



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		$P_{tot}$	200	mW
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	- 65 to + 150	$^\circ\text{C}$

## MARKING CODE

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

### Characteristics at 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	

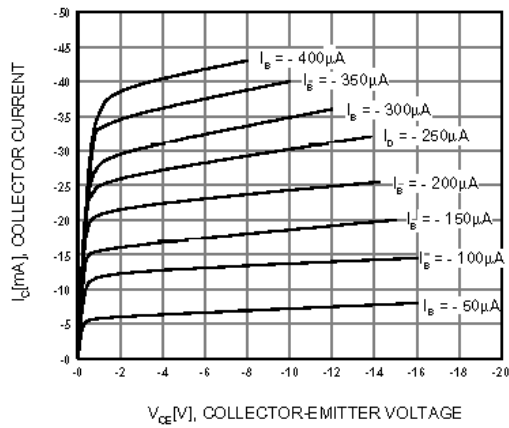


Figure 1. Static Characteristic

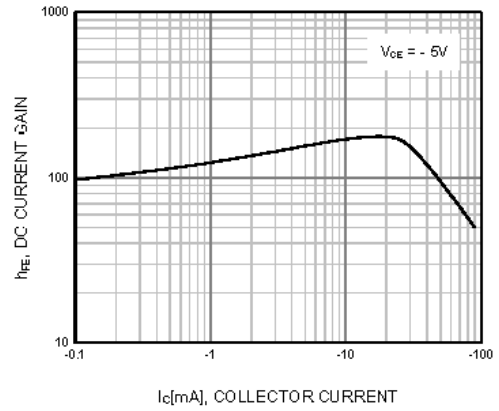


Figure 2. DC current Gain

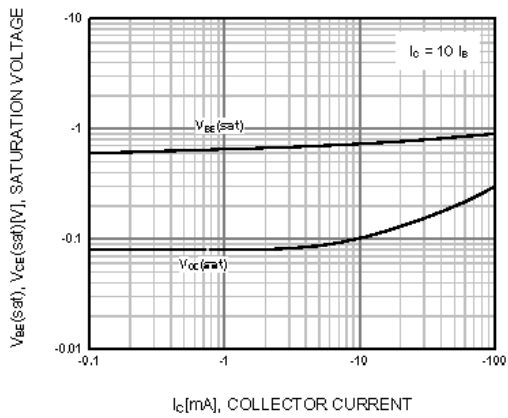


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

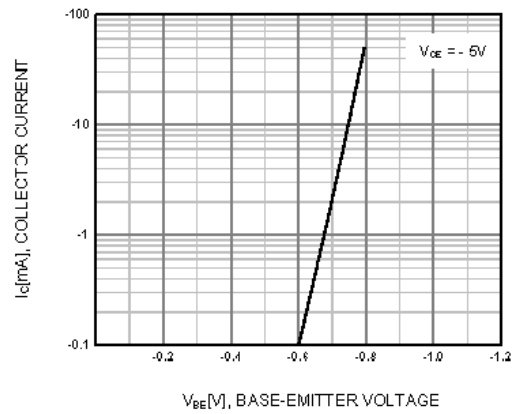


Figure 4. Base-Emitter On Voltage

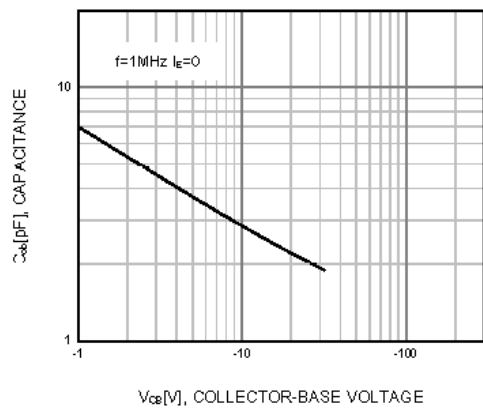


Figure 5. Collector Output Capacitance

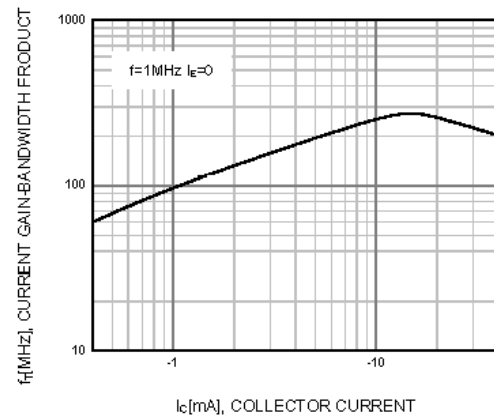


Figure 6. Current Gain Bandwidth Product

## **PACKAGE OUTLINE**

**Plastic surface mounted package; 3 leads**

**SOT-23**

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