Micro Commercial Components
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BC856A THRU BC858C

PNP Small Signal Transistor 310mW

Features

- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- For Switching and AF Amplifier Applications

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.008 grams (approx.)

Marking Code (Note 2)			
Type	**Marking**	**Type**	**Marking**
BC856A	3A	BC857C	3G
BC856B	3B	BC858A	3J
BC857A	3E	BC858B	3K
BC857B	3F	BC858C	3L

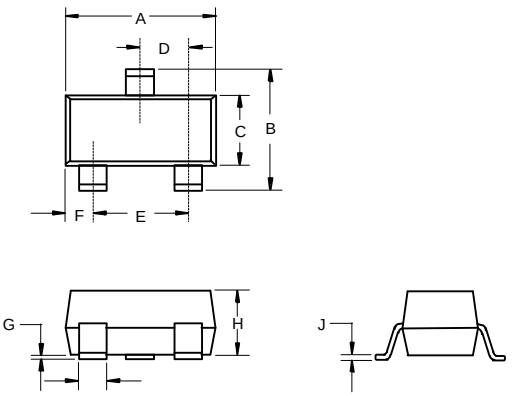
Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic		Symbol	Value	Unit
Collector-Base Voltage	BC856	V_{CBO}	-80	V
	BC857		-50	
	BC858		-30	
Collector-Emitter Voltage	BC856	V_{CEO}	-65	V
	BC857		-45	
	BC858		-30	
Emitter-Base Voltage		V_{EBO}	-5.0	V
Collector Current		I_C	-100	mA
Peak Collector Current		I_{CM}	-200	mA
Peak Emitter Current		I_{EM}	-200	mA
Power Dissipation@T_s=50°C(Note1)		P_d	310	mW
Operating & Storage Temperature		T_j, T_{STG}	-55~150	°C

Note: 1. Package mounted on ceramic substrate 0.7mm X 2.5cm² area.

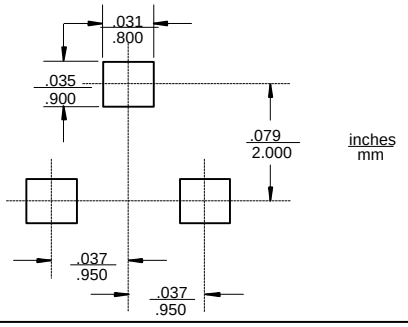
2. Current gain subgroup "C" is not available for BC856

SOT-23



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout



Electrical Characteristics @ T_A =25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 3)	BC856	$V_{(BR)CBO}$	-80	—	—	V	I_C = 10μA, I_B = 0
	BC857		-50	—	—		
	BC858		-30	—	—		
Collector-Emitter Breakdown Voltage (Note 3)	BC856	$V_{(BR)CEO}$	-65	—	—	V	I_C = 10mA, I_B = 0
	BC857		-45	—	—		
	BC858		-30	—	—		
Emitter-Base Breakdown Voltage (Note 3)		$V_{(BR)EBO}$	-5	—	—	V	I_E = 1μA, I_C = 0
H-Parameters							
Small Signal Current Gain	Current Gain Group A	h_{fe}	—	200	—	—	V_{CE} = -5.0V, I_C = -2.0mA, f = 1.0kHz
	B	h_{fe}	—	330	—	—	
	C	h_{fe}	—	600	—	—	
Input Impedance	Current Gain Group A	h_{ie}	—	2.7	—	kΩ	
	B	h_{ie}	—	4.5	—	kΩ	
	C	h_{ie}	—	8.7	—	kΩ	
Output Admittance	Current Gain Group A	h_{oe}	—	18	—	μS	
	B	h_{oe}	—	30	—	μS	
	C	h_{oe}	—	60	—	μS	
Reverse Voltage Transfer Ratio	Current Gain Group A	h_{re}	—	$1.5x10^{-4}$	—	—	
	B	h_{re}	—	$2x10^{-4}$	—	—	
	C	h_{re}	—	$3x10^{-4}$	—	—	
DC Current Gain (Note 3)	Current Gain Group A	h_{FE}	125	180	250	—	V_{CE} = -5.0V, I_C = -2.0mA
	B		220	290	475		
	C		420	520	800		
Thermal Resistance, Junction to Substrate Backside		$R_{\theta JSB}$	—	—	320	°C/W	Note 1
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	—	—	400	°C/W	Note 1
Collector-Emitter Saturation Voltage (Note 3)		$V_{CE(SAT)}$	—	-75	-300	mV	I_C = -10mA, I_B = -0.5mA
				-250	-650		I_C = -100mA, I_B = -5.0mA
Base-Emitter Saturation Voltage (Note 3)		$V_{BE(SAT)}$	—	-700	—	mV	I_C = -10mA, I_B = -0.5mA
			—	-850			I_C = -100mA, I_B = -5.0mA
Base-Emitter Voltage (Note 3)		$V_{BE(ON)}$	-600	-650	-750	mV	V_{CE} = -5.0V, I_C = -2.0mA
			—	—	-820		V_{CE} = -5.0V, I_C = -10mA
Collector-Cutoff Current (Note 3)	BC856	I_{CES}	—	—	-15	nA	V_{CE} = -80V
	BC857	I_{CES}	—	—	-15	nA	V_{CE} = -50V
	BC858	I_{CES}	—	—	-15	nA	V_{CE} = -30V
		I_{CBO}	—	—	-15	nA	V_{CB} = -30V
		I_{CBO}	—	—	-4.0	μA	V_{CB} = -30V, T_A = 150°C
Gain Bandwidth Product		f_T	100	200	—	MHz	V_{CE} = -5.0V, I_C = -10mA, f = 100MHz
Collector-Base Capacitance		C_{CBO}	—	3	—	pF	V_{CB} = -10V, f = 1.0MHz
Noise Figure		NF	—	2	10	dB	V_{CE} = -5.0V, I_C = 200μA, R_S = 2kΩ, f = 1kHz, Δf = 200Hz

Notes: 1. Package mounted on ceramic substrate 0.7mm x 2.5cm² area.
2. Current gain subgroup “C” is not available for BC856.
3. Short duration pulse test to minimize self-heating effect.