



Micro Commercial Components
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BC856A THRU BC858C

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

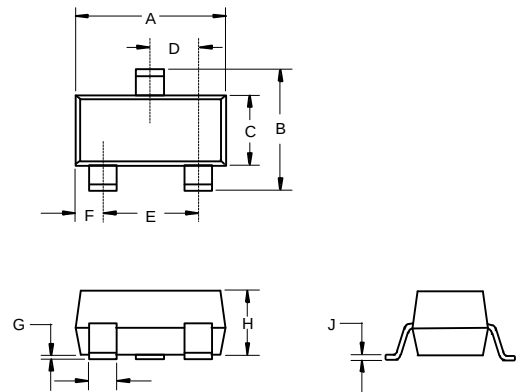
Maximum Ratings @ 25°C Unless Otherwise Specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	BC856 BC857 BC858	-80 -50 -30	V
Collector-Emitter Voltage	BC856 BC857 BC858	-65 -45 -30	V
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@ $T_s=50^\circ\text{C}$ (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

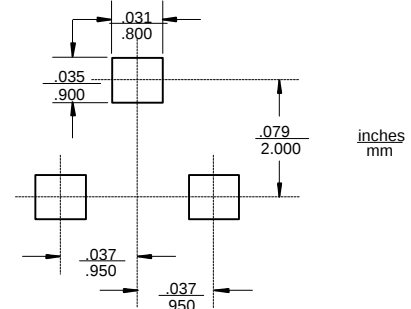
PNP Small Signal Transistor 310mW

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
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



BC856A thru BC858C



Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 3)	BC856 BC857 BC858	V _{(BR)CBO}	-80 -50 -30	— — —	— — —	V	I _C = 10μA, I _B = 0
Collector-Emitter Breakdown Voltage (Note 3)	BC856 BC857 BC858	V _{(BR)CEO}	-65 -45 -30	— — —	— — —	V	I _C = 10mA, I _B = 0
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		125	180	250	—	V _{CE} = -5.0V, I _C = -2.0mA
	B	h _{FE}	220	290	475	—	
	C	h _{FE}	420	520	800	—	
Thermal Resistance, Junction to Substrate Backside		R _{θJSB}	—	—	320	°C/W	Note 1
Thermal Resistance, Junction to Ambient		R _{θJA}	—	—	400	°C/W	Note 1
Collector-Emitter Saturation Voltage (Note 3)		V _{CE(SAT)}	—	-75 -250	-300 -650	mV	I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA
Base-Emitter Saturation Voltage (Note 3)		V _{BE(SAT)}	—	-700 -850	—	mV	I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA
Base-Emitter Voltage (Note 3)		V _{BE(ON)}	-600 —	-650 —	-750 -820	mV	V _{CE} = -5.0V, I _C = -2.0mA V _{CE} = -5.0V, I _C = -10mA
Collector-Cutoff Current (Note 3)	BC856 BC857 BC858	I _{CES} I _{CES} I _{CES} I _{CBO} I _{CBO}	— — — — —	— — — — —	-15 -15 -15 -15 -4.0	nA nA nA nA μA	V _{CE} = -80V V _{CE} = -50V V _{CE} = -30V V _{CB} = -30V 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.