

BC856A THRU BC858C

PNP Small Signal Transistor 310mW

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- For Switching and AF Amplifier Applications
- Halogen free available upon request by adding suffix "-HF"

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	-80	V
	BC857	-50	
	BC858	-30	
Collector-Emitter Voltage	BC856	-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@ $T_s=50^\circ\text{C}$ (Note1)	P_d	200	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					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	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 B C	h _{fe} h _{fe} h _{fe}	— — —	200 330 600	— — —	V _{CE} = -5.0V, I _C = -2.0mA, f = 1.0kHz	
Input Impedance	Current Gain Group A B C	h _{ie} h _{ie} h _{ie}	— — —	2.7 4.5 8.7	kΩ kΩ kΩ		
Output Admittance	Current Gain Group A B C	h _{oe} h _{oe} h _{oe}	— — —	18 30 60	μS μS μS		
Reverse Voltage Transfer Ratio	Current Gain Group A B C	h _{re} h _{re} h _{re}	— — —	1.5x10 ⁻⁴ 2x10 ⁻⁴ 3x10 ⁻⁴	— — —		
DC Current Gain (Note 3)	Current Gain Group A B C	h _{FE}	125 220 420	180 290 520	250 475 800		V _{CE} = -5.0V, I _C = -2.0mA
Thermal Resistance, Junction to Substrate Backside	R _{θJSB}	—	—	320	°C/W		Note 1
Thermal Resistance, Junction to Ambient	R _{θJA}	—	—	625	°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 _{CB0}	—	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.



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel; 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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