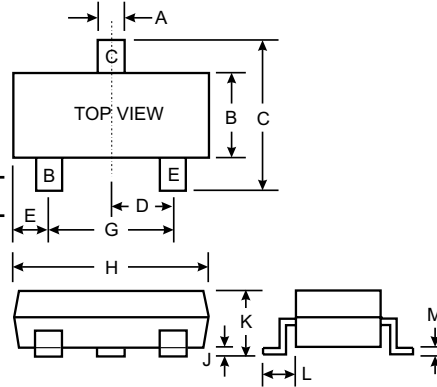


Features

- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (BC846-BC848)
- For Switching and AF Amplifier Applications

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Pin Connections and Marking Codes (See Table & Diagram)
- Approx. Weight: 0.008 grams



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Marking Code (Note 2)			
Type	Marking	Type	Marking
BC856A	3A, K3A	BC857C	3G, K3G
BC856B	3B, K3B	BC858A	3J, K3J, K3A, K3V
BC857A	3E, K3V, K3A	BC858B	3K, K3K, K3B, K3W
BC857B	3F, K3W, K3B	BC858C	3L, K3L, K3G

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	
Collector-Base Voltage	BC856 BC857 BC858	V _{CBO}	-80 -50 -30	V
Collector-Emitter Voltage	BC856 BC857 BC858	V _{CEO}	-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 at T _S = 50°C (Note 1)		P _d	310	mW
Operating and Storage Temperature Range		T _J , T _{STG}	-65 to +150	°C

- Notes: 1. Package mounted on ceramic substrate 0.7mm x 2.5cm² area.
2. Current gain subgroup "C" is not available for BC856.

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}	— — —	200 330 600	— — —	—	V _{CE} = -5.0V, I _C = -2.0mA, f = 1.0kHz	
Input Impedance	Current Gain Group A B C	h _{ie}	— — —	2.7 4.5 8.7	— — —	kΩ		
Output Admittance	Current Gain Group A B C	h _{oe}	— — —	18 30 60	— — —	μS		
Reverse Voltage Transfer Ratio	Current Gain Group A B C	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	—		
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.