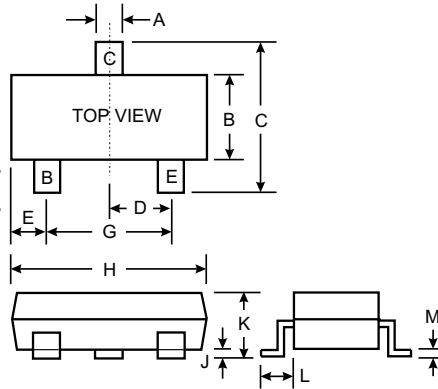


### Features

- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (BC846W-BC848W)
- For Switching and AF Amplifier Applications

### Mechanical Data

- Case: SOT-323, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Pin Connections and Marking Codes (See Table & Diagram)
- Approx. Weight: 0.006 grams



SOT-323		
Dim	Min	Max
A	0.30	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
All Dimensions in mm		

### Marking Code (Note 2)

Type	Marking	Type	Marking
BC856AW	K3A	BC857CW	K3G
BC856BW	K3B	BC858AW	K3J, K3A, K3V
BC857AW	K3V, K3A	BC858BW	K3K, K3B, K3W
BC857BW	K3W, K3B	BC858CW	K3L, K3G

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	
Collector-Base Voltage	BC856 BC857 BC858	V <sub>CB0</sub>	-80 -50 -30	V
Collector-Emitter Voltage	BC856 BC857 BC858	V <sub>CE0</sub>	-65 -45 -30	V
Emitter-Base Voltage		V <sub>EB0</sub>	-5.0	V
Collector Current		I <sub>C</sub>	-100	mA
Peak Collector Current		I <sub>CM</sub>	-200	mA
Peak Emitter Current		I <sub>EM</sub>	-200	mA
Power Dissipation (Note 1)		P <sub>d</sub>	200	mW
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

- Notes:
1. Package mounted on FR4 printed circuit board.
  2. Current gain subgroup "C" is not available for BC856W.

**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  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	$I_C = 10\mu\text{A}, I_B = 0$
Collector-Emitter Breakdown Voltage (Note 3)	BC856 BC857 BC858 $V_{(BR)CEO}$	-65 -45 -30	— — —	— — —	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage (Note 3)	$V_{(BR)EBO}$	-5	—	—	V	$I_E = 1\mu\text{A}, I_C = 0$
DC Current Gain (Note 3)	Current Gain Group A B C $h_{FE}$	125 220 420	180 290 520	250 475 800	—	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	—	—	625	$^\circ\text{C/W}$	Note 1
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	—	-75 -250	-300 -650	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage (Note 3)	$V_{BE(SAT)}$	—	-700 -850	— -950	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base-Emitter Voltage (Note 3)	$V_{BE(ON)}$	-600 —	-650 —	-750 -820	mV	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$ $V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$
Collector-Cutoff Current (Note 3)	$I_{CBO}$ $I_{CBO}$	— —	— —	-15 -4.0	nA $\mu\text{A}$	$V_{CB} = -30\text{V}$ $V_{CB} = -30\text{V}, T_A = 150^\circ\text{C}$
Gain Bandwidth Product	$f_T$	100	200	—	MHz	$V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$ , $f = 100\text{MHz}$
Collector-Base Capacitance	$C_{CBO}$	—	3	4.5	pF	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}$
Noise Figure	NF	—	—	10	dB	$V_{CE} = -5.0\text{V}, I_C = 200\mu\text{A}$ , $R_S = 2\text{k}\Omega, f = 1\text{kHz}$ , $\Delta f = 200\text{Hz}$

- Notes:
1. Package mounted on FR4 printed circuit board.
  2. Current gain subgroup "C" is not available for BC856W.
  3. Short duration pulse test to minimize self-heating effect.