



# BC856 SERIES

## PNP GENERAL PURPOSE TRANSISTORS

**VOLTAGE** 30/45/65 Volt **POWER** 330 mWatt

**SOT-23**

Unit : inch(mm)

### FEATURES

- General Purpose Amplifier Applications
- Collector Current  $I_C = -100\text{mA}$
- Complimentary (PNP) Devices : BC846/BC847/BC848/BC849 Series
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

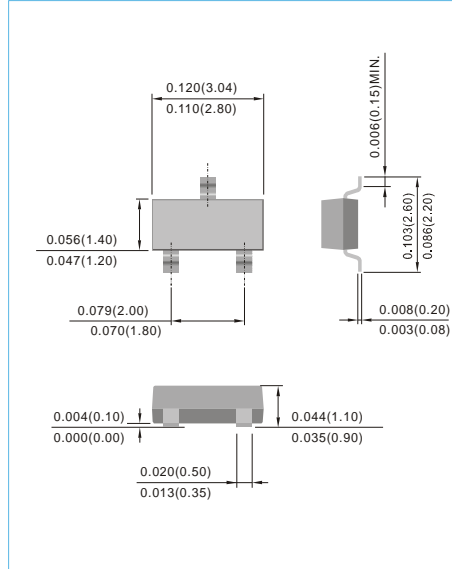
### MECHANICAL DATA

Case: SOT-23

Terminals: Solderable per MIL-STD-750, Method 2026

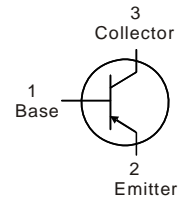
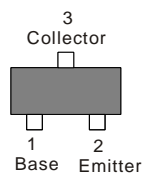
Approx. Weight: 0.0003 ounces, 0.008 grams

Marking:



| Device Marking: |            |            |            |
|-----------------|------------|------------|------------|
| BC856A=56A      | BC857A=57A | BC858A=58A |            |
| BC856B=56B      | BC857B=57B | BC858B=58B | BC859B=59B |
|                 | BC857C=57C | BC858C=58C | BC859C=59C |

Top View



### ABSOLUTE RATINGS

| Parameter  | Symbol          | BC856      | BC857 | BC858 | BC859 | Units                       |
|--|-----------------|------------|-------|-------|-------|-----------------------------|
| Collector - Emitter Voltage                      | $V_{CEO}$       | -65        | -45   | -30   |       | V                           |
| Collector - Base Voltage                         | $V_{CBO}$       | -80        | -50   | -30   |       | V                           |
| Emitter - Base Voltage                           | $V_{EBO}$       | -5         |       |       |       | V                           |
| Collector Current - Continuous                   | $I_C$           | -100       |       |       |       | mA                          |
| Peak Collector Current                           | $I_{CM}$        | -200       |       |       |       | mA                          |
| Max Power Dissipation (Note1)                    | $P_{TOT}$       | 330        |       |       |       | mW                          |
| Typical Thermal Resistance, Junction to Ambient  | $R_{\theta JA}$ | 375        |       |       |       | $^{\circ}\text{C}/\text{W}$ |
| Operating Junction and Storage Temperature Range | $T_J, T_{STG}$  | -50 to 150 |       |       |       | $^{\circ}\text{C}$          |

NOTES :

1. Transistor mounted on FR-4 board  $8\text{ cm}^2$ .



# BC856 SERIES

## ELECTRICAL CHARACTERISTICS

| Parameter  | Symbol        | Test Condition  | MIN.              | TYP.              | MAX.              | Units         |
|--|---------------|---|-------------------|-------------------|-------------------|---------------|
| Collector - Emitter Breakdown Voltage<br>BC856A,B<br>BC857A,B,C<br>BC858A,B,C,BC859B,C         | $V_{(BR)CEO}$ | $I_C = -10mA, I_B = 0$  | -65<br>-45<br>-30 | -                 | -                 | V             |
| Collector - Base Breakdown Voltage<br>BC856A,B<br>BC857A,B,C<br>BC858A,B,C,BC859B,C            | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0$   | -80<br>-50<br>-30 | -                 | -                 | V             |
| Emitter - Base Breakdown Voltage   | $V_{(BR)EBO}$ | $I_E = -1\mu A, I_C = 0$  | -5                | -                 | -                 | V             |
| Emitter-Base Cutoff Current  | $I_{EBO}$     | $V_{EB} = -5V$  | -                 | -                 | -100              | nA            |
| Collector-Base Cutoff Current  | $I_{CBO}$     | $V_{CB} = -30V, I_E = 0$<br>$V_{CB} = -30V, I_E = 0, T_J = 150^\circ C$ | -                 | -                 | -15<br>-4         | nA<br>$\mu A$ |
| DC Current Gain<br>BC856A,BC857A,BC858A<br>BC856B,BC857B,BC858B,BC859B<br>BC857C,BC858C,BC859C | $h_{FE}$      | $I_C = -10\mu A, V_{CE} = -5V$  | -                 | 90<br>150<br>270  | -                 | -             |
| DC Current Gain<br>BC856A,BC857A,BC858A<br>BC856B,BC857B,BC858B,BC859B<br>BC857C,BC858C,BC859C | $h_{FE}$      | $I_C = -2mA, V_{CE} = -5V$  | 110<br>220<br>420 | 180<br>290<br>520 | 220<br>475<br>800 | -             |
| Collector - Emitter Saturation Voltage   | $V_{CE(SAT)}$ | $I_C = -10mA, I_B = -0.5mA$<br>$I_C = -100mA, I_B = -5mA$               | -                 | -                 | -0.3<br>-0.65     | V             |
| Base - Emitter Saturation Voltage  | $V_{BE(SAT)}$ | $I_C = -10mA, I_B = -0.5mA$<br>$I_C = -100mA, I_B = -5mA$               | -                 | -0.7<br>-0.9      | -                 | V             |
| Base - Emitter On Voltage  | $V_{BE(ON)}$  | $I_C = -2mA, V_{CE} = -5V$<br>$I_C = -10mA, V_{CE} = -5V$               | -0.6<br>-         | -<br>-            | -0.75<br>-0.82    | V             |
| Collector - Base Capacitance   | $C_{CB}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$                                      | -                 | -                 | 4.5               | pF            |
| Current-Gain-Bandwidth Product   | $F_T$         | $I_C = -10mA, V_{CE} = -5V, f = 100MHz$                                 | -                 | 200               | -                 | MHz           |



# BC856 SERIES

## ELECTRICAL CHARACTERISTICS CURVES

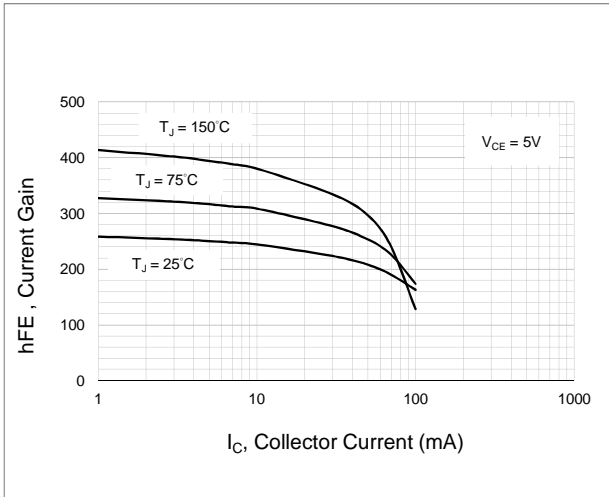


Fig.1- TYPICAL  $h_{FE}$  vs. Collector Current

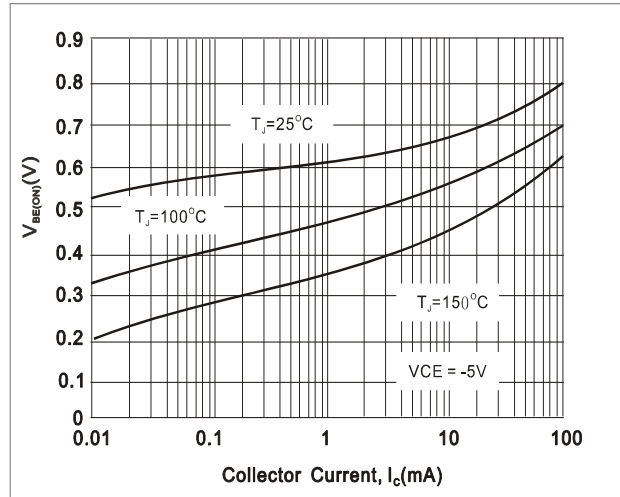


Fig.2- TYPICAL  $V_{BE(ON)}$  vs. Collector Current

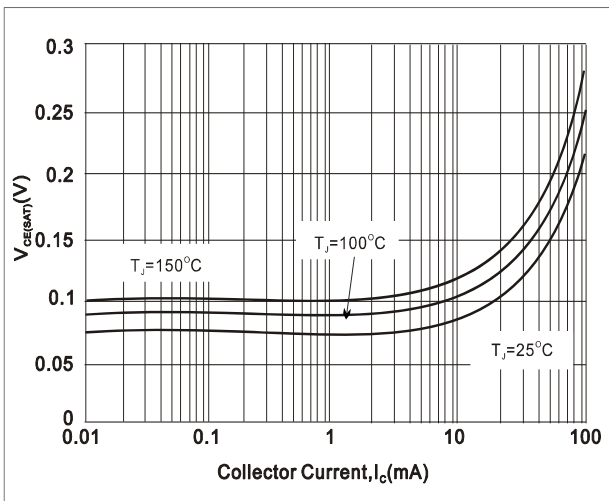


Fig.3- TYPICAL  $V_{CE(SAT)}$  vs. Collector Current

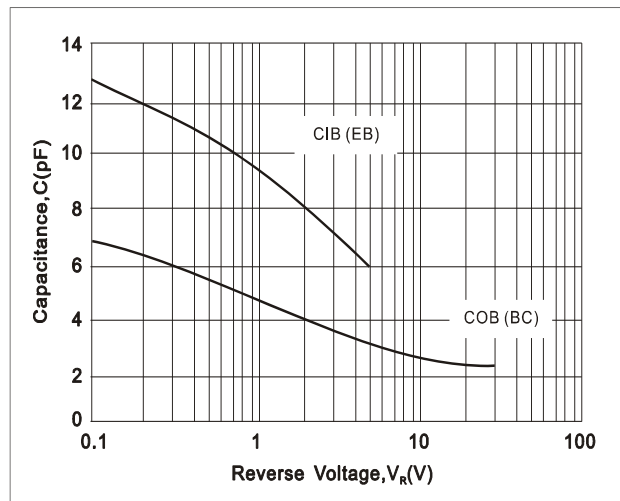


Fig.4- TYPICAL CAPACITANCES vs. REVERSE VOLTAGE



# BC856 SERIES

## PART NO. PACKING CODE VERSION

| Part No. Packing Code | Package Type | Packing Type       | Marking | Version      |
|-----------------------|--------------|--------------------|---------|--------------|
| BC856A_R1_00001       | SOT-23       | 3K pcs / 7" reel   | 56A     | Halogen free |
| BC856A_R2_00001       | SOT-23       | 12K pcs / 13" reel | 56A     | Halogen free |

## MOUNTING PAD LAYOUT

**SOT-23**

Unit : inch(mm)

