

**BC856W SERIES  
BC857W SERIES**

**SURFACE MOUNT  
PNP SILICON TRANSISTOR**

**SUPERmini™**



**SOT-323 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR BC856W and BC857W Series types are PNP Silicon Transistors manufactured by the epitaxial planar process, epoxy molded in a SUPERmini™ surface mount package, designed for general purpose switching and amplifier applications.

**MARKING CODE: SEE MARKING CODE TABLE ON FOLLOWING PAGE**

Note: Reverse Lead Codes Available, Add "R" to the end of the Part # and Marking Code.

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

|  |
|--|
| Collector-Base Voltage                     |
| Collector-Emitter Voltage                  |
| Emitter-Base Voltage                       |
| Continuous Collector Current               |
| Peak Collector Current                     |
| Peak Base Current                          |
| Power Dissipation                          |
| Operating and Storage Junction Temperature |
| Thermal Resistance                         |

| SYMBOL         | BC857W | BC856W      | UNITS              |
|----------------|--------|-------------|--------------------|
| $V_{CB0}$      | 50     | 80          | V                  |
| $V_{CEO}$      | 45     | 65          | V                  |
| $V_{EBO}$      |        | 5.0         | V                  |
| $I_C$          |        | 100         | mA                 |
| $I_{CM}$       |        | 200         | mA                 |
| $I_{BM}$       |        | 200         | mA                 |
| $P_D$          |        | 275         | mW                 |
| $T_J, T_{stg}$ |        | -65 to +150 | $^\circ\text{C}$   |
| $\theta_{JA}$  |        | 455         | $^\circ\text{C/W}$ |

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL        | TEST CONDITIONS   | MIN  | MAX  | UNITS         |
|---------------|---|------|------|---------------|
| $I_{CBO}$     | $V_{CB}=30\text{V}$   |      | 15   | nA            |
| $I_{CBO}$     | $V_{CB}=30\text{V}, T_A=150^\circ\text{C}$  |      | 4.0  | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=5.0\text{V}$  |      | 100  | nA            |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (BC857W)  | 50   |      | V             |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (BC856W)  | 80   |      | V             |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (BC857W)  | 45   |      | V             |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (BC856W)  | 65   |      | V             |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$   | 5.0  |      | V             |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$   |      | 0.30 | V             |
| $V_{CE(SAT)}$ | $I_C=100\text{mA}, I_B=5.0\text{mA}$  |      | 0.65 | V             |
| $V_{BE(SAT)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$  |      | 0.95 | V             |
| $V_{BE(ON)}$  | $I_C=2.0\text{mA}, V_{CE}=5.0\text{V}$  | 0.60 | 0.75 | V             |
| $V_{BE(ON)}$  | $I_C=10\text{mA}, V_{CE}=5.0\text{V}$   |      | 0.82 | V             |
| $C_{ib}$      | $V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$  |      | 12   | pF            |
| $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$   |      | 5.0  | pF            |
| $f_T$         | $V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$  | 100  |      | MHz           |
| NF            | $V_{CE}=5.0\text{V}, I_C=200\mu\text{A}, R_S=2.0\text{K}\Omega, f=1.0\text{KHz}, BW=200\text{Hz}$ |      | 10   | dB            |

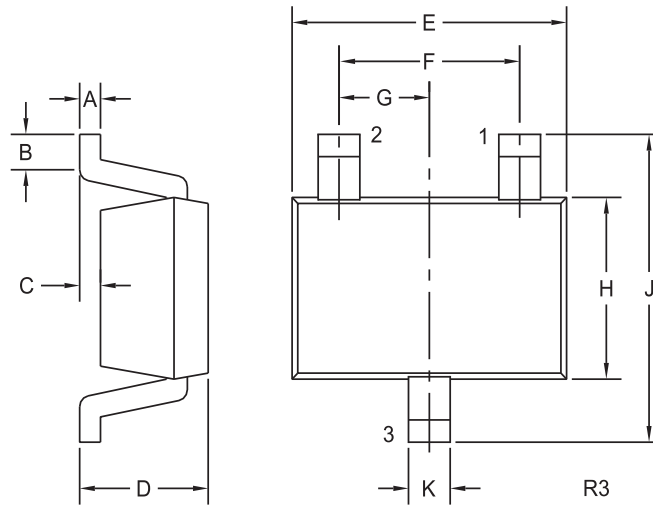
|          | TEST CONDITIONS                        | BC856AW |     | BC856BW |     | BC857CW |     |
|----------|--|---------|-----|---------|-----|---------|-----|
|          |  | MIN     | MAX | MIN     | MAX | MIN     | MAX |
| $h_{FE}$ | $V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$ | 125     | 250 | 220     | 475 | 420     | 800 |

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**SOT-323 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

|              |              |
|--------------|--------------|
| STANDARD     | *REVERSE     |
| 1) BASE      | 1) EMITTER   |
| 2) EMITTER   | 2) BASE      |
| 3) COLLECTOR | 3) COLLECTOR |

| DEVICE  | MARKING CODE |
|---------|--------------|
| BC856AW | 3AT          |
| BC856BW | 3BT          |
| BC857AW | 3ET          |
| BC857BW | 3FT          |
| BC857CW | 3GT          |

| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.002      | 0.008 | 0.05        | 0.20 |
| B      | 0.004      | -     | 0.10        | -    |
| C      | -          | 0.004 | -           | 0.10 |
| D      | 0.031      | 0.043 | 0.80        | 1.10 |
| E      | 0.071      | 0.087 | 1.80        | 2.20 |
| F      | 0.051      |       | 1.30        |      |
| G      | 0.026      |       | 0.65        |      |
| H      | 0.045      | 0.053 | 1.15        | 1.35 |
| J      | 0.079      | 0.087 | 2.00        | 2.20 |
| K      | 0.008      | 0.016 | 0.20        | 0.40 |

SOT-323 (REV: R3)

\* Reverse Lead Codes Available, Add "R" to the end of the Part # and Marking Code.

R1 (20-November 2009)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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