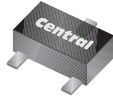


BC846T SERIES  
BC847T SERIES

SURFACE MOUNT  
NPN SILICON TRANSISTOR

ULTRAmini™



SOT-523 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BC846T and BC847T Series types are NPN Silicon Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for general purpose switching and amplifier applications.

MARKING CODE: SEE MARKING CODE TABLE  
ON FOLLOWING PAGE

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         | BC847T | BC846T      | UNITS              |
|----------------|--------|-------------|--------------------|
| $V_{CB0}$      | 50     | 80          | V                  |
| $V_{CEO}$      | 45     | 65          | V                  |
| $V_{EBO}$      |        | 5.0         | V                  |
| $I_C$          |        | 100         | mA                 |
| $I_{CM}$       |        | 200         | mA                 |
| $I_{BM}$       |        | 100         | mA                 |
| $P_D$          |        | 250         | mW                 |
| $T_J, T_{stg}$ |        | -65 to +150 | $^\circ\text{C}$   |
| $\theta_{JA}$  |        | 500         | $^\circ\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS                                                                                   | MIN            | TYP | MAX            | UNITS         |
|---------------|---------------------------------------------------------------------------------------------------|----------------|-----|----------------|---------------|
| $I_{CBO}$     | $V_{CB}=30\text{V}$                                                                               |                |     | 15             | nA            |
| $I_{CBO}$     | $V_{CB}=30\text{V}, T_A=150^\circ\text{C}$                                                        |                |     | 5.0            | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=5.0\text{V}$                                                                              |                |     | 100            | nA            |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (BC847T)                                                                      | 50             |     |                | V             |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (BC846T)                                                                      | 80             |     |                | V             |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (BC847T)                                                                        | 45             |     |                | V             |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (BC846T)                                                                        | 65             |     |                | V             |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$                                                                               | 5.0            |     |                | V             |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$                                                               |                |     | 0.20           | V             |
| $V_{CE(SAT)}$ | $I_C=100\text{mA}, I_B=5.0\text{mA}$                                                              |                |     | 0.40           | V             |
| $V_{BE(ON)}$  | $I_C=2.0\text{mA}, V_{CE}=5.0\text{V}$                                                            | 0.58           |     | 0.70           | V             |
| $V_{BE(ON)}$  | $I_C=10\text{mA}, V_{CE}=5.0\text{V}$                                                             |                |     | 0.77           | V             |
| $f_T$         | $V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$                                            | 100            |     |                | MHz           |
| $C_c$         | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$                                                       |                |     | 1.5            | pF            |
| $C_e$         | $V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$                                                      |                | 11  |                | pF            |
| 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            |
|               |                                                                                                   |                |     |                |               |
|               |                                                                                                   | <u>BC846AT</u> |     | <u>BC846BT</u> |               |
|               |                                                                                                   | <u>BC847AT</u> |     | <u>BC847BT</u> |               |
|               |                                                                                                   | MIN            | MAX | MIN            | MAX           |
| $h_{FE}$      | $V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$                                                            | 110            | 220 | 200            | 450           |
|               |                                                                                                   |                |     | <u>BC847CT</u> |               |
|               |                                                                                                   |                |     | MIN            | MAX           |
|               |                                                                                                   |                |     | 420            | 800           |

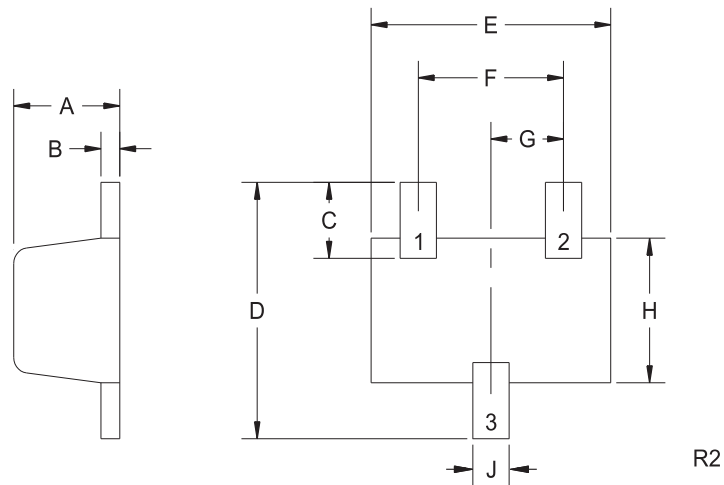
BC846T SERIES  
BC847T SERIES

SURFACE MOUNT  
NPN SILICON TRANSISTOR



SOT-523 CASE - MECHANICAL OUTLINE

BOTTOM VIEW



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

| DEVICE  | MARKING CODE |
|---------|--------------|
| BC846AT | GT1          |
| BC846BT | GT2          |
| BC847AT | GT3          |
| BC847BT | GT4          |
| BC847CT | GT5          |

| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | INCHES |       | MILLIMETERS |      |
|            | MIN    | MAX   | MIN         | MAX  |
| A          | 0.023  | 0.031 | 0.58        | 0.78 |
| B          | 0.002  | 0.008 | 0.04        | 0.20 |
| C          | 0.013  | 0.021 | 0.34        | 0.54 |
| D          | 0.059  | 0.067 | 1.50        | 1.70 |
| E          | 0.059  | 0.067 | 1.50        | 1.70 |
| F          | 0.035  | 0.043 | 0.90        | 1.10 |
| G          | 0.020  |       | 0.50        |      |
| H          | 0.031  | 0.039 | 0.78        | 0.98 |
| J          | 0.010  | 0.014 | 0.25        | 0.35 |

SOT-523 (REV: R2)

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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