

# Central<sup>TM</sup> Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

BC140 SERIES  
BC141 SERIES

NPN SILICON TRANSISTOR

JEDEC TO-39 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR BC140 and BC141 series types are NPN Silicon Transistors designed for general purpose switching and amplifier applications.

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

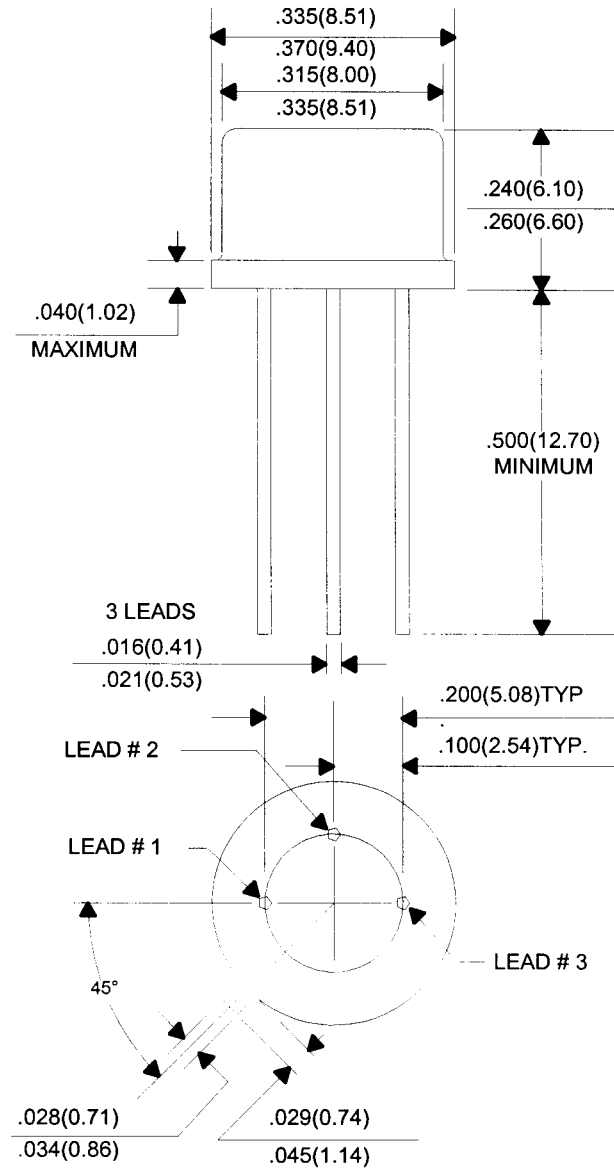
|                                              | SYMBOL         | BC140       | BC141 | UNITS              |
|----------------------------------------------|----------------|-------------|-------|--------------------|
| Collector-Base Voltage                       | $V_{CBO}$      | 80          | 100   | V                  |
| Collector-Emitter Voltage                    | $V_{CEO}$      | 40          | 60    | V                  |
| Emitter-Base Voltage                         | $V_{EBO}$      |             | 7.0   | V                  |
| Collector Current                            | $I_C$          |             | 1.0   | A                  |
| Collector Current (Peak)                     | $I_{CM}$       |             | 1.5   | A                  |
| Base Current (Peak)                          | $I_{BM}$       |             | 200   | mA                 |
| Power Dissipation                            | $P_D$          |             | 0.8   | W                  |
| Power Dissipation ( $T_C=45^\circ\text{C}$ ) | $P_D$          |             | 3.7   | W                  |
| Operating and Storage                        |                |             |       |                    |
| Junction Temperature                         | $T_J, T_{stg}$ | -65 to +200 |       | $^\circ\text{C}$   |
| Thermal Resistance                           | $\Theta_{JA}$  |             | 219   | $^\circ\text{C/W}$ |
| Thermal Resistance                           | $\Theta_{JC}$  |             | 42    | $^\circ\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS                                               | MIN | TYP | MAX | UNITS         |
|---------------|---------------------------------------------------------------|-----|-----|-----|---------------|
| $I_{CBO}$     | $V_{CB}=60\text{V}$                                           |     |     | 100 | nA            |
| $I_{CBO}$     | $V_{CB}=60\text{V}, T_A=150^\circ\text{C}$                    |     |     | 100 | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=5.0\text{V}$                                          |     |     | 100 | nA            |
| $V_{CE(SAT)}$ | $I_C=1.0\text{A}, I_B=100\text{mA}$                           |     |     | 1.0 | V             |
| $V_{BE(ON)}$  | $V_{CE}=1.0\text{V}, I_C=1.0\text{A}$                         |     |     | 1.8 | V             |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=100\mu\text{A}$ (BC140-10, BC141-10) | 50  | 100 |     |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=100\mu\text{A}$ (BC140-16, BC141-16) | 100 | 205 |     |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=100\text{mA}$ (BC140-10, BC141-10)   | 63  | 110 | 160 |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=100\text{mA}$ (BC140-16, BC141-16)   | 100 | 195 | 250 |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=1.0\text{A}$ (BC140-10, BC141-10)    | 10  | 30  |     |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=1.0\text{A}$ (BC140-16, BC141-16)    | 15  | 35  |     |               |
| $f_T$         | $V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$         | 50  |     |     | MHz           |
| $C_c$         | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$                   |     |     | 25  | pF            |
| $C_e$         | $V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$                  |     |     | 80  | pF            |
| $t_{on}$      | $I_C=100\text{mA}, I_{B1}=I_{B2}=5.0\text{mA}$                |     |     | 250 | ns            |
| $t_{off}$     | $I_C=100\text{mA}, I_{B1}=I_{B2}=5.0\text{mA}$                |     |     | 850 | ns            |

(See Reverse Side)

## JEDEC TO-39 CASE - MECHANICAL OUTLINE



All Dimensions in Inches (mm).

Lead Code:

1. Emitter
2. Base
3. Collector

**Central<sup>TM</sup>**  
**Semiconductor Corp.**