

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

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Manufacturers of World Class Discrete Semiconductors

2N3734

2N3735

NPN SILICON TRANSISTORS

JEDEC TO-39 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N3734, 2N3735 types are Silicon NPN Transistors in a hermetically sealed case designed for core driver and high speed switching applications.

## MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

|                                               | SYMBOL                            | 2N3734      | 2N3735 | UNIT |
|-----------------------------------------------|-----------------------------------|-------------|--------|------|
| Collector-Base Voltage                        | V <sub>CB0</sub>                  | 50          | 75     | V    |
| Collector-Emitter Voltage                     | V <sub>CE0</sub>                  | 30          | 50     | V    |
| Emitter-Base Voltage                          | V <sub>EB0</sub>                  | 5.0         | 5.0    | V    |
| Collector Current                             | I <sub>C</sub>                    | 1.5         | 1.5    | A    |
| Power Dissipation                             | P <sub>D</sub>                    | 1.0         | 1.0    | W    |
| Power Dissipation (T <sub>C</sub> =25°C)      | P <sub>D</sub>                    | 4.0         | 4.0    | W    |
| Operating and Storage<br>Junction Temperature | T <sub>J</sub> , T <sub>stg</sub> | -65 TO +200 |        | °C   |
| Thermal Resistance                            | θ <sub>JA</sub>                   | 175         | 175    | °C/W |
| Thermal Resistance                            | θ <sub>JC</sub>                   | 43.75       | 43.75  | °C/W |

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

| SYMBOL                | TEST CONDITIONS                                                                                | 2N3734 |     | 2N3735 |     | UNIT |
|-----------------------|------------------------------------------------------------------------------------------------|--------|-----|--------|-----|------|
|                       |                                                                                                | MIN    | MAX | MIN    | MAX |      |
| I <sub>CEV</sub>      | V <sub>CE</sub> =25V, V <sub>EB</sub> =2.0V                                                    |        | 200 | -      | -   | nA   |
| I <sub>CEV</sub>      | V <sub>CE</sub> =25V, V <sub>EB</sub> =2.0V, T <sub>A</sub> =100°C                             |        | 20  | -      | -   | μA   |
| I <sub>CEV</sub>      | V <sub>CE</sub> =40V, V <sub>EB</sub> =2.0V                                                    |        | -   | 200    | -   | nA   |
| I <sub>CEV</sub>      | V <sub>CE</sub> =40V, V <sub>EB</sub> =2.0V, T <sub>A</sub> =100°C                             |        | -   | 20     | -   | μA   |
| I <sub>BL</sub>       | V <sub>CE</sub> =25V, V <sub>EB</sub> =2.0V                                                    |        | 300 | -      | -   | nA   |
| I <sub>BL</sub>       | V <sub>CE</sub> =40V, V <sub>EB</sub> =2.0V                                                    |        | -   | 300    | -   | nA   |
| BV <sub>CB0</sub>     | I <sub>C</sub> =10μA                                                                           | 50     |     | 75     |     | V    |
| BV <sub>CE0</sub>     | I <sub>C</sub> =10mA                                                                           | 30     |     | 50     |     | V    |
| BV <sub>EB0</sub>     | I <sub>E</sub> =10μA                                                                           | 5.0    |     | 5.0    |     | V    |
| V <sub>CE</sub> (SAT) | I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA                                                    |        | 0.2 | 0.2    |     | V    |
| V <sub>CE</sub> (SAT) | I <sub>C</sub> =150mA, I <sub>B</sub> =15mA                                                    |        | 0.3 | 0.3    |     | V    |
| V <sub>CE</sub> (SAT) | I <sub>C</sub> =500mA, I <sub>B</sub> =50mA                                                    |        | 0.5 | 0.5    |     | V    |
| V <sub>CE</sub> (SAT) | I <sub>C</sub> =1.0A, I <sub>B</sub> =100mA                                                    |        | 0.9 | 0.9    |     | V    |
| V <sub>BE</sub> (SAT) | I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA                                                    |        | 0.8 | 0.8    |     | V    |
| V <sub>BE</sub> (SAT) | I <sub>C</sub> =150mA, I <sub>B</sub> =15mA                                                    |        | 1.0 | 1.0    |     | V    |
| V <sub>BE</sub> (SAT) | I <sub>C</sub> =500mA, I <sub>B</sub> =50mA                                                    |        | 1.2 | 1.2    |     | V    |
| V <sub>BE</sub> (SAT) | I <sub>C</sub> =1.0A, I <sub>B</sub> =100mA                                                    | 0.9    | 1.4 | 0.9    | 1.4 | V    |
| h <sub>FE</sub>       | V <sub>CE</sub> =1.0V, I <sub>C</sub> =10mA                                                    | 35     |     | 35     |     |      |
| h <sub>FE</sub>       | V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA                                                   | 40     |     | 40     |     |      |
| h <sub>FE</sub>       | V <sub>CE</sub> =1.0V, I <sub>C</sub> =500mA                                                   | 35     |     | 35     |     |      |
| h <sub>FE</sub>       | V <sub>CE</sub> =1.5V, I <sub>C</sub> =1.0A                                                    | 30     | 120 | 20     | 80  |      |
| h <sub>FE</sub>       | V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.5A                                                    | 30     |     | 20     |     |      |
| f <sub>T</sub>        | V <sub>CE</sub> =10V, I <sub>C</sub> =50mA, f=100MHz                                           | 250    |     | 250    |     | MHz  |
| C <sub>ob</sub>       | V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=100kHz                                              |        | 9.0 |        | 9.0 | pF   |
| C <sub>ib</sub>       | V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=100kHz                                             |        | 80  |        | 80  | pF   |
| t <sub>on</sub>       | V <sub>CC</sub> =30V, V <sub>BE</sub> (OFF)=2.0V, I <sub>C</sub> =1.0A, I <sub>B1</sub> =100mA |        | 48  |        | 48  | ns   |
| t <sub>off</sub>      | V <sub>CC</sub> =30V, I <sub>C</sub> =1.0A, I <sub>B1</sub> =I <sub>B2</sub> =100mA            |        | 60  |        | 60  | ns   |
| Q <sub>T</sub>        | V <sub>CC</sub> =30V, I <sub>C</sub> =1.0A, I <sub>B</sub> =100mA                              |        | 10  |        | 10  | nC   |