

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

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Manufacturers of World Class Discrete Semiconductors

PN4354  
PN4355  
PN4356

PNP SILICON TRANSISTOR

JEDEC TO-92 CASE (EBC)

## DESCRIPTION

The CENTRAL SEMICONDUCTOR PN4354 series types are Epitaxial Planar Epoxy Molded Silicon PNP Transistors designed for general purpose amplifier and switching applications.

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

|                           | SYMBOL                            | PN4354<br>PN4355 | PN4356 | UNITS |
|---------------------------|-----------------------------------|------------------|--------|-------|
| Collector-Base Voltage    | V <sub>CBO</sub>                  | 60               | 80     | V     |
| Collector-Emitter Voltage | V <sub>CEO</sub>                  | 60               | 80     | V     |
| Emitter-Base Voltage      | V <sub>EBO</sub>                  | 5.0              | 5.0    | V     |
| Collector Current         | I <sub>C</sub>                    | 500              | 500    | mA    |
| Power Dissipation         | P <sub>D</sub>                    | 625              | 625    | mW    |
| Operating and Storage     |                                   |                  |        |       |
| Junction Temperature      | T <sub>J</sub> , T <sub>stg</sub> | -65 to +150      |        | °C    |
| Thermal Resistance        | θ <sub>JA</sub>                   | 200              |        | °C/W  |

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

| SYMBOL               | TEST CONDITIONS                                | PN4354 |      | PN4355 |      | PN4356 |      | UNITS |
|----------------------|------------------------------------------------|--------|------|--------|------|--------|------|-------|
|                      |                                                | MIN    | MAX  | MIN    | MAX  | MIN    | MAX  |       |
| I <sub>CBO</sub>     | V <sub>CB</sub> = 50V                          |        | 50   |        | 50   |        | 50   | nA    |
| I <sub>CBO</sub>     | V <sub>CB</sub> = 50V, T <sub>A</sub> = 75°C   |        | 5.0  |        | 5.0  |        | 5.0  | μA    |
| I <sub>EBO</sub>     | V <sub>BE</sub> = 4.0V                         |        | 100  |        | 100  |        | 100  | nA    |
| BV <sub>CBO</sub>    | I <sub>C</sub> = 10μA                          | 60     |      | 60     |      | 80     |      | V     |
| BV <sub>CEO</sub>    | I <sub>C</sub> = 10mA                          | 60     |      | 60     |      | 80     |      | V     |
| BV <sub>EBO</sub>    | I <sub>C</sub> = 10μA                          | 5.0    |      | 5.0    |      | 5.0    |      | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA  |        | 0.15 |        | 0.15 |        | 0.15 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA  |        | 0.5  |        | 0.5  |        | 0.5  | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> = 1.0A, I <sub>B</sub> = 100mA  |        | -    |        | 1.0  |        | -    | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA  |        | 0.9  |        | 0.9  |        | 0.9  | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA  |        | 1.1  |        | 1.1  |        | 1.1  | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> = 1.0A, I <sub>B</sub> = 100mA  |        | -    |        | 1.2  |        | -    | V     |
| V <sub>BE(ON)</sub>  | V <sub>CE</sub> = 0.5V, I <sub>C</sub> = 500mA |        | 1.1  |        | 1.1  |        | 1.1  | V     |
| V <sub>BE(ON)</sub>  | V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 1.0A  |        | -    |        | 1.2  |        | -    | V     |

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

| <u>SYMBOL</u> | <u>TEST CONDITIONS</u>                                                                                                 | <u>PN4354</u> |            | <u>PN4355</u> |            | <u>PN4356</u> |            | <u>UNITS</u> |
|---------------|------------------------------------------------------------------------------------------------------------------------|---------------|------------|---------------|------------|---------------|------------|--------------|
|               |                                                                                                                        | <u>MIN</u>    | <u>MAX</u> | <u>MIN</u>    | <u>MAX</u> | <u>MIN</u>    | <u>MAX</u> |              |
| $h_{FE}$      | $V_{CE} = 10\text{V}, I_C = 100\mu\text{A}$                                                                            | 25            |            | 60            |            | 25            |            |              |
| $h_{FE}$      | $V_{CE} = 10\text{V}, I_C = 1.0\text{mA}$                                                                              | 40            |            | 75            |            | 40            |            |              |
| $h_{FE}$      | $V_{CE} = 10\text{V}, I_C = 10\text{mA}$                                                                               | 50            | 500        | 100           | 400        | 50            | 250        |              |
| $h_{FE}$      | $V_{CE} = 10\text{V}, I_C = 100\text{mA}$                                                                              | 40            |            | 75            |            | 40            |            |              |
| $h_{FE}$      | $V_{CE} = 10\text{V}, I_C = 500\text{mA}$                                                                              | 30            |            | 75            |            | 30            |            |              |
| $f_T$         | $V_{CE} = 10\text{V}, I_C = 50\text{mA},$<br>$f = 100\text{MHz}$                                                       | 100           | 500        | 100           | 500        | 100           | 500        | MHz          |
| $C_{ob}$      | $V_{CB} = 10\text{V}, I_E = 0,$<br>$f = 1.0\text{MHz}$                                                                 |               | 30         |               | 30         |               | 30         | pF           |
| $C_{ib}$      | $V_{CB} = 0.5\text{V}, I_C = 0,$<br>$f = 1.0\text{MHz}$                                                                |               | 110        |               | 110        |               | 110        | pF           |
| $t_{on}$      | $V_{CC} = 30\text{V}, I_C = 500\text{mA},$<br>$I_{B1} = 50\text{mA}$                                                   |               | 100        |               | 100        |               | 100        | ns           |
| $t_{off}$     | $V_{CC} = 30\text{V}, I_C = 500\text{mA},$<br>$I_{B1} = I_{B2} = 50\text{mA}$                                          |               | 400        |               | 400        |               | 400        | ns           |
| NF            | $V_{CE} = 10\text{V}, I_C = 100\mu\text{A}, R_S = 1.0\text{k}\Omega,$<br>$f = 1.0\text{kHz}, \text{BW} = 1.0\text{Hz}$ |               | 3.0        |               | 3.0        |               | 3.0        | dB           |

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