

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

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Manufacturers of World Class Discrete Semiconductors

2N5490  
2N5492  
2N5494  
2N5496

NPN SILICON POWER TRANSISTORS  
JEDEC TO-220AB CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5490 series types are Silicon NPN Power Transistors designed for medium power and amplifier applications.

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

|  | SYMBOL         | 2N5490<br>2N5494 | 2N5492      | 2N5496 | UNIT                        |
|--|----------------|------------------|-------------|--------|-----------------------------|
| Collector-Base Voltage                             | $V_{CB0}$      | 60               | 75          | 90     | V                           |
| Collector-Emitter Voltage ( $V_{BE}=1.5\text{V}$ ) | $V_{CEV}$      | 60               | 75          | 90     | V                           |
| Collector-Emitter Voltage ( $R_{BE}=100\Omega$ )   | $V_{CER}$      | 50               | 65          | 80     | V                           |
| Collector-Emitter Voltage                          | $V_{CEO}$      | 40               | 55          | 70     | V                           |
| Emitter-Base Voltage                               | $V_{EBO}$      | 5.0              | 5.0         | 5.0    | V                           |
| Collector Current                                  | $I_C$          | 7.0              | 7.0         | 7.0    | A                           |
| Base Current                                       | $I_B$          | 3.0              | 3.0         | 3.0    | A                           |
| Power Dissipation                                  | $P_D$          | 50               | 50          | 50     | W                           |
| Operating and Storage<br>Junction Temperature      | $T_J, T_{stg}$ |                  | -65 TO +150 |        | $^{\circ}\text{C}$          |
| Thermal Resistance                                 | $\theta_{JC}$  | 2.5              | 2.5         | 2.5    | $^{\circ}\text{C}/\text{W}$ |

## ELECTRICAL CHARACTERISTICS ( $T_C=25^{\circ}\text{C}$ )

| SYMBOL               | TEST CONDITIONS                                  | 2N5496 |     | 2N5494 |     | 2N5492 |     | 2N5490 |     | UNIT          |
|----------------------|--|--------|-----|--------|-----|--------|-----|--------|-----|---------------|
|                      |  | MIN    | MAX | MIN    | MAX | MIN    | MAX | MIN    | MAX |               |
| $I_{CEV}$            | $V_{CE}=85\text{V}, V_{BE}=1.5\text{V}$          |        | 1.0 | -      | -   | -      | -   | -      | -   | mA            |
| $I_{CEV}$            | $V_{CE}=55\text{V}, V_{BE}=1.5\text{V}$          |        | -   | 1.0    | -   | -      | -   | -      | -   | mA            |
| $I_{CEV}$            | $V_{CE}=70\text{V}, V_{BE}=1.5\text{V}$          |        | -   | -      | -   | 1.0    | -   | -      | -   | mA            |
| $I_{CER}$            | $V_{CE}=\text{Rated } V_{CEO}, R_{BE}=100\Omega$ |        | 0.5 | 0.5    | 0.5 | 0.5    |     | 2.0    |     | mA            |
| $I_{EBO}$            | $V_{BE}=5.0\text{V}$                             |        | 1.0 | 1.0    | 1.0 | 1.0    |     | 1.0    |     | mA            |
| $BV_{CEV}$           | $V_{BE}=1.5\text{V}, I_C=100\text{mA}$           | 90     |     | 60     |     | 75     |     | 60     |     | V             |
| $BV_{CER}$           | $I_C=100\text{mA}, R_{BE}=100\Omega$             | 80     |     | 50     |     | 65     |     | 50     |     | V             |
| $BV_{CEO}$           | $I_C=100\text{mA}$                               | 70     |     | 40     |     | 55     |     | 40     |     | V             |
| $V_{CE}(\text{SAT})$ | $I_C=35\text{A}, I_B=0.35\text{A}$               |        | 1.0 | -      | -   | -      | -   | -      | -   | V             |
| $V_{CE}(\text{SAT})$ | $I_C=3.0\text{A}, I_B=0.3\text{A}$               |        | -   | 1.0    | -   | -      | -   | -      | -   | V             |
| $V_{CE}(\text{SAT})$ | $I_C=2.5\text{A}, I_B=0.25\text{A}$              |        | -   | -      | -   | 1.0    | -   | -      | -   | V             |
| $V_{CE}(\text{SAT})$ | $I_C=2.0\text{A}, I_B=0.2\text{A}$               |        | -   | -      | -   | -      | -   | 1.0    | -   | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=4.0\text{V}, I_C=0.35\text{A}$           |        | 1.7 | -      | -   | -      | -   | -      | -   | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=4.0\text{V}, I_C=3.0\text{A}$            |        | -   | 1.5    | -   | -      | -   | -      | -   | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=4.0\text{V}, I_C=2.5\text{A}$            |        | -   | -      | -   | 1.3    | -   | -      | -   | V             |
| $V_{BE}(\text{ON})$  | $V_{CE}=4.0\text{V}, I_C=2.0\text{A}$            |        | -   | -      | -   | -      | -   | 1.1    | -   | V             |
| $h_{FE}$             | $V_{CE}=4.0\text{V}, I_C=3.5\text{A}$            | 20     | 100 | -      | -   | -      | -   | -      | -   |               |
| $h_{FE}$             | $V_{CE}=4.0\text{V}, I_C=3.0\text{A}$            | -      | -   | 20     | 100 | -      | -   | -      | -   |               |
| $h_{FE}$             | $V_{CE}=4.0\text{V}, I_C=2.5\text{A}$            | -      | -   | -      | -   | 20     | 100 | -      | -   |               |
| $h_{FE}$             | $V_{CE}=4.0\text{V}, I_C=2.0\text{A}$            | -      | -   | -      | -   | -      | -   | 20     | 100 |               |
| $f_T$                | $V_{CE}=4.0\text{V}, I_C=0.5\text{A}$            | 0.8    |     | 0.8    |     | 0.8    |     | 0.8    |     | MHz           |
| $t_{on}$             | $V_{CC}=30\text{V}$                              |        | 5.0 |        | 5.0 |        | 5.0 |        | 5.0 | $\mu\text{s}$ |
| $t_{off}$            | $V_{CC}=30\text{V}$                              |        | 15  |        | 15  |        | 15  |        | 15  | $\mu\text{s}$ |

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