

2N4410

**NPN SILICON TRANSISTOR**



**TO-92 CASE**



[www.centralsemi.com](http://www.centralsemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N4410 is a small signal NPN silicon transistor, manufactured by the epitaxial planar process, designed for general purpose amplifier applications.

**MARKING: FULL PART NUMBER**

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

|                                            |
|--------------------------------------------|
| Collector-Base Voltage                     |
| Collector-Emitter Voltage                  |
| Emitter-Base Voltage                       |
| Continuous Collector Current               |
| Power Dissipation                          |
| Operating and Storage Junction Temperature |
| Thermal Resistance                         |
| Thermal Resistance                         |

**SYMBOL**

|                |             |
|----------------|-------------|
| $V_{CBO}$      | 120         |
| $V_{CEO}$      | 80          |
| $V_{EBO}$      | 5.0         |
| $I_C$          | 250         |
| $P_D$          | 625         |
| $T_J, T_{stg}$ | -65 to +150 |
| $\theta_{JA}$  | 200         |
| $\theta_{JC}$  | 83.3        |

**UNITS**

|                    |
|--------------------|
| V                  |
| V                  |
| V                  |
| mA                 |
| mW                 |
| $^\circ\text{C}$   |
| $^\circ\text{C/W}$ |
| $^\circ\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS                                                    | MIN | MAX | UNITS         |
|---------------|--------------------------------------------------------------------|-----|-----|---------------|
| $I_{CBO}$     | $V_{CB}=100\text{V}$                                               |     | 10  | nA            |
| $I_{CBO}$     | $V_{CB}=100\text{V}, T_A=100^\circ\text{C}$                        |     | 1.0 | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=4.0\text{V}$                                               |     | 100 | nA            |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$                                                | 120 |     | V             |
| $BV_{CEX}$    | $V_{BE}=5.0\text{V}, I_C=500\mu\text{A}, R_{BE}=8.2\text{k}\Omega$ | 120 |     | V             |
| $BV_{CEO}$    | $I_C=1.0\text{mA}$                                                 | 80  |     | V             |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$                                                | 5.0 |     | V             |
| $V_{CE(SAT)}$ | $I_C=1.0\text{mA}, I_B=100\mu\text{A}$                             |     | 200 | mV            |
| $V_{BE(SAT)}$ | $I_C=1.0\text{mA}, I_B=100\mu\text{A}$                             |     | 800 | mV            |
| $V_{BE(ON)}$  | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$                             |     | 800 | mV            |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$                             | 60  |     |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=10\text{mA}$                              | 60  | 400 |               |
| $f_T$         | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=20\text{MHz}$               | 60  | 300 | MHz           |
| $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$                        |     | 12  | pF            |
| $C_{ib}$      | $V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$                       |     | 50  | pF            |

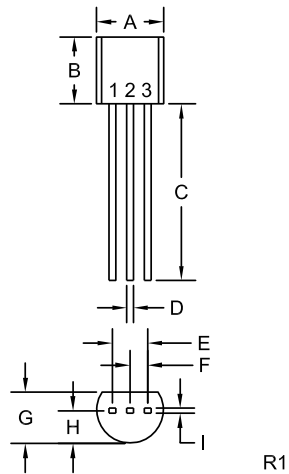
R0 (18-October 2010)

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**TO-92 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

- 1) Emitter
- 2) Base
- 3) Collector

**MARKING:**

**FULL PART NUMBER**

| SYMBOL  | DIMENSIONS |       |             |      |
|---------|------------|-------|-------------|------|
|         | INCHES     |       | MILLIMETERS |      |
|         | MIN        | MAX   | MIN         | MAX  |
| A (DIA) | 0.175      | 0.205 | 4.45        | 5.21 |
| B       | 0.170      | 0.210 | 4.32        | 5.33 |
| C       | 0.500      | -     | 12.70       | -    |
| D       | 0.016      | 0.022 | 0.41        | 0.56 |
| E       | 0.100      |       | 2.54        |      |
| F       | 0.050      |       | 1.27        |      |
| G       | 0.125      | 0.165 | 3.18        | 4.19 |
| H       | 0.080      | 0.105 | 2.03        | 2.67 |
| I       | 0.015      |       | 0.38        |      |

TO-92 (REV: R1)

R0 (18-October 2010)

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Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
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- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

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- 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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### CONTACT US

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