

2N3250 2N3250A  
2N3251 2N3251A

**SILICON  
PNP TRANSISTORS**



**TO-18 CASE**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3250, 2N3251 series devices are silicon PNP transistors designed for small signal, general purpose switching applications.

**MARKING: FULL PART NUMBER**

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

| MAXIMUM RATINGS: (T <sub>A</sub> =25°C unless otherwise noted) |                                   | 2N3250      | 2N3250A |       |
|----------------------------------------------------------------|-----------------------------------|-------------|---------|-------|
|                                                                | SYMBOL                            | 2N3251      | 2N3251A | UNITS |
| Collector-Base Voltage                                         | V <sub>CBO</sub>                  | 50          | 60      | V     |
| Collector-Emitter Voltage                                      | V <sub>CEO</sub>                  | 40          | 60      | V     |
| Emitter-Base Voltage                                           | V <sub>EBO</sub>                  |             | 5.0     | V     |
| Continuous Collector Current                                   | I <sub>C</sub>                    |             | 200     | mA    |
| Power Dissipation                                              | P <sub>D</sub>                    |             | 360     | mW    |
| Power Dissipation (T <sub>C</sub> =25°C)                       | P <sub>D</sub>                    |             | 1.2     | W     |
| Operating and Storage Junction Temperature                     | T <sub>J</sub> , T <sub>stg</sub> | -65 to +200 |         | °C    |
| Thermal Resistance                                             | Θ <sub>JC</sub>                   |             | 146     | °C/W  |
| Thermal Resistance                                             | Θ <sub>JA</sub>                   |             | 486     | °C/W  |

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

| <b>SYMBOL</b> | <b>TEST CONDITIONS</b>                  | <b>MIN</b> | <b>MAX</b> | <b>UNITS</b> |
|---------------|-----------------------------------------|------------|------------|--------------|
| $I_{CEV}$     | $V_{CE}=40\text{V}, V_{EB}=3.0\text{V}$ |            | 20         | nA           |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (2N3250, 2N3251)    | 50         |            | V            |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$ (2N3250A, 2N3251A)  | 60         |            | V            |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (2N3250, 2N3251)      | 40         |            | V            |
| $BV_{CEO}$    | $I_C=10\text{mA}$ (2N3250A, 2N3251A)    | 60         |            | V            |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$                     | 5.0        |            | V            |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$     |            | 0.25       | V            |
| $V_{CE(SAT)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$     |            | 0.50       | V            |
| $V_{BE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$     | 0.60       | 0.90       | V            |
| $V_{BE(SAT)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$     |            | 1.20       | V            |

|          |                                        | <b>2N3250<br/>2N3250A</b> |            | <b>2N3251<br/>2N3251A</b> |            |
|----------|----------------------------------------|---------------------------|------------|---------------------------|------------|
|          |                                        | <b>MIN</b>                | <b>MAX</b> | <b>MIN</b>                | <b>MAX</b> |
| $h_{FE}$ | $V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$ | 40                        | -          | 80                        | -          |
| $h_{FE}$ | $V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$ | 45                        | -          | 90                        | -          |
| $h_{FE}$ | $V_{CE}=1.0\text{V}, I_C=10\text{mA}$  | 50                        | 150        | 100                       | 300        |
| $h_{FE}$ | $V_{CE}=1.0\text{V}, I_C=50\text{mA}$  | 15                        | -          | 30                        | -          |

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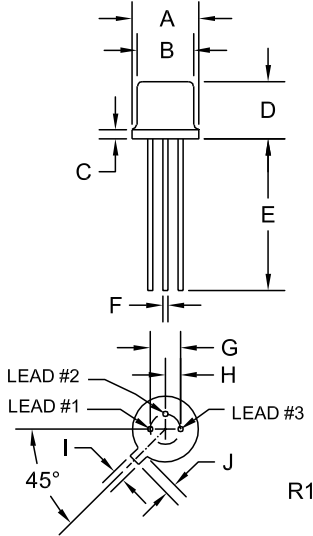


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| SYMBOL    | TEST CONDITIONS                                                                             | 2N3250  |        | 2N3251  |        | UNITS |
|-----------|---------------------------------------------------------------------------------------------|---------|--------|---------|--------|-------|
|           |                                                                                             | 2N3250A |        | 2N3251A |        |       |
| $f_T$     | $V_{CE}=20\text{V}$ , $I_C=10\text{mA}$ , $f=100\text{MHz}$                                 | 250     | -      | 300     | -      | MHz   |
| $C_{ob}$  | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=100\text{kHz}$                                           | -       | 6.0    | -       | 6.0    | pF    |
| $C_{ib}$  | $V_{EB}=1.0\text{V}$ , $I_C=0$ , $f=100\text{kHz}$                                          | -       | $10^1$ | -       | $10^1$ | pF    |
| NF        | $V_{CE}=5.0\text{V}$ , $I_C=100\mu\text{A}$ ,<br>$R_S=1.0\text{k}\Omega$ , $f=100\text{Hz}$ | -       | 6.0    | -       | 6.0    | dB    |
| $t_{on}$  | $V_{CC}=3.0\text{V}$ , $V_{BE}=0.5\text{V}$ ,<br>$I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$  | -       | 70     | -       | 70     | ns    |
| $t_{off}$ | $V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ ,<br>$I_{B1}=I_{B2}=1.0\text{mA}$                  | -       | 225    | -       | 250    | ns    |

Note 1: Typical limit

**TO-18 CASE - MECHANICAL OUTLINE**



| SYMBOL  | DIMENSIONS |       |             |      |
|---------|------------|-------|-------------|------|
|         | INCHES     |       | MILLIMETERS |      |
|         | MIN        | MAX   | MIN         | MAX  |
| A (DIA) | 0.209      | 0.230 | 5.31        | 5.84 |
| B (DIA) | 0.178      | 0.195 | 4.52        | 4.95 |
| C       | -          | 0.030 | -           | 0.76 |
| D       | 0.170      | 0.210 | 4.32        | 5.33 |
| E       | 0.500      | -     | 12.70       | -    |
| F (DIA) | 0.016      | 0.019 | 0.41        | 0.48 |
| G (DIA) | 0.100      |       | 2.54        |      |
| H       | 0.050      |       | 1.27        |      |
| I       | 0.036      | 0.046 | 0.91        | 1.17 |
| J       | 0.028      | 0.048 | 0.71        | 1.22 |

TO-18 (REV: R1)

**LEAD CODE:**

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

**MARKING:**

**FULL PART NUMBER**

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

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

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

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- 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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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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