

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

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Manufacturers of World Class Discrete Semiconductors

2N3250  
2N3250A  
2N3251  
2N3251A

PNP SILICON TRANSISTOR

JEDEC T0-18 CASE

## DESCRIPTION

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

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

|  | SYMBOL         | 2N3250<br>2N3251 | 2N3250A<br>2N3251A | UNITS                     |
|--|----------------|------------------|--------------------|---------------------------|
| Collector-Base Voltage                       | $V_{CBO}$      | 50               | 60                 | V                         |
| Collector-Emitter Voltage                    | $V_{CEO}$      | 40               | 60                 | V                         |
| Emitter-Base Voltage                         | $V_{EBO}$      | 5.0              | 5.0                | V                         |
| Collector Current                            | $I_C$          | 200              |                    | mA                        |
| Power Dissipation                            | $P_D$          | 0.36             |                    | W                         |
| Power Dissipation ( $T_C=25^\circ\text{C}$ ) | $P_D$          | 1.2              |                    | W                         |
| Operating and Storage Junction Temperature   | $T_J, T_{STG}$ | -65 to +200      |                    | $^\circ\text{C}$          |
| Thermal Resistance, Junction to Case         | $\Theta_{JC}$  | 145              |                    | $\text{W}/^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient      | $\Theta_{JA}$  | 486              |                    | $\text{W}/^\circ\text{C}$ |

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

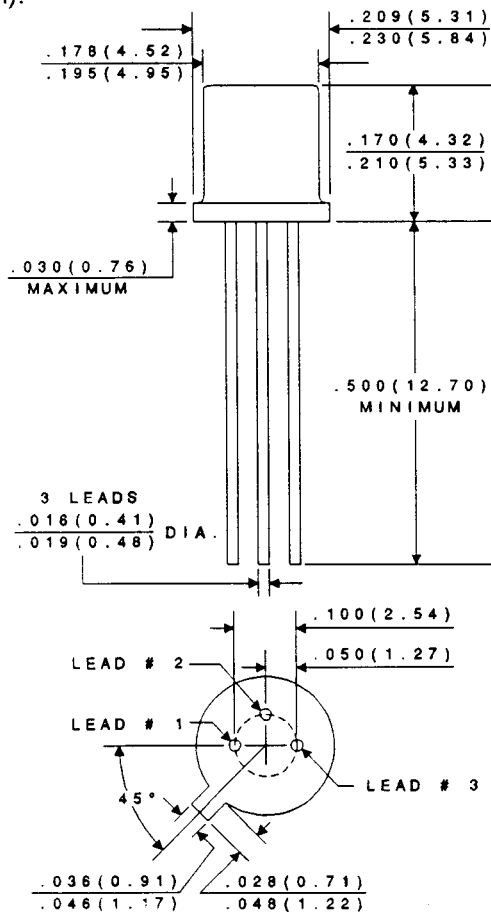
| SYMBOL      | TEST CONDITIONS  | MIN | MAX  | UNITS |
|-------------|--|-----|------|-------|
| $I_{CEV}$   | $V_{CE}=40\text{V}, V_{EB(off)}=3.0\text{V}$             |     | 20   | nA    |
| $BV_{CBO}$  | $I_C=10\mu\text{A}$ (2N3250, 2N3251)                     | 50  |      | V     |
|             | (2N3250A, 2N3251A)                                       | 60  |      | V     |
| $BV_{CEO}$  | $I_C=10\text{mA}$ (2N3250, 2N3251)                       | 40  |      | V     |
|             | (2N3250A, 2N3251A)                                       | 60  |      | V     |
| $BV_{EBO}$  | $I_E=10\mu\text{A}$                                      | 5.0 |      | V     |
| $V_{CE(s)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                      |     | 0.25 | V     |
| $V_{CE(s)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$                      |     | 0.5  | V     |
| $V_{BE(s)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                      | 0.6 | 0.9  | V     |
| $V_{BE(s)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$                      |     | 1.2  | V     |
| $h_{FE}$    | $V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$ (2N3250, 2N3250A) | 40  |      |       |
|             | (2N3251, 2N3251A)  | 80  |      |       |
| $h_{FE}$    | $V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$ (2N3250, 2N3250A) | 45  |      |       |
|             | (2N3251, 2N3251A)  | 90  |      |       |

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

| <u>SYMBOL</u> | <u>TEST CONDITIONS</u>   | <u>MIN</u> | <u>MAX</u> | <u>UNITS</u> |
|---------------|--|------------|------------|--------------|
| $h_{FE}$      | $V_{CE}=1.0\text{V}$ , $I_C=10\text{mA}$ (2N3250, 2N3250A)<br>(2N3251, 2N3251A)                                | 50<br>100  | 150<br>300 |              |
| $h_{FE}$      | $V_{CE}=1.0\text{V}$ , $I_C=50\text{mA}$ (2N3250, 2N3250A)<br>(2N3251, 2N3251A)                                | 15<br>30   |            |              |
| $f_T$         | $V_{CE}=20\text{V}$ , $I_C=10\text{mA}$ , $f=100\text{MHz}$ (2N3250, 2N3250A)<br>(2N3251, 2N3251A)             | 250<br>300 |            | MHz<br>MHz   |
| $C_{obo}$     | $V_{CB}=10\text{V}$ , $f=100\text{kHz}$  |            | 6.0        | pF           |
| $C_{ibo}$     | $V_{CB}=1.0\text{V}$ , $f=100\text{kHz}$   |            | 8.0        | pF           |
| NF            | $V_{CE}=5.0\text{V}$ , $I_C=100\mu\text{A}$ , $R_S=1.0\text{K}\Omega$ , $f=100\text{Hz}$                       |            | 6.0        | dB           |
| $t_{ON}$      | $V_{CC}=3.0\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$                        |            | 70         | ns           |
| $t_{OFF}$     | $V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=1.0\text{mA}$ (2N3250, 2N3250A)<br>(2N3251, 2N3251A) |            | 225<br>250 | ns<br>ns     |

## TO-18 MECHANICAL OUTLINE

All Dimensions in inches (mm).



## LEAD CODE

- 1) EMITTER
- 2) BASE
- 3) COLLECTOR