

2N3704  
2N3705  
2N3706

**SILICON  
NPN TRANSISTORS**



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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N3704, 2N3705, and 2N3706 are silicon NPN planar transistors designed for general purpose amplifier and switching applications.



**TO-92 CASE**

**MARKING: FULL PART NUMBER**

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

|  |                |     |             |    |                    |
|--|----------------|-----|-------------|----|--------------------|
| Collector-Base Voltage                     | $V_{CB0}$      | 50  | 50          | 40 | V                  |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 30  | 30          | 20 | V                  |
| Emitter-Base Voltage                       | $V_{EBO}$      | 5.0 |             |    | V                  |
| Continuous Collector Current               | $I_C$          |     | 800         |    | mA                 |
| Power Dissipation                          | $P_D$          |     | 625         |    | mW                 |
| Operating and Storage Junction Temperature | $T_J, T_{stg}$ |     | -65 to +150 |    | $^\circ\text{C}$   |
| Thermal Resistance                         | $\Theta_{JA}$  |     | 200         |    | $^\circ\text{C/W}$ |

| SYMBOL         | <u>2N3704</u> | <u>2N3705</u> | <u>2N3706</u> | UNITS              |
|----------------|---------------|---------------|---------------|--------------------|
| $V_{CB0}$      | 50            | 50            | 40            | V                  |
| $V_{CEO}$      | 30            | 30            | 20            | V                  |
| $V_{EBO}$      |               | 5.0           |               | V                  |
| $I_C$          |               | 800           |               | mA                 |
| $P_D$          |               | 625           |               | mW                 |
| $T_J, T_{stg}$ |               | -65 to +150   |               | $^\circ\text{C}$   |
| $\Theta_{JA}$  |               | 200           |               | $^\circ\text{C/W}$ |

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

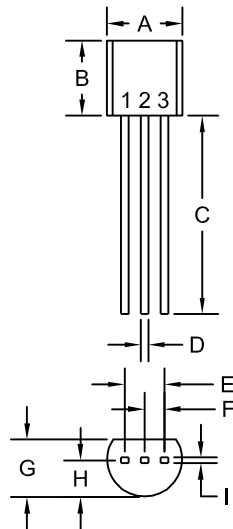
| SYMBOL        | TEST CONDITIONS                        | <u>2N3704</u> |     | <u>2N3705</u> |     | <u>2N3706</u> |     | UNITS |
|---------------|--|---------------|-----|---------------|-----|---------------|-----|-------|
|               |  | MIN           | MAX | MIN           | MAX | MIN           | MAX |       |
| $I_{CB0}$     | $V_{CB}=20\text{V}$                    | -             | 100 | -             | 100 | -             | 100 | nA    |
| $I_{EBO}$     | $V_{EB}=3.0\text{V}$                   | -             | 100 | -             | 100 | -             | 100 | nA    |
| $BV_{CB0}$    | $I_C=100\mu\text{A}$                   | 50            | -   | 50            | -   | 40            | -   | V     |
| $BV_{CEO}$    | $I_C=10\text{mA}$                      | 30            | -   | 30            | -   | 20            | -   | V     |
| $BV_{EBO}$    | $I_E=100\mu\text{A}$                   | 5.0           | -   | 5.0           | -   | 5.0           | -   | V     |
| $V_{CE(SAT)}$ | $I_C=100\text{mA}, I_B=5.0\text{mA}$   | -             | 0.6 | -             | 0.8 | -             | 1.0 | V     |
| $V_{BE(ON)}$  | $V_{CE}=2.0\text{V}, I_C=100\text{mA}$ | 0.5           | 1.0 | 0.5           | 1.0 | 0.5           | 1.0 | V     |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=50\text{mA}$  | 100           | 300 | 50            | 150 | 30            | 600 |       |
| $f_T$         | $V_{CE}=2.0\text{V}, I_C=50\text{mA}$  | 100           | -   | 100           | -   | 100           | -   | MHz   |
| $C_{ob}$      | $V_{CB}=10\text{V}, f=1.0\text{MHz}$   | -             | 12  | -             | 12  | -             | 12  | pF    |

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TO-92 CASE - MECHANICAL OUTLINE



R1

| SYMBOL  | 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)

LEAD CODE:

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

MARKING:  
 FULL PART NUMBER

R2 (24-February 2017)