

2N3704  
2N3705  
2N3706

**SILICON  
NPN TRANSISTORS**



**TO-92 CASE**



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

**DESCRIPTION:**

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

| SYMBOL         | 2N3704 | 2N3705      | 2N3706 | 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)

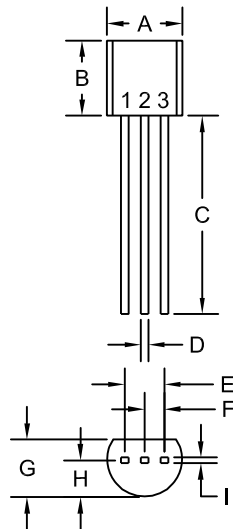
| SYMBOL        | TEST CONDITIONS                        | 2N3704 |     | 2N3705 |     | 2N3706 |     | UNITS |
|---------------|--|--------|-----|--------|-----|--------|-----|-------|
|               |  | MIN    | MAX | MIN    | MAX | MIN    | MAX |       |
| $I_{CBO}$     | $V_{CB}=20\text{V}$                    | -      | 100 | -      | 100 | -      | 100 | nA    |
| $I_{EBO}$     | $V_{EB}=3.0\text{V}$                   | -      | 100 | -      | 100 | -      | 100 | nA    |
| $BV_{CBO}$    | $I_C=100\mu\text{A}$                   | 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)

## 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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