

2N3905  
2N3906

PNP SILICON TRANSISTOR



TO-92 CASE



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3905 and 2N3906 types are PNP silicon transistors designed for general purpose amplifier and switching applications. NPN complementary types are 2N3903 and 2N3904.

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

$V_{CBO}$  40  
 $V_{CEO}$  40  
 $V_{EBO}$  5.0  
 $I_C$  200  
 $P_D$  625  
 $T_J, T_{stg}$  -65 to +150  
 $\Theta_{JA}$  200

UNITS

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

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

| SYMBOL        | TEST CONDITIONS                                                                                       | 2N3905 |      | 2N3906 |      | UNITS |
|---------------|-------------------------------------------------------------------------------------------------------|--------|------|--------|------|-------|
|               |                                                                                                       | MIN    | MAX  | MIN    | MAX  |       |
| $I_{CEV}$     | $V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$                                                               | -      | 50   | -      | 50   | nA    |
| $BV_{CBO}$    | $I_C=10\mu\text{A}$                                                                                   | 40     | -    | 40     | -    | V     |
| $BV_{CEO}$    | $I_C=1.0\text{mA}$                                                                                    | 40     | -    | 40     | -    | V     |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$                                                                                   | 5.0    | -    | 5.0    | -    | V     |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                                                                   | -      | 0.25 | -      | 0.25 | V     |
| $V_{CE(SAT)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$                                                                   | -      | 0.4  | -      | 0.4  | V     |
| $V_{BE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                                                                   | 0.65   | 0.85 | 0.65   | 0.85 | V     |
| $V_{BE(SAT)}$ | $I_C=50\text{mA}, I_B=5.0\text{mA}$                                                                   | -      | 0.95 | -      | 0.95 | V     |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$                                                                | 30     | -    | 60     | -    |       |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$                                                                | 40     | -    | 80     | -    |       |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=10\text{mA}$                                                                 | 50     | 150  | 100    | 300  |       |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=50\text{mA}$                                                                 | 30     | -    | 60     | -    |       |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=100\text{mA}$                                                                | 15     | -    | 30     | -    |       |
| $h_{fe}$      | $V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$                                                | 50     | 200  | 100    | 400  |       |
| $f_T$         | $V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$                                                 | 200    | -    | 250    | -    | MHz   |
| $C_{ob}$      | $V_{CB}=5.0\text{V}, I_E=0, f=100\text{kHz}$                                                          | -      | 4.5  | -      | 4.5  | pF    |
| $C_{ib}$      | $V_{EB}=0.5\text{V}, I_C=0, f=100\text{kHz}$                                                          | -      | 10   | -      | 10   | pF    |
| NF            | $V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{k}\Omega$<br>$f=10\text{Hz to } 15.7\text{kHz}$ | -      | 5.0  | -      | 4.0  | dB    |
| $t_{on}$      | $V_{CC}=3.0\text{V}, V_{BE(OFF)}=0.5\text{V}, I_C=10\text{mA}$<br>$I_{B1}=1.0\text{mA}$               | -      | 70   | -      | 70   | ns    |
| $t_{off}$     | $V_{CC}=3.0\text{V}, I_C=10\text{mA}, I_{B1}=I_{B2}=1.0\text{mA}$                                     | -      | 260  | -      | 300  | ns    |

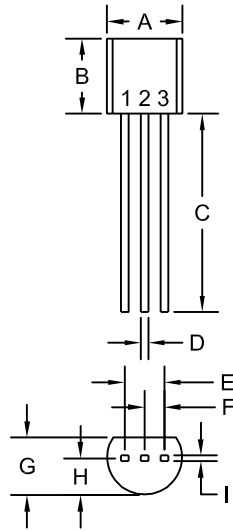
R2 (17-October 2011)

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#### TO-92 CASE - MECHANICAL OUTLINE



| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| 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) Base
- 3) Collector

**MARKING:**  
FULL PART NUMBER

R2 (17-October 2011)

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