

2N5820 2N5822 NPN  
2N5821 2N5823 PNP

**COMPLEMENTARY  
SILICON TRANSISTORS**



**TO-92-18R CASE**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N5820 series devices are epoxy molded complementary silicon small signal transistors manufactured by the epitaxial planar process designed for general purpose amplifier applications where a high collector current rating is required.

**MARKING: FULL PART NUMBER**

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

|  | SYMBOL         |             | UNITS              |
|--|----------------|-------------|--------------------|
| Collector-Base Voltage                       | $V_{CBO}$      | 70          | V                  |
| Collector-Emitter Voltage                    | $V_{CES}$      | 70          | V                  |
| Collector-Emitter Voltage                    | $V_{CEO}$      | 60          | V                  |
| Emitter-Base Voltage                         | $V_{EBO}$      | 5.0         | V                  |
| Continuous Collector Current                 | $I_C$          | 750         | mA                 |
| Peak Collector Current                       | $I_{CM}$       | 1.0         | A                  |
| Power Dissipation                            | $P_D$          | 625         | mW                 |
| Power Dissipation ( $T_C=25^\circ\text{C}$ ) | $P_D$          | 1.5         | W                  |
| Operating and Storage Junction Temperature   | $T_J, T_{stg}$ | -65 to +150 | $^\circ\text{C}$   |
| Thermal Resistance                           | $\theta_{JA}$  | 200         | $^\circ\text{C/W}$ |
| Thermal Resistance                           | $\theta_{JC}$  | 83.3        | $^\circ\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS  | MIN | MAX  | UNITS         |
|---------------|--|-----|------|---------------|
| $I_{CBO}$     | $V_{CB}=25\text{V}$  |     | 100  | nA            |
| $I_{CBO}$     | $V_{CB}=25\text{V}, T_A=100^\circ\text{C}$                         |     | 15   | $\mu\text{A}$ |
| $I_{EBO}$     | $V_{EB}=5.0\text{V}$   |     | 10   | $\mu\text{A}$ |
| $BV_{CES}$    | $I_C=10\mu\text{A}$  | 70  |      | V             |
| $BV_{CEO}$    | $I_C=10\text{mA}$  | 60  |      | V             |
| $BV_{EBO}$    | $I_E=10\mu\text{A}$  | 5.0 |      | V             |
| $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                                |     | 0.75 | V             |
| $V_{BE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                                |     | 1.2  | V             |
| $V_{BE(ON)}$  | $V_{CE}=2.0\text{V}, I_C=500\text{mA}$                             | 0.6 | 1.1  | V             |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=2.0\text{mA}$ (2N5820, 21)                | 60  | 120  |               |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=2.0\text{mA}$ (2N5822, 23)                | 100 | 250  |               |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=500\text{mA}$ (2N5820, 21)                | 20  |      |               |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=500\text{mA}$ (2N5822, 23)                | 25  |      |               |
| $f_T$         | $V_{CE}=2.0\text{V}, I_C=50\text{mA}, f=20\text{MHz}$ (2N5820, 21) | 100 |      | MHz           |
| $f_T$         | $V_{CE}=2.0\text{V}, I_C=50\text{mA}, f=20\text{MHz}$ (2N5822, 23) | 120 |      | MHz           |
| $C_{ob}$      | $V_{CB}=10\text{V}, I_C=0, f=1.0\text{MHz}$                        |     | 15   | pF            |
| $C_{ib}$      | $V_{EB}=0.5\text{V}, I_E=0, f=1.0\text{MHz}$                       |     | 55   | pF            |

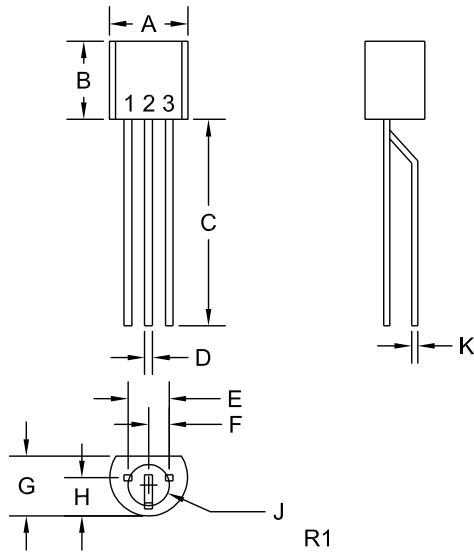
R2 (17-November 2014)

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TO-92-18R CASE - MECHANICAL OUTLINE



| 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 |
| J (DIA) | 0.100  |       | 2.54        |      |
| K       | 0.015  |       | 0.38        |      |

TO-92-18R (REV: R1)

LEAD CODE:

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

MARKING:

FULL PART NUMBER

R2 (17-November 2014)



## 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)
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- Custom product packing

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- 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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