

# Small Signal Transistors

## TO-39 Case



| TYPE NO. | DESCRIPTION      | V <sub>CB0</sub> | V <sub>CE0</sub>         | V <sub>EBO</sub> | I <sub>CBO</sub> @<br>I <sub>CEO</sub><br>I <sub>ICES</sub><br>I <sub>CEV</sub><br>I <sub>CER</sub> | V <sub>CB</sub> | h <sub>FE</sub> |     | @ I <sub>C</sub> | @ V <sub>CE</sub> | V <sub>CE(SAT)</sub> | @ I <sub>C</sub> | f <sub>T</sub> | C <sub>ob</sub> | t <sub>on</sub> | t <sub>off</sub> | NF   |
|----------|------------------|------------------|--------------------------|------------------|---|-----------------|-----------------|-----|------------------|-------------------|----------------------|------------------|----------------|-----------------|-----------------|------------------|------|
|          |                  | (V)              | (V)                      | (V)              |   |                 | (V)             | (V) | (mA)             | (V)               | (V)                  | (mV)             | (MHz)          | (pF)            | (ns)            | (ns)             | (dB) |
|          |                  | MIN              | *V <sub>CER</sub><br>MIN | MIN              |   |                 | MIN             | MIN | MIN              | MAX               | MAX                  | MAX              | MAX            | MIN             | MAX             | MAX              | MAX  |
| 2N656A   | NPN AMPL/SWITCH  | 60               | 60                       | 6.0              | 10  | 30              | 30              | 90  | 200              | 10                | 2.00                 | 200              | 50             | 20              | --              | --               | --   |
| 2N657A   | NPN AMPL/SWITCH  | 100              | 100                      | 6.0              | 10  | 30              | 30              | 90  | 200              | 10                | 2.00                 | 200              | 50             | 20              | --              | --               | --   |
| 2N696    | NPN AMPL/SWITCH  | 60               | 40                       | 5.0              | 1.00  | 30              | 20              | 60  | 150              | 10                | 1.50                 | 150              | 80             | 35              | --              | --               | --   |
| 2N697A   | NPN AMPL/SWITCH  | 60               | 35                       | 5.0              | 1.00  | 30              | 40              | 120 | 150              | 10                | 1.50                 | 150              | 50             | 35              | --              | --               | --   |
| 2N698    | NPN AMPL/SWITCH  | 120              | 60                       | 7.0              | 0.05  | 75              | 20              | 60  | 150              | 10                | 1.50                 | 150              | 50             | 15              | --              | --               | --   |
| 2N699B   | NPN AMPL/SWITCH  | 120              | 80                       | 7.0              | 0.01  | 90              | 40              | 120 | 150              | 10                | 1.30                 | 150              | 60             | 15              | --              | --               | --   |
| 2N1052   | NPN HIGH VOLTAGE | 200              | 155                      | 6.0              | 10  | 200             | 20              | 80  | 200              | 6.0               | 5.00                 | 200              | 8.0            | 50              | --              | --               | --   |
| 2N1053   | NPN AMPL/SWITCH  | 180              | 135                      | 6.0              | 10  | 180             | 20              | 80  | 200              | 6.0               | 5.00                 | 200              | 8.0            | 50              | --              | --               | --   |
| 2N1054   | NPN AMPL/SWITCH  | 125              | 115                      | 6.0              | 5.00  | 125             | 20              | --  | 200              | 6.0               | 4.00                 | 200              | 8.0            | 50              | --              | --               | --   |
| 2N1055   | NPN AMPL/SWITCH  | 100              | 100                      | 6.0              | 15  | 100             | 20              | 80  | 50               | 6.0               | 2.00                 | 50               | 3.0            | --              | --              | --               | --   |
| 2N1116   | NPN AMPL/SWITCH  | 60               | 60                       | 6.0              | 15  | 60              | 40              | 150 | 500              | 6.0               | 5.00                 | 500              | 6.0            | 80              | --              | --               | --   |
| 2N1117   | NPN AMPL/SWITCH  | 60               | 60                       | 6.0              | 15  | 60              | 40              | 150 | 200              | 6.0               | 4.00                 | 200              | 4.0            | --              | --              | --               | --   |
| 2N1118   | PNP AMPL/SWITCH  | 25               | 25                       | 6.0              | 1.00  | 25              | 15              | --  | 1.0              | 6.0               | --                   | --               | --             | 12              | --              | --               | --   |
| 2N1119   | PNP AMPL/SWITCH  | 10               | 10                       | 6.0              | 0.10  | 10              | 15              | --  | 15               | 0.5               | 0.15                 | 5.0              | --             | 12              | --              | --               | --   |
| 2N1131   | PNP AMPL/SWITCH  | 50               | 35                       | 5.0              | 100   | 50              | 20              | 45  | 150              | 10                | 1.50                 | 150              | 50             | 45              | --              | --               | --   |
| 2N1131A  | PNP AMPL/SWITCH  | 60               | 40                       | 5.0              | 0.50  | 45              | 20              | 45  | 150              | 10                | 1.50                 | 150              | 90             | 45              | --              | --               | --   |
| 2N1132B  | PNP AMPL/SWITCH  | 70               | 50                       | 6.0              | 0.10  | 50              | 30              | 75  | 150              | 10                | 1.50                 | 150              | 90             | 30              | --              | --               | --   |
| 2N1258   | PNP AMPL/SWITCH  | 30               | 30                       | 5.0              | 0.20  | 20              | 75              | 150 | 10               | 1.0               | 0.60                 | 10               | --             | 10              | --              | --               | --   |
| 2N1259   | PNP AMPL/SWITCH  | 50               | 50                       | 5.0              | 0.20  | 30              | 25              | 100 | 10               | 1.0               | 0.30                 | 10               | --             | 10              | --              | --               | --   |
| 2N1420   | NPN AMPL/SWITCH  | 60               | 30                       | 5.0              | 1.00  | 30              | 100             | 300 | 150              | 10                | 1.50                 | 150              | 50             | 35              | --              | --               | --   |
| 2N1445   | NPN AMPL/SWITCH  | 120              | 120                      | 6.0              | 10  | 120             | 20              | 80  | 200              | 10                | 4.00                 | 200              | --             | --              | --              | --               | --   |
| 2N1479   | NPN AMPL/SWITCH  | 60               | 40                       | 6.0              | 10  | 30              | 20              | 60  | 200              | 4.0               | 1.40                 | 200              | 1.5            | --              | --              | --               | --   |
| 2N1480   | NPN AMPL/SWITCH  | 100              | 55                       | 6.0              | 10  | 30              | 20              | 60  | 200              | 4.0               | 1.40                 | 200              | 1.5            | --              | --              | --               | --   |
| 2N1481   | NPN AMPL/SWITCH  | 60               | 40                       | 6.0              | 10  | 30              | 35              | 100 | 200              | 4.0               | 1.40                 | 200              | 1.5            | --              | --              | --               | --   |
| 2N1482   | NPN AMPL/SWITCH  | 100              | 55                       | 6.0              | 10  | 30              | 35              | 100 | 200              | 4.0               | 1.40                 | 200              | 1.5            | --              | --              | --               | --   |
| 2N1507   | NPN AMPL/SWITCH  | 60               | 25                       | 5.0              | 1.00  | 30              | 100             | 300 | 150              | 10                | 1.50                 | 150              | 50             | 35              | --              | --               | --   |
| 2N1573   | NPN AMPL/SWITCH  | 125              | 80                       | 5.0              | 1.00  | 40              | 30              | 100 | 5.0              | 5.0               | 1.00                 | 10               | 60             | 10              | --              | --               | --   |
| 2N1574   | NPN AMPL/SWITCH  | 125              | 80                       | 5.0              | 1.00  | 40              | 60              | 200 | 5.0              | 5.0               | 1.00                 | 10               | 60             | 10              | --              | --               | --   |
| 2N1613B  | NPN AMPL/SWITCH  | 120              | 50                       | 7.0              | 0.10  | 60              | 40              | 120 | 150              | 10                | 0.20                 | 150              | 60             | 10              | --              | --               | --   |
| 2N1615   | NPN AMPL/SWITCH  | 100              | 100                      | 6.0              | 2.00  | 60              | 25              | --  | 5.0              | 10                | 5.00                 | 50               | 5.0            | 20              | --              | --               | --   |
| 2N1676   | PNP AMPL/SWITCH  | 4.5              | 4.5                      | 4.5              | 0.10  | 4.5             | 25              | --  | 2.0              | 0.2               | 1.50                 | 10               | 40             | 7.0             | --              | --               | --   |
| 2N1700   | NPN AMPL/SWITCH  | 60               | 40                       | 6.0              | 75  | 40              | 20              | 80  | 100              | 4.0               | 1.00                 | 100              | --             | --              | --              | --               | --   |
| 2N1711   | NPN AMPL/SWITCH  | 75               | 50                       | 7.0              | 0.10  | 60              | 100             | 300 | 150              | 10                | 1.00                 | 150              | 70             | 25              | --              | --               | --   |
| 2N1711B  | NPN AMPL/SWITCH  | 120              | 50                       | 7.0              | 0.10  | 60              | 100             | 300 | 150              | 10                | 0.20                 | 150              | 70             | 10              | --              | --               | --   |
| 2N1716   | NPN AMPL/SWITCH  | 60               | 60                       | 6.0              | 2.00  | 60              | 40              | 120 | 200              | 5.0               | 2.00                 | 200              | 16             | 50              | --              | --               | --   |
| 2N1717   | NPN AMPL/SWITCH  | 100              | 100                      | 6.0              | 1.00  | 75              | 40              | 120 | 200              | 5.0               | 2.00                 | 200              | 16             | 50              | --              | --               | --   |
| 2N1889   | NPN AMPL/SWITCH  | 100              | 60                       | 7.0              | 0.10  | 75              | 40              | 120 | 150              | 10                | 5.00                 | 150              | 50             | 15              | --              | --               | --   |
| 2N1890   | NPN AMPL/SWITCH  | 100              | 60                       | 7.0              | 0.10  | 75              | 100             | 300 | 150              | 10                | 1.20                 | 50               | 60             | 15              | --              | --               | --   |
| 2N1893A  | NPN AMPL/SWITCH  | 140              | 80                       | 7.0              | 0.10  | 90              | 40              | 120 | 150              | 10                | 2.00                 | 150              | 100            | 8.0             | --              | --               | --   |
| 2N1973   | NPN AMPL/SWITCH  | 100              | 60                       | 7.0              | 0.025   | 75              | 75              | --  | 10               | 10                | 1.20                 | 50               | 60             | 15              | --              | --               | --   |
| 2N1974   | NPN AMPL/SWITCH  | 100              | 60                       | 7.0              | 0.025   | 75              | 35              | --  | 10               | 10                | 1.20                 | 50               | 50             | 15              | --              | --               | --   |

(5-April 2013)

## 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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