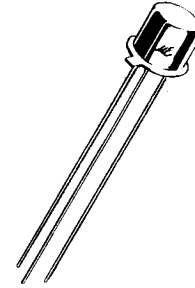


# General Purpose Transistors npn

TO-106



TO-18



| TYPE NO. | Maximum Ratings                           |                |                   |                   |                   | Electrical Characteristics @ T <sub>A</sub> = 25°C              |   |                         |   | CASE   |
|----------|---|----------------|-------------------|-------------------|-------------------|---|---|-------------------------|---|--------|
|          | P <sub>D</sub><br>@ T <sub>A</sub> = 25°C | I <sub>C</sub> | BV <sub>CEO</sub> | LV <sub>CEO</sub> | BV <sub>EBO</sub> | h <sub>FE</sub> @ V <sub>CE</sub> @ I <sub>C</sub><br>min./max. | V <sub>CE(sat)</sub> @ I <sub>C</sub> /I <sub>B</sub><br>max. | C <sub>ob</sub><br>max. | f <sub>T</sub> @ I <sub>C</sub><br>min. |        |
| ME 6001  | 250mW                                     | 500mA          | 40V               | 30V               | 5V                | 30/200 @ 1V @ 50mA  | 0.25V @ 50/ 2.5mA   | 10pF                    | 200MHz @ 50mA                           | TO-106 |
| ME 6002  | 250mW                                     | 500mA          | 40V               | 30V               | 5V                | 75/300 @ 1V @ 50mA  | 0.25V @ 50/ 2.5mA   | 10pF                    | 200MHz @ 50mA                           | TO-106 |
| ME 6003  | 250mW                                     | 500mA          | 25V               | 25V               | 4V                | 30/300 @ 5V @ 50mA  | 0.30V @ 50/ 5.0mA   | 12pF                    | 150MHz @ 50mA                           | TO-106 |
| ME 6101  | 250mW                                     | 500mA          | 70V               | 50V               | 6V                | 40/200 @ 10V @ 150mA  | 0.35V @ 150/15.0mA  | 8pF                     | 250MHz @ 20mA                           | TO-106 |
| ME 6102  | 250mW                                     | 500mA          | 60V               | 45V               | 6V                | 100/300 @ 10V @ 150mA   | 0.35V @ 150/15.0mA  | 8pF                     | 250MHz @ 20mA                           | TO-106 |
| ME 8001  | 300mW                                     | 500mA          | 40V               | 30V               | 5V                | 30/ — @ 10V @ 150mA   | 0.50V @ 150/15.0mA  | 15pF                    | 100MHz @ 50mA                           | TO-106 |
| ME 8002  | 300mW                                     | 500mA          | 120V              | 80V               | 7V                | 40/200 @ 10V @ 150mA  | 0.30V @ 150/15.0mA  | 15pF                    | 100MHz @ 50mA                           | TO-106 |
| ME 8003  | 300mW                                     | 500mA          | 80V               | 60V               | 7V                | 100/350 @ 10V @ 150mA   | 0.30V @ 150/15.0mA  | 15pF                    | 100MHz @ 50mA                           | TO-106 |
| MA 6001  | 600mW                                     | 500mA          | 40V               | 30V               | 5V                | 30/200 @ 1V @ 50mA  | 0.25V @ 50/ 2.5mA   | 5pF                     | 200MHz @ 50mA                           | TO-18  |
| MA 6002  | 600mW                                     | 500mA          | 40V               | 30V               | 5V                | 75/300 @ 1V @ 50mA  | 0.25V @ 50/ 2.5mA   | 5pF                     | 200MHz @ 50mA                           | TO-18  |
| MA 6003  | 600mW                                     | 500mA          | 25V               | 25V               | 4V                | 30/300 @ 5V @ 50mA  | 0.30V @ 50/ 5.0mA   | 5pF                     | 150MHz @ 50mA                           | TO-18  |
| MA 6101  | 600mW                                     | 500mA          | 70V               | 50V               | 6V                | 40/200 @ 10V @ 150mA  | 0.35V @ 150/15.0mA  | 5pF                     | 250MHz @ 20mA                           | TO-18  |
| MA 6102  | 600mW                                     | 500mA          | 60V               | 45V               | 6V                | 100/300 @ 10V @ 150mA   | 0.35V @ 150/15.0mA  | 5pF                     | 250MHz @ 20mA                           | TO-18  |
| MA 8001  | 800mW                                     | 500mA          | 40V               | 30V               | 5V                | 30/ — @ 10V @ 150mA   | 0.50V @ 150/15.0mA  | 12pF                    | 100MHz @ 50mA                           | TO-39  |
| MA 8002  | 800mW                                     | 500mA          | 120V              | 80V               | 7V                | 40/200 @ 10V @ 150mA  | 0.30V @ 150/15.0mA  | 10pF                    | 100MHz @ 50mA                           | TO-39  |
| MA 8003  | 800mW                                     | 500mA          | 80V               | 60V               | 7V                | 100/350 @ 10V @ 150mA   | 0.30V @ 150/15.0mA  | 10pF                    | 100MHz @ 50mA                           | TO-39  |
| 2N 696   | 600mW                                     | 500mA          | 60V               | —                 | 5V                | 20/ 60 @ 10V @ 150mA  | 1.50V @ 150/15.0mA  | 35pF                    | 40MHz @ 50mA                            | TO-5   |
| 2N 697   | 600mW                                     | 500mA          | 60V               | —                 | 5V                | 40/120 @ 10V @ 150mA  | 1.50V @ 150/15.0mA  | 35pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 698   | 800mW                                     | 500mA          | 120V              | 60V               | 7V                | 20/ 60 @ 10V @ 150mA  | 5.00V @ 150/15.0mA  | 15pF                    | 40MHz @ 50mA                            | TO-5   |
| 2N 699   | 600mW                                     | 500mA          | 120V              | —                 | 5V                | 40/120 @ 10V @ 150mA  | 5.00V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 718   | 400mW                                     | 500mA          | 60V               | —                 | 5V                | 40/120 @ 10V @ 150mA  | 1.50V @ 150/15.0mA  | 35pF                    | 50MHz @ 50mA                            | TO-18  |
| 2N 956   | 500mW                                     | 500mA          | 75V               | —                 | 7V                | 100/300 @ 10V @ 150mA   | 1.50V @ 150/15.0mA  | 25pF                    | 70MHz @ 50mA                            | TO-18  |
| 2N 1420  | 600mW                                     | 1A             | 60V               | —                 | 5V                | 100/300 @ 10V @ 150mA   | 1.50V @ 150/15.0mA  | 35pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 1482  | #5W                                       | 1.5A           | 100V              | 55V               | 12V               | 35/100 @ 4V @ 200mA   | 1.40V @ 200/20.0mA  | —                       | 1MHz @ 100mA                            | TO-5   |
| 2N 1613  | 800mW                                     | 500mA          | 75V               | —                 | 7V                | 40/120 @ 10V @ 150mA  | 1.50V @ 150/15.0mA  | 25pF                    | 60MHz @ 50mA                            | TO-5   |
| 2N 1711  | 800mW                                     | 500mA          | 75V               | —                 | 7V                | 100/300 @ 10V @ 150mA   | 1.50V @ 150/15.0mA  | 25pF                    | 70MHz @ 50mA                            | TO-5   |
| 2N 1893  | 800mW                                     | 500mA          | 120V              | 80V               | 7V                | 40/120 @ 10V @ 150mA  | 1.50V @ 150/15.0mA  | 15pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 1990  | 600mW                                     | 1A             | 100V              | —                 | 3V                | 20/ — @ 10V @ 30mA  | 0.50V @ 20/ 0.2mA   | —                       | —                                       | TO-5   |
| 2N 2017  | 1W  | 1A             | 60V               | 60V               | 8V                | 50/200 @ 10V @ 200mA  | 2.00V @ 200/20.0mA  | —                       | —                                       | TO-39  |
| 2N 2102  | 1W  | 1A             | 120V              | 65V               | 7V                | 40/120 @ 10V @ 150mA  | 0.50V @ 150/15.0mA  | 15pF                    | 60MHz @ 50mA                            | TO-5   |
| 2N 2192  | 800mW                                     | 1A             | 60V               | 40V               | 5V                | 100/300 @ 10V @ 150mA   | 0.35V @ 150/15.0mA  | 20pF                    | 90MHz @ 50mA                            | TO-5   |
| 2N 2192A | 800mW                                     | 1A             | 60V               | 40V               | 5V                | 100/300 @ 10V @ 150mA   | 0.25V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2193  | 800mW                                     | 1A             | 80V               | 50V               | 8V                | 40/120 @ 10V @ 150mA  | 0.35V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2193A | 800mW                                     | 1A             | 80V               | 50V               | 8V                | 40/120 @ 10V @ 150mA  | 0.25V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2194  | 800mW                                     | 1A             | 60V               | 40V               | 5V                | 20/ 60 @ 10V @ 150mA  | 0.35V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2194A | 800mW                                     | 1A             | 60V               | 40V               | 5V                | 20/ 60 @ 10V @ 150mA  | 0.25V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2195  | 600mW                                     | 1A             | 45V               | 25V               | 5V                | 20/ — @ 10V @ 150mA   | 0.35V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2195A | 600mW                                     | 1A             | 45V               | 25V               | 5V                | 20/ — @ 10V @ 150mA   | 0.25V @ 150/15.0mA  | 20pF                    | 50MHz @ 50mA                            | TO-5   |
| 2N 2243  | 800mW                                     | 1A             | 120V              | 80V               | 7V                | 40/120 @ 10V @ 150mA  | 0.35V @ 150/15.0mA  | 15pF                    | 50MHz @ 50mA                            | TO-39  |
| 2N 2243A | 800mW                                     | 1A             | 120V              | 80V               | 7V                | 40/120 @ 10V @ 150mA  | 0.25V @ 150/15.0mA  | 15pF                    | 50MHz @ 50mA                            | TO-39  |
| 2N 2270  | 1W  | 1A             | 60V               | 45V               | 7V                | 50/200 @ 10V @ 150mA  | 0.90V @ 150/15.0mA  | 15pF                    | 100MHz @ 50mA                           | TO-39  |
| 2N 2539  | 500mW                                     | 800mA          | 60V               | 30V               | 5V                | 50/150 @ 10V @ 50mA   | 0.45V @ 150/15.0mA  | —                       | 250MHz @ 50mA                           | TO-18  |
| 2N 2657  | 1.25W                                     | 5A             | 80V               | 60V               | 8V                | 40/120 @ 2V @ 1A  | 0.50V @ 1.0/0.1A  | 150pF                   | 20MHz @ 200mA                           | TO-39  |
| 2N 2658  | 1.25W                                     | 5A             | 100V              | 80V               | 8V                | 40/120 @ 2V @ 1A  | 0.50V @ 1.0/0.1A  | 150pF                   | 20MHz @ 200mA                           | TO-39  |
| 2N 3019  | 800mW                                     | 1A             | 140V              | 80V               | 7V                | 100/300 @ 10V @ 150mA   | 0.20V @ 150/15.0mA  | 12pF                    | 100MHz @ 50mA                           | TO-39  |
| 2N 3020  | 800mW                                     | 1A             | 140V              | 80V               | 7V                | 40/120 @ 10V @ 150mA  | 0.20V @ 150/15.0mA  | 12pF                    | 80MHz @ 50mA                            | TO-5   |
| 2N 3053  | 1W  | 700mA          | 60V               | 40V               | 5V                | 50/250 @ 10V @ 150mA  | 1.40V @ 150/15.0mA  | 15pF                    | 100MHz @ 50mA                           | TO-5   |
| 2N 3057  | 400mW                                     | 1A             | 100V              | 60V               | 7V                | 100/300 @ 10V @ 150mA   | 0.20V @ 150/15.0mA  | 12pF                    | 100MHz @ 50mA                           | TO-39  |
| 2N 3107  | 800mW                                     | 150mA          | 100V              | 60V               | 7V                | 100/300 @ 1V @ 150mA  | 0.25V @ 150/15.0mA  | 20pF                    | 70MHz @ 50mA                            | TO-5   |
| 2N 3108  | 800mW                                     | 150mA          | 100V              | 60V               | 7V                | 40/120 @ 1V @ 150mA   | 0.25V @ 150/15.0mA  | 20pF                    | 60MHz @ 50mA                            | TO-5   |