

# Medium Power Amplifiers and Switches

| TYPE NO. | POLARITY | CASE  | MAXIMUM RATINGS     |                    |                      | H <sub>FE</sub> |     | I <sub>C</sub> (mA) | V <sub>CE</sub> (V) | V <sub>CE(sat)</sub> |                    | f <sub>T</sub> min (MHz) | C <sub>ob</sub> max (MHz) | COMPLEMENTARY TYPE |
|----------|----------|-------|---------------------|--------------------|----------------------|-----------------|-----|---------------------|---------------------|----------------------|--------------------|--------------------------|---------------------------|--------------------|
|          |          |       | P <sub>a</sub> (mW) | I <sub>C</sub> (A) | V <sub>CEO</sub> (V) | min             | max |                     |                     | max (V)              | I <sub>C</sub> (A) |                          |                           |                    |
| 2N1566   | N        | TO-39 | 600                 | 0.1                | 60                   | 80              | 200 | 5                   | 5                   | 1                    | 0.01               | 60                       | 10                        | -                  |
| 2N1613   | N        | TO-39 | 800                 | 0.5                | 50*                  | 40              | 120 | 150                 | 10                  | 1.5                  | 0.15               | 60                       | 25                        | -                  |
| 2N1613A  | N        | TO-39 | 1000                | 0.5                | 50*                  | 40              | 120 | 150                 | 10                  | 1                    | 0.15               | 60                       | 25                        | -                  |
| 2N1613B  | N        | TO-39 | 1000                | 0.5                | 55*                  | 40              | 120 | 150                 | 10                  | 0.2                  | 0.15               | 60                       | 10                        | -                  |
| 2N1711   | N        | TO-39 | 800                 | 1                  | 50*                  | 100             | 300 | 150                 | 10                  | 1.5                  | 0.15               | 70                       | 25                        | -                  |
| 2N1711A  | N        | TO-39 | 1000                | 1                  | 50*                  | 100             | 300 | 150                 | 10                  | 1                    | 0.15               | 70                       | 25                        | -                  |
| 2N1711B  | N        | TO-39 | 1000                | 1                  | 55*                  | 100             | 300 | 150                 | 10                  | 0.2                  | 0.15               | 70                       | 10                        | -                  |
| 2N1889   | N        | TO-39 | 800                 | 1                  | 60                   | 40              | 120 | 150                 | 10                  | 5                    | 0.15               | 60                       | 15                        | -                  |
| 2N1890   | N        | TO-39 | 800                 | 1                  | 60                   | 100             | 300 | 150                 | 10                  | 5                    | 0.15               | 60                       | 15                        | -                  |
| 2N1893   | N        | TO-39 | 800                 | 0.5                | 80                   | 40              | 120 | 150                 | 10                  | 5                    | 0.15               | 50                       | 15                        | -                  |
| 2N1973   | N        | TO-39 | 800                 | 1                  | 80*                  | 75              | -   | 10                  | 10                  | 1.2                  | 0.05               | 60                       | 15                        | -                  |
| 2N1974   | N        | TO-39 | 800                 | 1                  | 80*                  | 35              | -   | 10                  | 10                  | 1.2                  | 0.05               | 50                       | 15                        | -                  |
| 2N1975   | N        | TO-39 | 800                 | 1                  | 80                   | 15              | -   | 10                  | 10                  | 1.2                  | 0.05               | 40                       | 15                        | -                  |
| 2N1983   | N        | TO-39 | 600                 | 1                  | 25                   | 80              | 240 | 5                   | 5                   | 0.25                 | 0.055              | 40                       | 45                        | -                  |
| 2N1984   | N        | TO-39 | 600                 | 1                  | 25                   | 40              | 120 | 5                   | 5                   | 0.25                 | 0.005              | 40                       | 45                        | -                  |
| 2N1985   | N        | TO-39 | 600                 | 1                  | 25                   | 20              | 80  | 5                   | 5                   | -                    | -                  | 40                       | 45                        | -                  |
| 2N1986   | N        | TO-39 | 600                 | 0.3                | 25                   | 60              | 240 | 150                 | 10                  | 1.5                  | 0.15               | 40                       | 35                        | -                  |
| 2N1987   | N        | TO-39 | 600                 | 0.3                | 25                   | 20              | 80  | 150                 | 10                  | 1.5                  | 0.15               | 40                       | 35                        | -                  |
| 2N1988   | N        | TO-39 | 600                 | 1                  | 45                   | 35              | 120 | 30                  | 10                  | 2                    | 0.03               | 40                       | 20                        | -                  |
| 2N1989   | N        | TO-39 | 600                 | 1                  | 45                   | 20              | 60  | 30                  | 10                  | 2                    | 0.03               | 40                       | 20                        | -                  |
| 2N2017   | N        | TO-39 | 1000                | 1                  | 60                   | 50              | 200 | 200                 | 10                  | 2                    | 0.2                | -                        | -                         | -                  |
| 2N2049   | N        | TO-39 | 800                 | 0.5                | 50                   | 100             | 300 | 150                 | 10                  | 0.4                  | 0.01               | 50                       | 25                        | -                  |
| 2N2102   | N        | TO-39 | 1000                | 1                  | 65                   | 40              | 120 | 150                 | 10                  | 0.5                  | 0.15               | 60                       | 10                        | -                  |
| 2N2102A  | N        | TO-39 | 1000                | 1                  | 65                   | 40              | 120 | 150                 | 10                  | 0.5                  | 0.15               | 60                       | 10                        | 2N4036             |
| 2N2192   | N        | TO-39 | 800                 | 1                  | 40                   | 100             | 300 | 150                 | 10                  | 0.35                 | 0.15               | 50                       | 20                        | -                  |
| 2N2192A  | N        | TO-39 | 800                 | 1                  | 40                   | 100             | 300 | 150                 | 10                  | 0.25                 | 0.15               | 50                       | 20                        | -                  |
| 2N2192B  | N        | TO-39 | 800                 | 1                  | 40                   | 100             | 300 | 150                 | 10                  | 0.18                 | 0.15               | 50                       | 20                        | -                  |
| 2N2193   | N        | TO-39 | 800                 | 1                  | 50                   | 40              | 120 | 150                 | 10                  | 0.35                 | 0.15               | 50                       | 20                        | -                  |
| 2N2193A  | N        | TO-39 | 800                 | 1                  | 50                   | 40              | 120 | 150                 | 10                  | 0.25                 | 0.15               | 50                       | 20                        | -                  |
| 2N2193B  | N        | TO-39 | 800                 | 1                  | 50                   | 40              | 120 | 150                 | 10                  | 0.18                 | 0.15               | 50                       | 20                        | -                  |
| 2N2195   | N        | TO-39 | 800                 | 1                  | 25                   | 20              | -   | 150                 | 10                  | 0.35                 | 0.15               | 50                       | 20                        | -                  |
| 2N2195A  | N        | TO-39 | 800                 | 1                  | 25                   | 20              | -   | 150                 | 10                  | 0.25                 | 0.15               | 50                       | 20                        | -                  |
| 2N2195B  | N        | TO-39 | 800                 | 1                  | 25                   | 20              | -   | 150                 | 10                  | 0.28                 | 0.15               | 50                       | 20                        | -                  |
| 2N2218   | N        | TO-39 | 800                 | 0.8                | 30                   | 40              | 120 | 150                 | 10                  | 0.4                  | 0.15               | 250                      | 8                         | -                  |
| 2N2218A  | N        | TO-39 | 800                 | 0.8                | 40                   | 40              | 120 | 150                 | 10                  | 1.0                  | 0.5                | 250                      | 8                         | -                  |
| 2N2219   | N        | TO-39 | 800                 | 0.8                | 30                   | 100             | 300 | 150                 | 10                  | 0.4                  | 0.15               | 250                      | 8                         | -                  |
| 2N2219A  | N        | TO-39 | 800                 | 0.8                | 40                   | 100             | 300 | 150                 | 10                  | 1.0                  | 0.5                | 250                      | 8                         | -                  |
| 2N2221   | N        | TO-18 | 500                 | 0.8                | 30                   | 40              | 120 | 150                 | 10                  | 0.4                  | 0.15               | 250                      | 8                         | -                  |
| 2N2221A  | N        | TO-18 | 500                 | 0.8                | 40                   | 40              | 120 | 150                 | 10                  | 1.0                  | 0.5                | 250                      | 8                         | -                  |
| 2N2222   | N        | TO-18 | 500                 | 0.8                | 30                   | 100             | 300 | 150                 | 10                  | 0.4                  | 0.15               | 250                      | 8                         | -                  |
| 2N2222A  | N        | TO-18 | 500                 | 0.8                | 40                   | 100             | 300 | 150                 | 10                  | 1.0                  | 0.5                | 250                      | 8                         | -                  |
| 2N2237   | N        | TO-39 | 600                 | 0.5                | 20                   | 40              | 125 | 100                 | 1                   | 0.25                 | 0.1                | 100                      | 35                        | -                  |
| 2N2243   | N        | TO-39 | 800                 | 1                  | 80                   | 40              | 120 | 150                 | 10                  | 0.25                 | 0.15               | 50                       | 15                        | -                  |
| 2N2243A  | N        | TO-39 | 800                 | 1                  | 80                   | 40              | 120 | 150                 | 10                  | 0.25                 | 0.15               | 50                       | 15                        | -                  |
| 2N2270   | N        | TO-39 | 1000                | 1                  | 45                   | 50              | 200 | 150                 | 10                  | 0.9                  | 0.15               | 100                      | 15                        | -                  |
| 2N2297   | N        | TO-39 | 800                 | 1                  | 35                   | 40              | 120 | 150                 | 10                  | 0.2                  | 0.15               | 60                       | 12                        | -                  |
| 2N2303   | P        | TO-39 | 600                 | 0.5                | 35                   | 75              | 200 | 150                 | 10                  | 1.5                  | 0.15               | 60                       | 45                        | -                  |
| 2N2309   | N        | TO-39 | 600                 | 0.5                | 30                   | 25              | 125 | 0.2                 | 4                   | -                    | -                  | 40                       | 25                        | -                  |
| 2N2380   | N        | TO-39 | 600                 | 0.5                | 40                   | 20              | 120 | 150                 | 5                   | 1.3                  | 0.15               | 100                      | 14                        | -                  |
| 2N2380A  | N        | TO-39 | 600                 | 0.5                | 40                   | 20              | 120 | 150                 | 5                   | 1.3                  | 0.15               | 100                      | 14                        | -                  |
| 2N2405   | N        | TO-39 | 1000                | 1                  | 90                   | 60              | 200 | 150                 | 10                  | 0.5                  | 0.15               | 50                       | 15                        | -                  |
| 2N2479   | N        | TO-39 | 600                 | 0.5                | 40                   | 30              | 120 | 150                 | 1.5                 | 0.85                 | 0.15               | 150                      | 14                        | -                  |
| 2N2800   | P        | TO-39 | 800                 | 0.8                | 35                   | 30              | 90  | 150                 | 10                  | 0.4                  | 0.15               | 120                      | 25                        | -                  |
| 2N2801   | P        | TO-39 | 800                 | 0.8                | 35                   | 75              | 225 | 150                 | 10                  | 0.4                  | 0.15               | 120                      | 25                        | -                  |
| 2N2837   | P        | TO-18 | 500                 | 0.8                | 35                   | 30              | 90  | 150                 | 10                  | 0.4                  | 0.15               | 120                      | 25                        | -                  |

# HFE grouping available + typical value □ T<sub>c</sub>=25°C \* VCER