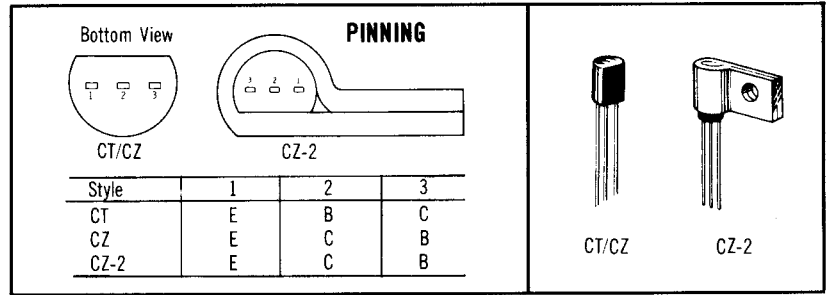


## SERIES 2N TRANSISTORS

- Small-signal TO-92 plastic transistors. JEDEC '2N' registered types.



FOR PACKAGE DIMENSIONS, SEE PAGE 112.

| Catalog Number        | Case Style | P <sub>D</sub><br>T <sub>A</sub> = 25°C<br>(mW) | Polarity | V <sub>CEO</sub> | V <sub>CE0</sub> | V <sub>EB0</sub> | I <sub>CEO</sub> | V <sub>CB</sub> | h <sub>FE</sub> |                    | I <sub>C</sub> | V <sub>CE</sub> | V <sub>CE(SAT)</sub> |      | V <sub>BE(SAT)</sub> | I <sub>C</sub> | C <sub>ob</sub> | f <sub>T</sub> |      | t <sub>off</sub> | NF             | Test            |
|-----------------------|------------|---|----------|------------------|------------------|------------------|------------------|-----------------|-----------------|--------------------|----------------|-----------------|----------------------|------|----------------------|----------------|-----------------|----------------|------|------------------|----------------|-----------------|
|                       |            |   |          | (V)<br>Min.      | (V)<br>Min.      | (V)<br>Min.      | (nA)<br>Max.     | (V)<br>@        | Min.            | Max.               | @ (mA)         | & (V)           | Max.                 | Min. | Max.                 | @ (mA)         | Max.            | Min.           | Max. | (ns)<br>Max.     | (dB) @<br>Max. | Cond.<br>(note) |
| 2N2711                | CZ         | 360   | NPN      | 18               | 18               | 5                | 500              | 18              | 30              | 90                 | 2              | 4.5             | —                    | —    | —                    | —              | 12              | —              | —    | —                | —              | —               |
| 2N2712                | CZ         | 360   | NPN      | 18               | 18               | 5                | 500              | 18              | 75              | 225                | 2              | 4.5             | —                    | —    | —                    | —              | 12              | —              | —    | —                | —              | —               |
| 2N2713                | CZ         | 360   | NPN      | 18               | 18               | 5                | 100              | 18              | 30              | 90                 | 2              | 4.5             | 0.30                 | —    | 1.3                  | 50             | —               | —              | —    | —                | —              | —               |
| 2N2714                | CZ         | 360   | NPN      | 18               | 18               | 5                | 100              | 18              | 75              | 225                | 2              | 4.5             | 0.30                 | —    | 1.3                  | 50             | —               | —              | —    | —                | —              | —               |
| 2N2923                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 90              | 180                | 2              | 10              | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N2924                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 150             | 300                | 2              | 10              | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N2925                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 235             | 470                | 2              | 10              | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N2926 <sup>(2)</sup> | CZ         | 360   | NPN      | 25               | 25               | 5                | 500              | 18              | 35              | 470 <sup>(1)</sup> | 2              | 10              | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3390                | CZ         | 360   | NPN      | 18               | 18               | 5                | 100              | 18              | 400             | 800                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3391                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 250             | 500                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3391A               | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 250             | 500                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | 5              | 3               |
| 2N3392                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 150             | 300                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3393                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 90              | 180                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3394                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 55              | 110                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3395 <sup>(2)</sup> | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 150             | 500                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3396 <sup>(2)</sup> | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 90              | 500                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3397 <sup>(2)</sup> | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 55              | 500                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3398 <sup>(2)</sup> | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 55              | 800                | 2              | 4.5             | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3402                | CZ-2       | 900   | NPN      | 25               | 25               | 5                | 100              | 25              | 75              | 225                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3403                | CZ-2       | 900   | NPN      | 25               | 25               | 5                | 100              | 25              | 180             | 540                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3404                | CZ-2       | 900   | NPN      | 50               | 50               | 5                | 100              | 50              | 75              | 225                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3405                | CZ-2       | 900   | NPN      | 50               | 50               | 5                | 100              | 50              | 180             | 540                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3414                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 75              | 225                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3415                | CZ         | 360   | NPN      | 25               | 25               | 5                | 100              | 25              | 180             | 540                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3416                | CZ         | 360   | NPN      | 50               | 50               | 5                | 100              | 50              | 75              | 225                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3417                | CZ         | 360   | NPN      | 50               | 50               | 5                | 100              | 50              | 180             | 540                | 2              | 4.5             | 0.30                 | —    | 0.85                 | 50             | —               | —              | —    | —                | —              | —               |
| 2N3702                | CZ         | 360   | PNP      | -40              | -25              | -5               | -100             | -20             | 60              | 500                | -50            | -5              | -0.25                | —    | —                    | -50            | 12              | 100            | —    | -50              | —              | —               |
| 2N3703                | CZ         | 360   | PNP      | -50              | -30              | -5               | -100             | -20             | 30              | 150                | -50            | -5              | -0.25                | —    | —                    | -50            | 12              | 100            | —    | -50              | —              | —               |
| 2N3704                | CZ         | 360   | NPN      | 50               | 30               | 5                | 100              | 20              | 100             | 300                | 50             | 2               | 0.60                 | 0.5  | 1                    | 100            | 12              | 100            | —    | 50               | —              | —               |
| 2N3705                | CZ         | 360   | NPN      | 50               | 30               | 5                | 100              | 20              | 50              | 150                | 50             | 2               | 0.80                 | 0.5  | 1                    | 100            | 12              | 100            | —    | 50               | —              | —               |
| 2N3706                | CZ         | 360   | NPN      | 40               | 20               | 5                | 100              | 20              | 30              | 600                | 50             | 2               | 1.0                  | 0.5  | 1                    | 100            | 12              | 100            | —    | 50               | —              | —               |
| 2N3707                | CZ         | 360   | NPN      | 30               | 30               | 6                | 100              | 20              | 100             | 400                | 0.1            | 5               | 1                    | —    | —                    | 10             | —               | —              | —    | —                | 5              | 3               |
| 2N3708                | CZ         | 360   | NPN      | 30               | 30               | 6                | 100              | 20              | 45              | 660                | 1              | 5               | 1                    | —    | —                    | 10             | —               | —              | —    | —                | —              | —               |
| 2N3709                | CZ         | 360   | NPN      | 30               | 30               | 6                | 100              | 20              | 45              | 165                | 1              | 5               | 1                    | —    | —                    | 10             | —               | —              | —    | —                | —              | —               |
| 2N3710                | CZ         | 360   | NPN      | 30               | 30               | 6                | 100              | 20              | 90              | 330                | 1              | 5               | 1                    | —    | —                    | 10             | —               | —              | —    | —                | —              | —               |
| 2N3711                | CZ         | 360   | NPN      | 30               | 30               | 6                | 100              | 20              | 180             | 660                | 1              | 5               | 1                    | —    | —                    | 10             | —               | —              | —    | —                | —              | —               |
| 2N3721                | CT         | 360   | NPN      | 18               | 18               | 5                | 500              | 18              | 60              | 660 <sup>(1)</sup> | 2              | 10              | —                    | —    | —                    | —              | 10              | —              | —    | —                | —              | —               |
| 2N3827                | CZ         | 360   | NPN      | 60               | 45               | 4                | 100              | 30              | 100             | 400                | 10             | 10              | 0.250                | —    | —                    | 10             | 3.5             | 200            | 800  | 10               | —              | —               |
| 2N3858                | CZ         | 360   | NPN      | 30               | 30               | 4                | 50               | 40              | 60              | 120                | 2              | 4.5             | 1                    | —    | —                    | 10             | —               | 90             | 250  | 2                | —              | —               |
| 2N3858A               | CZ         | 360   | NPN      | 60               | 60               | 6                | 50               | 60              | 60              | 120                | 2              | 4.5             | 0.250                | —    | 0.78                 | 10             | —               | 90             | 250  | 2                | —              | —               |
| 2N3859                | CZ         | 360   | NPN      | 30               | 30               | 4                | 50               | 40              | 100             | 200                | 2              | 4.5             | 1                    | —    | —                    | 10             | —               | 90             | 250  | 2                | —              | —               |
| 2N3859A               | CZ         | 360   | NPN      | 60               | 60               | 6                | 50               | 60              | 100             | —                  | 10             | 1               | 0.250                | —    | 0.78                 | 10             | —               | 90             | 250  | 2                | —              | —               |
| 2N3860                | CZ         | 360   | NPN      | 40               | 40               | 5                | —                | —               | 150             | 300                | 2              | 4.5             | 1                    | —    | 0.78                 | 10             | —               | 90             | 250  | 2                | —              | —               |
| 2N3877                | CZ         | 360   | NPN      | 70               | 70               | 4                | 100              | 70              | 20              | 250                | 2              | 4.5             | 1                    | —    | 0.90                 | 10             | —               | —              | —    | —                | —              | —               |
| 2N3877A               | CZ         | 360   | NPN      | 85               | 85               | 4                | 100              | 70              | 20              | 250                | 2              | 4.5             | 1                    | —    | 0.90                 | 10             | —               | —              | —    | —                | —              | —               |
| 2N3900                | CZ         | 360   | NPN      | 18               | 18               | 5                | 100              | 18              | 250             | 500                | 2              | 4.5             | —                    | —    | —                    | —              | —               | —              | —    | —                | —              | —               |
| 2N3900A               | CZ         | 360   | NPN      | 18               | 18               | 5                | 100              | 18              | 250             | 500                | 2              | 4.5             | —                    | —    | —                    | —              | —               | —              | —    | —                | 5              | 4               |
| 2N3901                | CZ         | 360   | NPN      | 18               | 18               | 5                | 10               | 15              | 350             | 700                | 2              | 4.5             | —                    | —    | —                    | —              | —               | —              | —    | —                | —              | —               |

continued on next page

**SERIES 2N TRANSISTORS, continued**

| Catalog Number | Case Style | P <sub>0</sub><br>T <sub>a</sub> = 25°C<br>(mW) | Polarity | V <sub>CE0</sub><br>(V)<br>Min. | V <sub>CE0</sub><br>(V)<br>Min. | V <sub>EB0</sub><br>(V)<br>Min. | I <sub>CB0</sub><br>(nA)<br>Max. | V <sub>CEB</sub><br>(V)<br>@ | h <sub>FE</sub> |      | I <sub>C</sub><br>(mA)<br>@ | V <sub>CE</sub><br>(V) | V <sub>CE(SAT)</sub><br>(V) |       | V <sub>BE(SAT)</sub><br>(V)<br>& Max. | I <sub>C</sub><br>(mA)<br>@ | C <sub>ob</sub><br>(pF)<br>Max. | f <sub>T</sub><br>(MHz) |      | t <sub>off</sub><br>(ns)<br>Max. | NF<br>(dB)<br>Max.  | Test<br>Cond.<br>(note) |      |
|----------------|------------|---|----------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|------------------------------|-----------------|------|-----------------------------|------------------------|-----------------------------|-------|---------------------------------------|-----------------------------|---------------------------------|-------------------------|------|----------------------------------|---------------------|-------------------------|------|
|                |            |   |          |                                 |                                 |                                 |                                  |                              | Min.            | Max. |                             |                        | Max.                        | Min.  |                                       |                             |                                 | Min.                    | Max. |                                  |                     |                         | Min. |
| 2N3903         | CT         | 360   | NPN      | 60                              | 40                              | 6                               | 50                               | —                            | 20              | —    | 0.1                         | 1                      | 0.2                         | —     | —                                     | 10                          | 4                               | 250                     | —    | 10                               | 225 <sup>(17)</sup> | 6                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 35              | —    | 1                           | 1                      | 0.3                         | —     | —                                     | 50                          |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | 150  | 10                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | 50                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 15              | —    | 100                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3904         | CT         | 360   | NPN      | 60                              | 40                              | 6                               | 50                               | —                            | 40              | —    | 0.1                         | 1                      | 0.2                         | —     | —                                     | 10                          | 4                               | 300                     | —    | 10                               | 250 <sup>(17)</sup> | 5                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 70              | —    | 1                           | 1                      | 0.3                         | —     | —                                     | 50                          |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 100             | 300  | 10                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 60              | —    | 50                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | 100                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3905         | CT         | 360   | PNP      | -40                             | -40                             | -5                              | -50                              | —                            | 30              | —    | -0.1                        | -1                     | -0.25                       | -0.65 | -0.85                                 | -10                         | 4.5                             | 200                     | —    | -10                              | 260 <sup>(17)</sup> | 5                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | —    | -1                          | -1                     | -0.40                       | —     | -0.95                                 | -50                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | 150  | -10                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | -50                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 15              | —    | -100                        | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3906         | CT         | 360   | PNP      | -40                             | -40                             | -5                              | -50                              | —                            | 60              | —    | -0.1                        | -1                     | -0.25                       | -0.65 | -0.85                                 | -10                         | 4.5                             | 250                     | —    | -10                              | 260 <sup>(17)</sup> | 4                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 80              | —    | -1                          | -1                     | -0.40                       | —     | -0.95                                 | -50                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 100             | 300  | -10                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 60              | —    | -50                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | -100                        | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3973         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 500                              | 40                           | 35              | 100  | 10                          | 1                      | 0.30                        | —     | 1.7                                   | 150                         | —                               | —                       | —    | —                                | —                   | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | 150                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3974         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 500                              | 40                           | 55              | 200  | 10                          | 1                      | 0.30                        | —     | 1.7                                   | 150                         | —                               | —                       | —    | —                                | —                   | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | —    | 150                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3975         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 500                              | 40                           | 35              | 100  | 10                          | 1                      | 0.30                        | —     | 1.7                                   | 150                         | —                               | —                       | —    | —                                | —                   | 7                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | 150                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N3976         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 500                              | 40                           | 55              | 200  | 10                          | 1                      | 0.30                        | —     | 1.7                                   | 150                         | —                               | —                       | —    | —                                | —                   | 7                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | —    | 150                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4058         | CZ         | 360   | PNP      | -30                             | -30                             | -6                              | -100                             | -20                          | 100             | 400  | -0.1                        | -5                     | -0.70                       | —     | —                                     | -10                         | —                               | —                       | —    | —                                | 5                   | 6                       |      |
| 2N4059         | CZ         | 360   | PNP      | -30                             | -30                             | -6                              | -100                             | -20                          | 45              | 660  | -1                          | -5                     | -0.70                       | —     | —                                     | -10                         | —                               | —                       | —    | —                                | —                   | —                       |      |
| 2N4060         | CZ         | 360   | PNP      | -30                             | -30                             | -6                              | -100                             | -20                          | 45              | 165  | -1                          | -5                     | -0.70                       | —     | —                                     | -10                         | —                               | —                       | —    | —                                | —                   | —                       |      |
| 2N4061         | CZ         | 360   | PNP      | -30                             | -30                             | -6                              | -100                             | -20                          | 90              | 330  | -1                          | -5                     | -0.70                       | —     | —                                     | -10                         | —                               | —                       | —    | —                                | —                   | —                       |      |
| 2N4062         | CZ         | 360   | PNP      | -30                             | -30                             | -6                              | -100                             | -20                          | 180             | 660  | -1                          | -5                     | -0.70                       | —     | —                                     | -10                         | —                               | —                       | —    | —                                | —                   | —                       |      |
| 2N4123         | CT         | 500   | NPN      | 40                              | 30                              | 5                               | 50                               | 20                           | 50              | 150  | 2                           | 1                      | 0.30                        | —     | 0.95                                  | 50                          | 4                               | 250                     | —    | -10                              | —                   | 6                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 25              | —    | 50                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4124         | CT         | 500   | NPN      | 30                              | 25                              | 5                               | 50                               | 20                           | 120             | 360  | 2                           | 1                      | 0.30                        | —     | 0.95                                  | 50                          | 4                               | 300                     | —    | 10                               | —                   | 5                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 60              | —    | 50                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4125         | CT         | 500   | PNP      | -30                             | -30                             | -4                              | -50                              | -20                          | 50              | 150  | -2                          | -1                     | -0.40                       | —     | -0.95                                 | -50                         | 4.5                             | 200                     | —    | -10                              | —                   | 5                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 25              | —    | -50                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4126         | CT         | 500   | PNP      | -25                             | -25                             | -4                              | -50                              | -20                          | 120             | 360  | -2                          | -1                     | -0.40                       | —     | -0.95                                 | -50                         | 4.5                             | 200                     | —    | -10                              | —                   | 4                       | 6    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 60              | —    | -50                         | -1                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4256         | CZ         | 360   | NPN      | 30                              | 30                              | 5                               | 500                              | 30                           | 100             | 500  | 2                           | 4.5                    | 0.20                        | —     | 0.92                                  | 50                          | 4                               | —                       | —    | —                                | 100 <sup>(18)</sup> | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 60              | —    | 10                          | —                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 20              | —    | 50                          | —                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4264         | CT         | 310   | NPN      | 30                              | 15                              | 6                               | —                                | —                            | 25              | —    | 1                           | 1                      | 0.22                        | 0.65  | 0.80                                  | 10                          | 4                               | 300                     | —    | 10                               | 35 <sup>(19)</sup>  | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | 160  | 10                          | 1                      | 0.35                        | 0.75  | 0.95                                  | 100                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | —    | 30                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 30              | —    | 100                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 20              | —    | 200                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4265         | CT         | 310   | NPN      | 30                              | 12                              | 6                               | —                                | —                            | 50              | —    | 1                           | 1                      | 0.22                        | 0.65  | 0.80                                  | 10                          | 4                               | 300                     | —    | 10                               | 35 <sup>(19)</sup>  | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 100             | 400  | 10                          | 1                      | 0.35                        | 0.75  | 0.95                                  | 100                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 90              | —    | 30                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 55              | —    | 100                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 35              | —    | 200                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4400         | CT         | 350   | NPN      | 60                              | 40                              | 6                               | 100 <sup>(5)</sup>               | —                            | 20              | —    | 1                           | 1                      | 0.40                        | 0.75  | 0.95                                  | 150                         | 6.5                             | 200                     | —    | 20                               | 225 <sup>(20)</sup> | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | —    | 10                          | 1                      | 0.75                        | —     | 1.2                                   | 500                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | 150  | 150                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 20              | —    | 500                         | 2                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4401         | CT         | 350   | NPN      | 60                              | 40                              | 6                               | 100 <sup>(5)</sup>               | —                            | 20              | —    | 0.1                         | 1                      | 0.40                        | 0.75  | 0.95                                  | 150                         | 6.5                             | 250                     | —    | 20                               | 225 <sup>(20)</sup> | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | —    | 1                           | 1                      | 0.75                        | —     | 1.2                                   | 500                         |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 80              | —    | 10                          | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 100             | 300  | 150                         | 1                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 40              | —    | 500                         | 2                      | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
| 2N4402         | CT         | 310   | PNP      | -40                             | -40                             | -5                              | -100 <sup>(5)</sup>              | —                            | 30              | —    | -1                          | -1                     | -0.40                       | -0.75 | -0.95                                 | -150                        | 8.5                             | 150                     | —    | -20                              | 225 <sup>(20)</sup> | —                       | —    |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | —    | -10                         | -1                     | -0.75                       | —     | -1.3                                  | -500                        |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 50              | 150  | -150                        | -2                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |
|                |            |   |          |                                 |                                 |                                 |                                  |                              | 20              | —    | -500                        | -2                     | —                           | —     | —                                     | —                           |                                 |                         |      |                                  |                     |                         |      |

continued on next page

**SERIES 2N TRANSISTORS, continued**

| Catalog Number | Case Style | P <sub>0</sub><br>T <sub>a</sub> = 25°C<br>(mW) | Polarity | V <sub>CS0</sub><br>(V)<br>Min. | V <sub>CE0</sub><br>(V)<br>Min. | V <sub>EB0</sub><br>(V)<br>Min. | I <sub>CS0</sub><br>(nA)<br>Max. | V <sub>CB</sub><br>(V)<br>@ | h <sub>FE</sub>              |                         | I <sub>c</sub><br>(mA)<br>@       | V <sub>CE</sub><br>(V)<br>& | V <sub>DESAT</sub><br>(V) |            | V <sub>BEISAT</sub><br>(V)<br>& | I <sub>c</sub><br>(mA)<br>@ | C <sub>ob</sub><br>(pF)<br>Max. | f <sub>r</sub><br>(MHz) |      | t <sub>off</sub><br>(ns)<br>Max. | NF<br>(dB)<br>Max.  | Test<br>Cond.<br>(note) |         |
|----------------|------------|---|----------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|-----------------------------|------------------------------|-------------------------|-----------------------------------|-----------------------------|---------------------------|------------|---------------------------------|-----------------------------|---------------------------------|-------------------------|------|----------------------------------|---------------------|-------------------------|---------|
|                |            |   |          |                                 |                                 |                                 |                                  |                             | Min.                         | Max.                    |                                   |                             | Max.                      | Min.       |                                 |                             |                                 | Max.                    | Min. |                                  |                     |                         | Max.    |
| 2N4403         | CT         | 310   | PNP      | -40                             | 40                              | -5                              | -100 <sup>(5)</sup>              | —                           | 30<br>60<br>100<br>100<br>20 | —<br>—<br>—<br>300<br>— | -0.1<br>-1<br>-10<br>-150<br>-500 | -1<br>-1<br>-1<br>-2<br>-2  | -0.40<br>-0.75            | -0.75<br>— | -0.95<br>-1.3                   | -150<br>-500                | 8.5                             | 200                     | —    | 20                               | 225 <sup>(25)</sup> | —                       | —       |
| 2N4409         | CT         | 625   | NPN      | 80                              | 50                              | 5                               | 10                               | 60                          | 60<br>60                     | —<br>400                | 1<br>10                           | 1<br>1                      | 0.2                       | —          | 0.8                             | 1                           | —                               | 60                      | 300  | 10                               | —                   | —                       |         |
| 2N4410         | CT         | 625   | NPN      | 120                             | 80                              | 5                               | 10                               | 100                         | 60<br>60                     | —<br>400                | 1<br>10                           | 1<br>1                      | 0.2                       | —          | 0.8                             | 1                           | —                               | 60                      | 300  | 10                               | —                   | —                       |         |
| 2N4424         | CZ         | 360   | NPN      | 60                              | 40                              | 5                               | 30                               | 40                          | 180                          | 540                     | 2                                 | 4.5                         | 0.3                       | —          | 0.85                            | 50                          | —                               | —                       | —    | —                                | —                   | —                       |         |
| 2N4425         | CZ-1       | 900   | NPN      | 60                              | 40                              | 5                               | 30                               | 40                          | 180                          | 540                     | 2                                 | 4.5                         | 0.3                       | —          | 0.85                            | 50                          | —                               | —                       | —    | —                                | —                   | —                       |         |
| 2N4951         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 50                               | 40                          | 20<br>40<br>60               | —<br>—<br>200           | 1<br>10<br>150                    | 10<br>10<br>10              | 0.3                       | —          | 1.3                             | 150                         | 8                               | 250                     | —    | 20                               | 350 <sup>(20)</sup> | —                       | —       |
| 2N4952         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 50                               | 40                          | 50<br>75<br>100              | —<br>—<br>300           | 1<br>10<br>150                    | 10<br>10<br>10              | 0.3                       | —          | 1.3                             | 150                         | 8                               | 250                     | —    | 20                               | 350 <sup>(20)</sup> | —                       | —       |
| 2N4953         | CZ         | 360   | NPN      | 60                              | 30                              | 5                               | 50                               | 40                          | 75<br>150<br>200             | —<br>—<br>600           | 1<br>10<br>150                    | 10<br>10<br>10              | 0.3                       | —          | 1.3                             | 150                         | 8                               | 250                     | —    | 20                               | 400 <sup>(20)</sup> | —                       | —       |
| 2N4954         | CZ         | 360   | NPN      | 40                              | 30                              | 5                               | 50                               | 30                          | 20<br>40<br>60               | —<br>—<br>600           | 1<br>10<br>150                    | 10<br>10<br>10              | 0.3                       | —          | 1.3                             | 150                         | 8                               | 250                     | —    | 20                               | 400 <sup>(20)</sup> | —                       | —       |
| 2N5087         | CT         | 350   | PNP      | -50                             | -50                             | —                               | -50                              | -35                         | 250<br>250<br>250            | 800<br>—<br>—           | -0.1<br>-1<br>-10                 | -5<br>-5<br>-5              | -0.3                      | —          | —                               | -10                         | 4                               | 40                      | —    | -0.5                             | —                   | 2<br>2                  | 6<br>7  |
| 2N5088         | CT         | 350   | NPN      | 35                              | 30                              | —                               | 50                               | 20                          | 300<br>350<br>300            | 900<br>—<br>—           | 0.1<br>1<br>10                    | 5<br>5<br>5                 | 0.5                       | —          | —                               | 10                          | 4                               | —                       | —    | —                                | —                   | 3                       | 8       |
| 2N5089         | CT         | 350   | NPN      | 35                              | 30                              | —                               | 50                               | 15                          | 400<br>450<br>400            | 1200<br>—<br>—          | 0.1<br>1<br>10                    | 5<br>5<br>5                 | 0.5                       | —          | —                               | 10                          | 4                               | —                       | —    | —                                | —                   | 2                       | 8       |
| 2N5172         | CZ         | 360   | NPN      | 25                              | 25                              | 5                               | 100                              | 25                          | 100                          | 500                     | 10                                | 10                          | 0.25                      | —          | —                               | 10                          | 10                              | —                       | —    | —                                | —                   | —                       | —       |
| 2N5174         | CZ         | 360   | NPN      | 90                              | 75                              | 5                               | 500                              | 60                          | 30<br>40                     | —<br>600                | 0.1<br>10                         | 5<br>5                      | 0.95                      | 0.6        | 0.8                             | 10                          | 5                               | —                       | —    | —                                | —                   | —                       | —       |
| 2N5209         | CT         | 360   | NPN      | 50                              | 50                              | 4.5                             | 50                               | 35                          | 100<br>150<br>150            | 300<br>—<br>—           | 0.1<br>1<br>10                    | 5<br>5<br>5                 | 0.70                      | —          | —                               | 10                          | —                               | 30                      | —    | 0.5                              | —                   | 3<br>4                  | 9<br>10 |
| 2N5210         | CT         | 360   | NPN      | 50                              | 50                              | 4.5                             | 50                               | 35                          | 200<br>250<br>250            | 600<br>—<br>—           | 0.1<br>1<br>10                    | 5<br>5<br>5                 | 0.70                      | —          | —                               | 10                          | —                               | 30                      | —    | 0.5                              | —                   | 2<br>3                  | 9<br>10 |
| 2N5219         | CT         | 360   | NPN      | 20                              | 15                              | 3                               | 100                              | 10                          | 35                           | 500                     | 2                                 | 10                          | 0.40                      | —          | 1                               | 10                          | 4                               | 150                     | —    | 10                               | —                   | —                       | —       |
| 2N5220         | CT         | 360   | NPN      | 15                              | 15                              | 3                               | 100                              | 10                          | 25<br>30                     | —<br>600                | 10<br>50                          | 10<br>10                    | 0.50                      | —          | 1.1                             | 150                         | 10                              | 100                     | —    | 20                               | —                   | —                       | —       |
| 2N5221         | CT         | 360   | PNP      | -15                             | -15                             | -3                              | -100                             | -10                         | 25<br>30                     | —<br>600                | -10<br>-50                        | -10<br>-10                  | -0.50                     | —          | -1.1                            | -150                        | 15                              | 100                     | —    | -20                              | —                   | —                       | —       |
| 2N5223         | CT         | 360   | NPN      | 25                              | 20                              | 3                               | 100                              | 10                          | 50                           | 800                     | 2                                 | 10                          | 0.70                      | —          | 1.2                             | 10                          | 4                               | 150                     | —    | 10                               | —                   | —                       | —       |
| 2N5225         | CT         | 360   | NPN      | 25                              | 25                              | 4                               | 300                              | 15                          | 25<br>30                     | —<br>600                | 10<br>50                          | 10<br>10                    | 0.8                       | —          | 1                               | 100                         | 20                              | 50                      | —    | 20                               | —                   | —                       | —       |
| 2N5226         | CT         | 360   | PNP      | -25                             | -25                             | -4                              | -300                             | -15                         | 25<br>30                     | —<br>600                | -10<br>-50                        | -10<br>-10                  | -0.8                      | —          | -1                              | -100                        | 20                              | 50                      | —    | -20                              | —                   | —                       | —       |
| 2N5228         | CT         | 360   | PNP      | -5                              | -5                              | -3                              | -100 <sup>(14)</sup>             | —                           | 30<br>15                     | —<br>—                  | -10<br>-50                        | -0.3<br>-1                  | -0.4                      | -0.65      | -1.25                           | -10                         | 5                               | 300                     | —    | -10                              | 140 <sup>(21)</sup> | —                       | —       |
| 2N5232         | CZ         | 360   | NPN      | 70                              | 50                              | 5                               | 30                               | 50                          | 250                          | 500                     | 2                                 | 5                           | 0.125                     | —          | 0.78                            | 10                          | —                               | —                       | —    | —                                | —                   | —                       | —       |
| 2N5232A        | CZ         | 360   | NPN      | 70                              | 50                              | 5                               | 30                               | 50                          | 250                          | 500                     | 2                                 | 5                           | 0.125                     | —          | 0.78                            | 10                          | —                               | —                       | —    | —                                | —                   | 5                       | 12      |
| 2N5249         | CZ         | 400   | NPN      | 70                              | 50                              | 5                               | 30                               | 50                          | 400                          | 800                     | 2                                 | 5                           | 0.125                     | —          | 0.78                            | 10                          | —                               | —                       | —    | —                                | —                   | —                       | —       |
| 2N5249A        | CZ         | 400   | NPN      | 70                              | 50                              | 5                               | 30                               | 50                          | 400                          | 800                     | 2                                 | 5                           | 0.125                     | —          | 0.78                            | 10                          | —                               | —                       | —    | —                                | —                   | 3                       | 12      |
| 2N5305         | CZ         | 400   | NPN      | 25                              | 25                              | 12                              | 100                              | 25                          | 2000<br>6000                 | 20000<br>—              | 2<br>100                          | 5<br>5                      | 1.4                       | —          | 1.6                             | 200                         | 10                              | 60                      | —    | 2                                | —                   | —                       | —       |
| 2N5306         | CZ         | 400   | NPN      | 25                              | 25                              | 12                              | 100                              | 25                          | 7000<br>20000                | 70000<br>—              | 2<br>100                          | 5<br>5                      | 1.4                       | —          | 1.6                             | 200                         | 10                              | 60                      | —    | 2                                | —                   | —                       | —       |
| 2N5306A        | CZ         | 400   | NPN      | 25                              | 25                              | 12                              | 100                              | 25                          | 7000<br>20000                | 70000<br>—              | 2<br>100                          | 5<br>5                      | 1.4                       | —          | 1.6                             | 200                         | 10                              | 60                      | —    | 2                                | —                   | 10                      | 13      |
| 2N5307         | CZ         | 400   | NPN      | 40                              | 40                              | 12                              | 100                              | 40                          | 2000<br>6000                 | 20000<br>—              | 2<br>100                          | 5<br>5                      | 1.4                       | —          | 1.6                             | 200                         | 10                              | 60                      | —    | 2                                | —                   | —                       | —       |
| 2N5308         | CZ         | 400   | NPN      | 40                              | 40                              | 12                              | 100                              | 40                          | 7000<br>20000                | 70000<br>—              | 2<br>100                          | 5<br>5                      | 1.4                       | —          | 1.6                             | 200                         | 10                              | 60                      | —    | 2                                | —                   | —                       | —       |

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**SERIES 2N TRANSISTORS, continued**

| Catalog Number | Case Style | P <sub>D</sub><br>T <sub>A</sub> = 25°C<br>(mW) | Polarity | V <sub>CE0</sub> (V) | V <sub>CE0</sub> (V) | V <sub>EB0</sub> (V) | I <sub>CB0</sub> (nA) | V <sub>CB</sub> (V) | h <sub>FE</sub> |       | I <sub>C</sub> (mA) | V <sub>CE</sub> (V) | V <sub>CE(SAT)</sub> (V) |      | V <sub>BE(SAT)</sub> (V) | I <sub>C</sub> (mA) | C <sub>ob</sub> (pF) | f <sub>T</sub> (MHz) |      | I <sub>C</sub> (mA) | t <sub>off</sub> (ns) | NF (dB) | Test Cond. (note) |
|----------------|------------|---|----------|----------------------|----------------------|----------------------|-----------------------|---------------------|-----------------|-------|---------------------|---------------------|--------------------------|------|--------------------------|---------------------|----------------------|----------------------|------|---------------------|-----------------------|---------|-------------------|
|                |            |   |          | Min.                 | Min.                 | Min.                 | Max.                  | α                   | Min.            | Max.  | α                   | Max.                | Max.                     | Min. | & Max.                   | Max.                | Min.                 | Max.                 | Max. | Min.                | Max.                  | Max.    | Max.              |
| 2N5308A        | CZ         | 400   | NPN      | 40                   | 40                   | 12                   | 100                   | 40                  | 7000            | 70000 | 2                   | 5                   | 1.4                      | —    | 1.6                      | 200                 | 10                   | 60                   | —    | 2                   | —                     | 10      | 13                |
| 2N5309         | CZ         | 360   | NPN      | 70                   | 50                   | 5                    | 10                    | 50                  | 60              | 120   | .01                 | 5                   | 0.125                    | —    | 0.78                     | 10                  | —                    | —                    | —    | —                   | —                     | —       | —                 |
| 2N5310         | CZ         | 360   | NPN      | 70                   | 50                   | 5                    | 10                    | 50                  | 100             | 300   | .01                 | 5                   | 0.125                    | —    | 0.78                     | 10                  | —                    | —                    | —    | —                   | —                     | —       | —                 |
| 2N5354         | CZ         | 360   | PNP      | -25                  | -25                  | -4                   | -100                  | -25                 | 32              | —     | -2                  | -10                 | 0.25                     | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | 120   | -30                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 20              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5355         | CZ         | 360   | PNP      | -25                  | -25                  | -4                   | -100                  | -25                 | 80              | —     | -2                  | -10                 | -0.25                    | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 100             | 300   | -50                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5356         | CZ         | 360   | PNP      | -25                  | -25                  | -4                   | -100                  | -25                 | 200             | —     | -2                  | -10                 | -0.25                    | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 250             | 500   | -30                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 75              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5365         | CZ         | 360   | PNP      | -40                  | -40                  | -4                   | -100                  | -40                 | 32              | —     | -2                  | -10                 | -0.25                    | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | 120   | -50                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 20              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5366         | CZ         | 360   | PNP      | -40                  | -40                  | -4                   | -100                  | -40                 | 80              | —     | -2                  | -10                 | -0.25                    | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 100             | 300   | -50                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5367         | CZ         | 360   | PNP      | -40                  | -40                  | -4                   | -100                  | -40                 | 200             | —     | -10                 | -2                  | -0.25                    | —    | -1.1                     | -50                 | 8                    | 250                  | —    | -2                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 250             | 500   | -50                 | -1                  | -1                       | —    | -2                       | -300                |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 75              | —     | -300                | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5400         | CT         | 350   | PNP      | -130                 | -120                 | -5                   | -50                   | -100                | 30              | —     | -1                  | -5                  | -0.2                     | —    | -1                       | -10                 | 6                    | 100                  | 400  | -10                 | —                     | 8       | 14                |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | 180   | -10                 | -5                  | -0.5                     | —    | -1                       | -50                 |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | —     | -50                 | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5401         | CT         | 350   | PNP      | -160                 | -150                 | -5                   | -50                   | -120                | 50              | —     | -1                  | -5                  | -0.2                     | —    | -1                       | -10                 | 6                    | 100                  | 300  | -10                 | —                     | 8       | 14                |
|                |            |   |          |                      |                      |                      |                       |                     | 60              | 240   | -10                 | -5                  | -0.5                     | —    | -1                       | -50                 |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 50              | —     | -50                 | -5                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5418         | CZ         | 360   | NPN      | 25                   | 25                   | 4                    | 100                   | 25                  | 25              | —     | 2                   | 10                  | 0.25                     | —    | 1.1                      | 50                  | 6                    | —                    | —    | —                   | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | 120   | 50                  | 1                   | 1                        | —    | 2                        | 300                 |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 20              | —     | 300                 | 5                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5419         | CZ         | 360   | NPN      | 25                   | 25                   | 4                    | 100                   | 25                  | 70              | —     | 2                   | 10                  | 0.25                     | —    | 1.1                      | 50                  | 6                    | —                    | —    | —                   | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 100             | 300   | 50                  | 1                   | 1                        | —    | 2                        | 300                 |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 40              | —     | 300                 | 5                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5420         | CZ         | 360   | NPN      | 25                   | 25                   | 4                    | 100                   | 25                  | 150             | —     | 2                   | 10                  | 0.25                     | —    | 1.1                      | 50                  | 6                    | —                    | —    | —                   | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 250             | 500   | 50                  | 1                   | 1                        | —    | 2                        | 300                 |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 75              | —     | 300                 | 5                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5550         | CT         | 350   | NPN      | 160                  | 140                  | 6                    | 100                   | 100                 | 60              | —     | 1                   | 5                   | 0.15                     | —    | 1                        | 10                  | 6                    | 100                  | 400  | 10                  | —                     | 10      | 14                |
|                |            |   |          |                      |                      |                      |                       |                     | 60              | 250   | 10                  | 5                   | 0.25                     | —    | 1.2                      | 50                  |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 20              | —     | 50                  | 5                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5551         | CT         | 350   | NPN      | 180                  | 160                  | 6                    | 50                    | 120                 | 80              | —     | 1                   | 5                   | 0.15                     | —    | 1                        | 10                  | 6                    | 100                  | 300  | 10                  | —                     | 8       | 14                |
|                |            |   |          |                      |                      |                      |                       |                     | 80              | 250   | 10                  | 5                   | 0.25                     | —    | 1.2                      | 50                  |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 30              | —     | 50                  | 5                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5830         | CT         | 625   | NPN      | 120                  | 100                  | 5                    | 50                    | 100                 | 60              | —     | 1                   | 5                   | 0.15                     | —    | 0.8                      | 1                   | 4                    | 100                  | 500  | 10                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 80              | 500   | 10                  | 5                   | 0.20                     | —    | 1                        | 10                  |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 80              | —     | 50                  | 5                   | 0.25                     | —    | 1                        | 50                  |                      |                      |      |                     |                       |         |                   |
| 2N5831         | CT         | 625   | NPN      | 160                  | 140                  | 5                    | 50                    | 120                 | 60              | —     | 1                   | 5                   | 0.15                     | —    | 0.8                      | 1                   | 4                    | 100                  | 500  | 10                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 80              | 250   | 10                  | 5                   | 0.20                     | —    | 1                        | 10                  |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 80              | —     | 50                  | 5                   | 0.25                     | —    | 1                        | 50                  |                      |                      |      |                     |                       |         |                   |
| 2N5832         | CT         | 625   | NPN      | 160                  | 140                  | 5                    | 50                    | 120                 | 125             | —     | 1                   | 5                   | 0.15                     | —    | 0.8                      | 1                   | 4                    | 100                  | 500  | 10                  | —                     | —       | —                 |
|                |            |   |          |                      |                      |                      |                       |                     | 175             | 500   | 10                  | 5                   | 0.20                     | —    | 1                        | 10                  |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 150             | —     | 50                  | 5                   | 0.25                     | —    | 1                        | 50                  |                      |                      |      |                     |                       |         |                   |
| 2N5998         | CZ         | 400   | NPN      | 35                   | 25                   | 5                    | 30                    | 25                  | 80              | —     | .01                 | 2                   | 0.25                     | —    | 0.85                     | 50                  | —                    | 140                  | 630  | 10                  | —                     | 1.5     | 15                |
|                |            |   |          |                      |                      |                      |                       |                     | 100             | —     | .1                  | 2                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 150             | 300   | .10                 | 2                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N5999         | CZ         | 400   | PNP      | -35                  | -25                  | -5                   | -30                   | -25                 | 80              | —     | -.01                | -2                  | -0.25                    | —    | -0.85                    | -50                 | —                    | 140                  | 630  | -10                 | —                     | 1.5     | 15                |
|                |            |   |          |                      |                      |                      |                       |                     | 100             | —     | -.1                 | -2                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 150             | 300   | -10                 | -2                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N6008         | CZ         | 400   | NPN      | 35                   | 25                   | 5                    | 30                    | 25                  | 120             | —     | .01                 | 2                   | 0.25                     | —    | 0.85                     | 50                  | —                    | 140                  | 630  | 10                  | —                     | 1.5     | 15                |
|                |            |   |          |                      |                      |                      |                       |                     | 150             | —     | .1                  | 2                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 250             | 500   | 10                  | 2                   |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N6009         | CZ         | 400   | PNP      | -35                  | -25                  | -5                   | -30                   | -25                 | 120             | —     | -.01                | -2                  | -0.25                    | —    | -0.85                    | -50                 | —                    | 140                  | 630  | -10                 | —                     | 1.5     | 15                |
|                |            |   |          |                      |                      |                      |                       |                     | 150             | —     | -.1                 | -2                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
|                |            |   |          |                      |                      |                      |                       |                     | 250             | 500   | -10                 | -2                  |                          |      |                          |                     |                      |                      |      |                     |                       |         |                   |
| 2N6076         | CZ         | 360   | PNP      | -25                  | -25                  | -5                   | -100                  | -25                 | 100             | 500   | -10                 | -10                 | -0.25                    | —    | -0.8                     | -10                 | 13                   | —                    | —    | —                   | —                     | —       | —                 |

continued on next page

**SERIES 2N TRANSISTORS, continued**

| Catalog Number | Case Style | P <sub>D</sub><br>T <sub>A</sub> = 25°C<br>(mW) | Polarity | V <sub>CB0</sub><br>(V)<br>Min. | V <sub>CE0</sub><br>(V)<br>Min. | V <sub>EB0</sub><br>(V)<br>Min. | I <sub>CB0</sub><br>(nA)<br>Max. | V <sub>CB</sub><br>(V)<br>@ | h <sub>FE</sub> |        |      | I <sub>C</sub><br>(mA)<br>@ | V <sub>CE</sub><br>(V) | V <sub>CE(SAT)</sub><br>(V) |      | V <sub>BE(SAT)</sub><br>(V)<br>& | I <sub>C</sub><br>(mA)<br>@ | C <sub>ob</sub><br>(pF)<br>Max. | f <sub>T</sub><br>(MHz) |      | t <sub>off</sub><br>(ns)<br>Max. | NF<br>(dB)<br>Max. | Test<br>Cond.<br>(note) |      |      |      |  |  |
|----------------|------------|---|----------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|-----------------------------|-----------------|--------|------|-----------------------------|------------------------|-----------------------------|------|----------------------------------|-----------------------------|---------------------------------|-------------------------|------|----------------------------------|--------------------|-------------------------|------|------|------|--|--|
|                |            |   |          |                                 |                                 |                                 |                                  |                             | Min.            | Max.   | Min. |                             |                        | Max.                        | Max. |                                  |                             |                                 | Min.                    | Min. |                                  |                    |                         | Max. | Min. | Max. |  |  |
| 2N6426         | CT         | 625   | NPN      | 40                              | 40                              | 12                              | 50                               | 30                          | 20000           | 200000 | 10   | 5                           | 1.20                   | —                           | —    | 50                               | 7                           | 150                             | —                       | 10   | —                                | 10                 | 16                      |      |      |      |  |  |
|                |            |   |          |                                 |                                 |                                 |                                  |                             | 30000           | 300000 | 100  | 5                           | 1.50                   | —                           | 2    | 500                              |                             |                                 |                         |      |                                  |                    |                         |      |      |      |  |  |
|                |            |   |          |                                 |                                 |                                 |                                  |                             | 20000           | 200000 | 500  | 5                           |                        |                             |      |                                  |                             |                                 |                         |      |                                  |                    |                         |      |      |      |  |  |
| 2N6427         | CT         | 625   | NPN      | 40                              | 40                              | 12                              | 50                               | 30                          | 10000           | 100000 | 10   | 5                           | 1.20                   | —                           | —    | 50                               | 7                           | 130                             | —                       | 10   | —                                | 10                 | 16                      |      |      |      |  |  |
|                |            |   |          |                                 |                                 |                                 |                                  |                             | 20000           | 200000 | 100  | 5                           | 1.50                   | —                           | 2    | 500                              |                             |                                 |                         |      |                                  |                    |                         |      |      |      |  |  |
|                |            |   |          |                                 |                                 |                                 |                                  |                             | 14000           | 140000 | 500  | 5                           |                        |                             |      |                                  |                             |                                 |                         |      |                                  |                    |                         |      |      |      |  |  |

 Notes: 1. h<sub>FE</sub> @ 1 kHz

2. See beta table 1 or 2.

 3. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 4.5 V, R<sub>S</sub> = 500 Ω.

 4. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 4.5 V, R<sub>S</sub> = 5 kΩ.

 5. I<sub>CEV</sub> @ V<sub>CE</sub> = 30 V, V<sub>BE(off)</sub> = 3 V.

 6. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 1 kΩ.

 7. I<sub>C</sub> = 20 μA, V<sub>CE</sub> = 5 V, R<sub>G</sub> = 10 kΩ, BW = 15.7 kHz.

 8. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 10 kΩ.

 9. I<sub>C</sub> = 20 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 10 kΩ, f = 1 kHz.

 10. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 5 kΩ.

 11. I<sub>CES</sub> @ V<sub>CE</sub> = -4 V, V<sub>BE</sub> = 0.

 12. SNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 5 kΩ, f = 1 kHz.

 13. WBNF @ I<sub>C</sub> = 600 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 160 kΩ.

 14. I<sub>C</sub> = 250 μA, V<sub>CE</sub> = 5 V, R<sub>G</sub> = 1 kΩ, BW = 15.7 kHz.

 15. WBNF @ I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 5 kΩ.

 16. WBNF @ I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5 V, R<sub>S</sub> = 100 kΩ, BW = 15.7 kHz.

 17. I<sub>C</sub> = 10 mA, I<sub>B1</sub> = 0.32 mA, V<sub>CC</sub> = 6 V.

 18. I<sub>C</sub> = 10 mA, I<sub>B1</sub> = 3.0 mA, I<sub>B2</sub> = 1.5 mA, V<sub>CC</sub> = 3.0 V.

 19. I<sub>C</sub> = 150 mA, I<sub>B1</sub> = I<sub>B2</sub> = 15 mA, V<sub>CC</sub> = 30 V.

 20. V<sub>BE(on)</sub> @ V<sub>CE</sub> = 10 V, I<sub>C</sub> = 100 mA.

 21. C<sub>eb</sub> @ V<sub>CB</sub> = 20 V, f = 1 MHz.

 22. I<sub>C</sub> = measured in μS instead of nS.

**Table 1—GUARANTEED A-C BETA DISTRIBUTION BY GROUP**

| h <sub>FE</sub> |            | 35-70  | 55-110 | 90-180 | 150-300 | 235-470 |
|-----------------|------------|--------|--------|--------|---------|---------|
|                 | Color Code | Brown  | Red    | Orange | Yellow  | Green   |
|                 | Group      | 2N2926 | 0-6%   | 5-10%  | 20-26%  | 35-45%  |

**Table 2—GUARANTEED D-C BETA DISTRIBUTION BY GROUP**

| h <sub>FE</sub> |            | 55-110 | 90-180 | 150-300 | 250-500 | 400-800 |
|-----------------|------------|--------|--------|---------|---------|---------|
|                 | Color Code | Red    | Orange | Yellow  | White   | Blue    |
|                 | Group      | 2N3395 | —      | —       | 35-65%  | 35-65%  |
|                 | 2N3396     | —      | 10-60% | 10-60%  | 5-35%   | —       |
|                 | 2N3397     | 0-15%  | 10-50% | 10-50%  | 5-35%   | —       |
|                 | 2N3398     | 0-15%  | 10-50% | 10-50%  | 5-35%   | 0-15%   |

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