

| Unmarked: TO-220ML, ●: TO220MF            |                                            |                                              |                                                         |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
|-------------------------------------------|--------------------------------------------|----------------------------------------------|---------------------------------------------------------|------------------------------------|--------|-----------------------------|----------------|----------------|----------------|---------------|-------|--------------------------|---------------------------|--------|-----------------|--------|
| TO-220ML, MF Type Transistors             |                                            |                                              |                                                         |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| V <sub>CEO</sub><br>I <sub>C</sub><br>(A) | 30                                         | 50                                           | 60                                                      | 80                                 | 85     | 100                         | 120            | 160            | 200            | 250           | 300   | 400                      | 500                       | 600    | 800             | 900    |
| 0.02                                      |                                            |                                              |                                                         |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| 0.2                                       |                                            |                                              |                                                         |                                    |        |                             |                |                | A1697<br>C4474 |               | C4075 |                          |                           | C4493● |                 | C4031● |
| 0.4                                       |                                            |                                              |                                                         |                                    |        |                             | A1696<br>C4473 |                |                |               |       |                          |                           |        |                 |        |
| 1.5                                       |                                            |                                              |                                                         |                                    |        |                             |                | A1606<br>C4159 |                |               |       |                          |                           |        | C3751<br>C4223● |        |
| 3                                         |                                            |                                              | B1133<br>B1274<br>D1666<br>D1913                        |                                    | C5476* | B1226*<br>D1828*<br>D2048●  |                |                |                | J306          |       |                          | C3749<br>C4171●<br>C4221● |        | C3752<br>C4224● |        |
| 4                                         |                                            |                                              | B1223*<br>B1471*●<br>D1825*<br>D2223*●                  |                                    |        | J272                        |                |                |                | J320<br>K2010 |       | C4160<br>C4219●          |                           |        |                 |        |
| 4.5                                       |                                            |                                              | D1958                                                   |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| 5                                         |                                            | B1134<br>B1268●<br>D1667<br>D1838*<br>D1904● | A1469<br>C3746                                          | B1270●<br>B1454<br>D1906●<br>D2202 |        | B1227*<br>D1829*<br>D2049*● |                |                | J403           |               |       |                          | C3750<br>C4172●<br>C4222● |        |                 |        |
| 6                                         |                                            |                                              | J263                                                    |                                    | D1940  | J273                        |                |                | J404           | J307<br>K2108 |       |                          |                           |        |                 |        |
| 7                                         |                                            | B1135<br>B1269●<br>D1668<br>D1905●           | A1470<br>B1224*<br>B1472*●<br>C3747<br>D1826<br>D2224*● | B1271●<br>B1455<br>D1907●<br>D2203 |        |                             |                |                | C4478<br>K2160 |               |       | C4161<br>C4220●<br>C4440 |                           |        |                 |        |
| 8                                         | B1267●<br>B1467<br>D1903●<br>D2218<br>J254 |                                              | J264                                                    |                                    |        | B1228*<br>D1830*<br>D2050*● |                |                | J405           |               |       |                          |                           |        |                 |        |
| 9                                         |                                            |                                              |                                                         |                                    |        |                             |                |                | K2161          | J308          |       |                          |                           |        |                 |        |
| 10                                        | J255                                       |                                              | A1471<br>B1225*<br>C3748<br>D1827*                      |                                    |        | K1430<br>K1904              |                |                |                |               |       | C4162<br>C4441           |                           |        |                 |        |
| 12                                        | B1468<br>D2219                             | B1136<br>D1669                               | K1895                                                   |                                    |        | J274<br>K1905               |                |                | J406           | K2011         |       | C4163                    |                           |        |                 |        |
| 13                                        |                                            |                                              |                                                         |                                    |        |                             |                |                | K2378          |               |       |                          |                           |        |                 |        |
| 15                                        | K1886                                      |                                              | J265<br>K1419<br>K1896                                  |                                    |        | K1431                       |                |                |                |               |       |                          |                           |        |                 |        |
| 18                                        | J256                                       |                                              |                                                         |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| 20                                        | K1887                                      |                                              | J519                                                    |                                    |        | K1906<br>K1432              |                |                | K2379          | K2012         |       |                          |                           |        |                 |        |
| 25                                        |                                            |                                              | J339<br>K1420<br>K1897                                  |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| 30                                        | K1888                                      |                                              |                                                         |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |
| 40                                        |                                            |                                              | K1421<br>K2163                                          |                                    |        |                             |                |                |                |               |       |                          |                           |        |                 |        |