

# 11. SILICON NPN - HIGH POWER TRANSISTORS

IN ORDER OF (1) MIN. DERATING FACTOR  
& (2) TYPE No.

| LINE No. | TYPE No.   | MIN. DERATE J to C (W/C) | MAX. FREE AIR @ 25°C (W) | M T A E X M P | ABSOLUTE MAX. RATINGS @ 25°C | MAX. I <sub>cb</sub> @ 25°C (A) | MAX. V <sub>cb</sub> (V) | MAX. V <sub>eb</sub> (V) | MAX. V <sub>ce</sub> (V) | hFE | BIAS V <sub>cb</sub> (V) | MIN | MAX | f <sub>ae</sub> (Hz) | MAX. SAT. RES. (Ω) | tr (s) | STRUC-TURE | DWG # | L C O D E |     |   |
|----------|------------|--------------------------|--------------------------|---------------|------------------------------|---------------------------------|--------------------------|--------------------------|--------------------------|-----|--------------------------|-----|-----|----------------------|--------------------|--------|------------|-------|-----------|-----|---|
| 1        | MJ15011    | 1.1                      | 200                      | 0             | \$J                          | 10                              | 2.0                      | 5.0                      | 250                      | 20  | 1.0mΔ                    | 2.0 | 100 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 2        | MRF421     | 1.1                      | 200                      | 0             | \$S                          | 20                              | 7.5                      | 45                       | 100                      | 10  | 1.0mΔ                    | 2.0 | 100 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 3        | PP3647     | 1.1                      | 200                      | 0             | \$J                          | 20                              | 7.5                      | 45                       | 100                      | 10  | 1.0mΔ                    | 2.0 | 100 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 4        | PTC173     | 1.1                      | 200                      | 0             | \$J                          | 16                              | 100                      | 7.0                      | 80                       | 25  | 2.0                      | 2.0 | 100 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 5        | RCA6340†   | 1.1                      | 200                      | 0             | \$J                          | 25                              | 10                       | 160                      | 6.0                      | 140 | 100u                     | 2.0 | 120 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 6        | RCA6341†   | 1.1                      | 200                      | 0             | \$J                          | 25                              | 10                       | 180                      | 6.0                      | 150 | 100u                     | 2.0 | 120 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 7        | RCA8638C   | 1.1                      | 200                      | 0             | \$J                          | 20                              | 5.0                      | 140                      | 5.0                      | 140 | 1.0mΔ                    | 2.0 | 150 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 8        | RCA8638D   | 1.1                      | 200                      | 0             | \$J                          | 20                              | 5.0                      | 120                      | 5.0                      | 120 | 1.0mΔ                    | 2.0 | 150 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 9        | RCA8638E   | 1.1                      | 200                      | 0             | \$J                          | 20                              | 5.0                      | 100                      | 5.0                      | 100 | 1.0mΔ                    | 2.0 | 100 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 10       | SCA14024†  | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 180                      | 8.0                      | 120 | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 11       | SCA14025†  | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 180                      | 8.0                      | 120 | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 12       | SCA14026†  | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 160                      | 8.0                      | 100 | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 13       | SCA14027   | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 160                      | 8.0                      | 100 | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 14       | SCA14028†  | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 140                      | 8.0                      | 80  | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 15       | SCA14029†  | 1.1                      | 200                      | 0             | \$J                          | 70                              | 25                       | 140                      | 8.0                      | 80  | 10u                      | 5.0 | 50  | 500n                 | 1.0u               | PL     | T03        | C     |           |     |   |
| 16       | SPT5303†   | 1.1                      | 200                      | 0             | \$J                          | 20                              | 7.5                      | 100                      | 5.0                      | 100 | 1.0mΔ                    | 2.0 | 150 | 625m                 | 0.3                | DM     | F49        | C     |           |     |   |
| 17       | ST28138    | 1.1                      | 150                      | 0             | \$                           | 20                              | 6.0                      | 70                       | 10                       | 40  | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 18       | ST28139    | 1.1                      | 150                      | 0             | \$                           | 20                              | 6.0                      | 90                       | 10                       | 60  | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 19       | ST28140    | 1.1                      | 150                      | 0             | \$                           | 20                              | 6.0                      | 110                      | 10                       | 80  | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 20       | 2N5966†    | 1.2                      | 125                      | 0             | \$J                          | 30                              | 5.0                      | 100                      | 10                       | 100 | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 21       | JAN2N5966† | 1.2                      | 125                      | 0             | \$J                          | 30                              | 5.0                      | 100                      | 10                       | 100 | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 22       | 2N5968†    | 1.2                      | 125                      | 0             | \$J                          | 30                              | 5.0                      | 100                      | 10                       | 100 | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 23       | JAN2N5968† | 1.2                      | 125                      | 0             | \$J                          | 30                              | 5.0                      | 100                      | 10                       | 100 | 500u                     | 10  | 10  | 130m                 | 1.0u               | PE     | T03        | C     |           |     |   |
| 24       | 2N6215†    | 1.2                      | 125                      | 0             | \$J                          | 50                              | 10                       | 100                      | 10                       | 80  | 200u                     | 2.0 | 25  | 150m                 | 1.0u               | DM     | T03        | C     |           |     |   |
| 25       | 2N6560†    | 1.2                      | 220                      | 0             | \$J                          | 10                              | 2.0                      | 450                      | 5.0                      | 450 | 2.0                      | 5.0 | 10  | 150m                 | 500n               | 1.0u   | DM         | T03   | C         |     |   |
| 26       | 2N6561†    | 1.2                      | 220                      | 0             | \$J                          | 10                              | 2.0                      | 300                      | 5.0                      | 300 | 2.0                      | 3.0 | 10  | 150m                 | 500n               | 1.0u   | DM         | T03   | C         |     |   |
| 27       | 2SC1115†   | 1.2                      | 100                      | 0             | \$J                          | 10                              | 4.0                      | 140                      | 12                       | 80  | 4.0                      | 3.0 | 10  | 150m                 | 500n               | 1.0u   | DM         | T03   | C         |     |   |
| 28       | 2SC1140†   | 1.2                      | 150                      | 0             | \$J                          | 15                              | 4.0                      | 800                      | 6.0                      | 400 | 3.0m                     | 5.0 | 7.5 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 29       | 2SC1141†   | 1.2                      | 150                      | 0             | \$J                          | 15                              | 4.0                      | 600                      | 6.0                      | 300 | 3.0m                     | 5.0 | 7.5 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 30       | 2SC1195    | 1.2                      | 100                      | 0             | \$J                          | 2.5                             | 5.0                      | 200                      | 5.0                      | 200 | 1.0u                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 31       | 2SC1436    | 1.2                      | 100                      | 0             | \$J                          | 15                              | 5.0                      | 230                      | 6.0                      | 230 | 1.0m                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 32       | 2SC1440    | 1.2                      | 100                      | 0             | \$J                          | 15                              | 5.0                      | 150                      | 6.0                      | 150 | 1.0m                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 33       | 2SC1441    | 1.2                      | 100                      | 0             | \$J                          | 15                              | 5.0                      | 200                      | 6.0                      | 200 | 1.0m                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 34       | 2SC1576    | 1.2                      | 100                      | 0             | \$J                          | 8.0                             | 5.0                      | 450                      | 6.0                      | 330 | 100u                     | 5.0 | 1.0 | 30                   | 150                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 35       | 2SC1579    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 500                      | 6.0                      | 400 | 1.0m                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 36       | 2SC1580    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 600                      | 6.0                      | 500 | 1.0m                     | 4.0 | 5.0 | 10                   | 25                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 37       | 2SC1584    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 150                      | 6.0                      | 100 | 1.0m                     | 4.0 | 5.0 | 30                   | 50                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 38       | 2SC1585    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 200                      | 6.0                      | 150 | 1.0m                     | 4.0 | 5.0 | 30                   | 50                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 39       | 2SC1586    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 250                      | 6.0                      | 200 | 1.0m                     | 4.0 | 5.0 | 30                   | 50                 | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 40       | 2SC2256    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 41       | 2SC2461A   | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 42       | 2SC2565    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 43       | 2SC2773    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 44       | 2SC2921    | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 45       | 2SD311     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 46       | 2SD424     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 47       | 2SD535     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 48       | 2SD552     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 49       | 2SD641     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 50       | 2SD665     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 51       | 2SD753     | 1.2                      | 150                      | 0             | \$J                          | 15                              | 5.0                      | 160                      | 6.0                      | 150 | 100u                     | 4.0 | 5.0 | 30                   | 180                | 10M    | 266m       | 1.5u  | DM        | T03 | C |
| 52       | BDY29      | 1.2                      | 220                      | 0             | \$J                          | 30                              | 7.5                      | 100                      | 7.0                      | 75  | 1.0mΔ                    | 2.0 | 15  | 60                   | 100m               | 100n   | DM         | T03   | C         |     |   |
| 53       | BUW12      | 1.2                      | 125                      | 0             | \$J                          | 8.0                             | 5.0                      | 400                      | 5.0                      | 400 | 1.0mΔ                    | 2.0 | 15  | 60                   | 100m               | 100n   | DM         | T03   | C         |     |   |
| 54       | BUW12A     | 1.2                      | 125                      | 0             | \$J                          | 8.0                             | 5.0                      | 400                      | 5.0                      | 400 | 1.0mΔ                    | 2.0 | 15  | 60                   | 100m               | 100n   | DM         | T03   | C         |     |   |
| 55       | GSTU8035†  | 1.2                      | 188                      | 0             | \$J                          | 12                              | 6.0                      | 400                      | 7.0                      | 350 | 500u                     | 5.0 | 8.0 | 10                   | 10                 | 25MΔ   | 100m       | 100n  | DM        | T03 | C |
| 56       | GSTU8040†  | 1.2                      | 180                      | 0             | \$J                          | 12                              | 6.0                      | 450                      | 7.0                      | 400 | 500u                     | 5.0 | 8.0 | 10                   | 10                 | 25MΔ   | 100m       | 100n  | DM        | T03 | C |
| 57       | HSE833-RT  | 1.2                      | 150                      | 0             | \$J                          | 12                              | 6.0                      | 170                      | 5.0                      | 150 | 5.0mΔ                    | 2.0 | 4.0 | 20                   | 10                 | 500kΔ  | 100m       | 100n  | DM        | T03 | C |
| 58       | MRF316     | 1.2                      | 220                      | 0             | \$S                          | 9.0                             | 7.5                      | 65                       | 4.0                      | 35  | 5.0mΔ                    | 5.0 | 4.0 | 10                   | 80                 | 150M   | 75         | 350n  | PE        | T03 | C |
| 59       | PP7676     | 1.2                      | 150                      | 0             | \$J                          | 25                              | 10                       | 200                      | 7.0                      | 150 | 1.0m                     | 5.0 | 20  | 40                   | 150                | 40MΔ   | 30m        | 350n  | PE        | T03 | C |
| 60       | PT6953     | 1.2                      | 220                      | 0             | \$                           | 50                              | 10                       | 120                      | 8.0                      | 70  | 1.0m                     | 5.0 | 20  | 40                   | 200                | 100M   | 30m        | 350n  | PE        | T03 | C |
| 61       | PT6954     | 1.2                      | 220                      | 0             | \$                           | 50                              | 10                       | 160                      | 8.0                      | 100 | 10m                      | 5.0 | 20  | 30                   | 150                | 100M   | 30m        | 350n  | PE        | T03 | C |
| 62       | PT6955     | 1.2                      | 220                      | 0             | \$                           | 50                              | 10                       | 200                      | 8.0                      | 140 | 10m                      | 5.0 | 20  | 30                   | 150                | 100M   | 30m        | 350n  | PE        | T03 | C |
| 63       | PT7939†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 90                       | 6.0                      | 70  | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 64       | PT7940†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 90                       | 6.0                      | 70  | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 65       | PT7941†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 120                      | 6.0                      | 70  | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 66       | PT7942†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 120                      | 6.0                      | 100 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 67       | PT7943†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 120                      | 6.0                      | 100 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 68       | PT7944†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 160                      | 6.0                      | 100 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 69       | PT7945†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 170                      | 6.0                      | 140 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 70       | PT7946†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 170                      | 6.0                      | 140 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 71       | PT7947†    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 200                      | 6.0                      | 140 | 5.0                      | 5.0 | 20  | 20                   | 150                | 125M   | 35m        | 350n  | PE        | T03 | C |
| 72       | SDT9630    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 225                      | 6.0                      | 200 | 1.0u                     | 10  | 40  | 10                   | 40                 | 10M    | 45m        | 350n  | DPL       | T03 | C |
| 73       | SDT9631    | 1.2                      | 220                      | 0             | \$A                          | 50                              | 10                       | 250                      | 6.0                      | 225 | 1.0u                     | 10  | 40  | 10                   | 40                 | 10M    | 45m        | 350n  | DPL       | T03 | C |
| 74       |            |                          |                          |               |                              |                                 |                          |                          |                          |     |                          |     |     |                      |                    |        |            |       |           |     |   |