

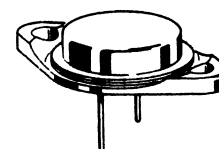
# New Jersey Semi-Conductor Products, Inc.

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50 WATTS  
ZENER DIODES

1N2804 thru 1N2846, 1N3305 thru 1N3350, 1N4549 thru 1N4564



(TO-3 Modified)

ELECTRICAL CHARACTERISTICS ( $T_C = 30^\circ\text{C}$  unless otherwise specified,  $V_F = 1.5\text{ V max @ } 10\text{ A}$  on all types.)

| 50 Watt<br>Case 54 | 50 Watt<br>Case 58 | Nominal<br>Zener<br>Voltage<br>@ $I_{ZT}$<br>( $V_Z$ ) Volts | Test<br>Current<br>( $I_{ZT}$ )<br>mA | Max Zener Impedance         |                                           | Max DC Zener<br>Current<br>75°C Case Temp<br>( $I_{ZM}$ ) mA | Reverse*<br>Leakage Current            |          |          | Typical<br>Zener<br>Voltage<br>Temp. Coeff.<br>%/°C |
|--------------------|--------------------|--------------------------------------------------------------|---------------------------------------|-----------------------------|-------------------------------------------|--------------------------------------------------------------|----------------------------------------|----------|----------|-----------------------------------------------------|
|                    |                    |                                                              |                                       | $Z_{ZT}$ @ $I_{ZT}$<br>ohms | $Z_{ZK}$ @ $I_{ZK} = 5\text{ mA}$<br>ohms |                                                              | $I_{R\text{Max}}$<br>( $\mu\text{A}$ ) | $V_{R1}$ | $V_{R2}$ |                                                     |
| 1N4557             | 1N4549             | 3.9                                                          | 3200                                  | 0.16                        | 400                                       | 11900                                                        | 150                                    | 0.5      | 0.5      | -.025                                               |
| 1N4558             | 1N4550             | 4.3                                                          | 2900                                  | 0.16                        | 500                                       | 10650                                                        | 150                                    | 0.5      | 0.5      | -.025                                               |
| 1N4559             | 1N4551             | 4.7                                                          | 2650                                  | 0.12                        | 600                                       | 9700                                                         | 100                                    | 1.0      | 1.0      | .010                                                |
| 1N4560             | 1N4552             | 5.1                                                          | 2450                                  | 0.12                        | 650                                       | 8900                                                         | 20                                     | 1.0      | 1.0      | .015                                                |
| 1N4561             | 1N4553             | 5.6                                                          | 2250                                  | 0.12                        | 900                                       | 8100                                                         | 20                                     | 1.0      | 1.0      | .030                                                |
| 1N4562             | 1N4554             | 6.2                                                          | 2000                                  | 0.14                        | 1000                                      | 7300                                                         | 20                                     | 2.0      | 2.0      | .040                                                |
| 1N2804             | 1N3305             | 6.8                                                          | 1850                                  | 0.2                         | 70                                        | 6600                                                         | 150                                    | 4.5      | 4.3      | .040                                                |
| 1N4563             | 1N4555             | 6.8                                                          | 1850                                  | 0.16                        | 200                                       | 6650                                                         | 10                                     | 2.0      | 2.0      | .045                                                |
| 1N2805             | 1N3306             | 7.5                                                          | 1700                                  | 0.3                         | 70                                        | 5900                                                         | 75                                     | 5.0      | 4.7      | .045                                                |
| 1N4564             | 1N4556             | 7.5                                                          | 1650                                  | 0.24                        | 100                                       | 6050                                                         | 10                                     | 3.0      | 3.0      | .053                                                |
| 1N2806             | 1N3307             | 8.2                                                          | 1500                                  | 0.4                         | 70                                        | 5200                                                         | 50                                     | 5.4      | 5.2      | .048                                                |
| 1N2807             | 1N3308             | 9.1                                                          | 1370                                  | 0.5                         | 70                                        | 4800                                                         | 25                                     | 6.1      | 5.7      | .051                                                |
| 1N2808             | 1N3309             | 10                                                           | 1200                                  | 0.6                         | 80                                        | 4300                                                         | 10                                     | 6.7      | 6.3      | .055                                                |
| 1N2809             | 1N3310             | 11                                                           | 1100                                  | 0.8                         | 80                                        | 3900                                                         | 5                                      | 8.4      | 8.0      | .060                                                |
| 1N2810             | 1N3311             | 12                                                           | 1000                                  | 1.0                         | 80                                        | 3600                                                         | 5                                      | 9.1      | 8.6      | .065                                                |
| 1N2811             | 1N3312             | 13                                                           | 960                                   | 1.1                         | 80                                        | 3300                                                         | 5                                      | 9.9      | 9.4      | .065                                                |
| 1N2812             | 1N3313             | 14                                                           | 890                                   | 1.2                         | 80                                        | 3000                                                         | 5                                      | 10.6     | 10.1     | .070                                                |
| 1N2813             | 1N3314             | 15                                                           | 830                                   | 1.4                         | 80                                        | 2800                                                         | 5                                      | 11.4     | 10.8     | .070                                                |
| 1N2814             | 1N3315             | 16                                                           | 780                                   | 1.6                         | 80                                        | 2650                                                         | 5                                      | 12.2     | 11.5     | .070                                                |
| 1N2815             | 1N3316             | 17                                                           | 740                                   | 1.8                         | 80                                        | 2500                                                         | 5                                      | 13.0     | 12.2     | .075                                                |
| 1N2816             | 1N3317             | 18                                                           | 700                                   | 2.0                         | 80                                        | 2300                                                         | 5                                      | 13.7     | 13.0     | .075                                                |
| 1N2817             | 1N3318             | 19                                                           | 660                                   | 2.2                         | 80                                        | 2200                                                         | 5                                      | 14.4     | 13.7     | .075                                                |
| 1N2818             | 1N3319             | 20                                                           | 630                                   | 2.4                         | 80                                        | 2100                                                         | 5                                      | 15.2     | 14.4     | .075                                                |
| 1N2819             | 1N3320             | 22                                                           | 570                                   | 2.5                         | 80                                        | 1900                                                         | 5                                      | 16.7     | 15.8     | .080                                                |
| 1N2820             | 1N3321             | 24                                                           | 520                                   | 2.6                         | 80                                        | 1750                                                         | 5                                      | 18.2     | 17.3     | .080                                                |
| 1N2821             | 1N3322             | 25                                                           | 500                                   | 2.7                         | 90                                        | 1550                                                         | 5                                      | 19.0     | 18.0     | .080                                                |
| 1N2822             | 1N3323             | 27                                                           | 460                                   | 2.8                         | 90                                        | 1500                                                         | 5                                      | 20.6     | 19.4     | .085                                                |
| 1N2823             | 1N3324             | 30                                                           | 420                                   | 3.0                         | 90                                        | 1400                                                         | 5                                      | 22.8     | 21.6     | .085                                                |
| 1N2824             | 1N3325             | 33                                                           | 380                                   | 3.2                         | 90                                        | 1300                                                         | 5                                      | 25.1     | 23.8     | .085                                                |
| 1N2825             | 1N3326             | 36                                                           | 350                                   | 3.5                         | 90                                        | 1150                                                         | 5                                      | 27.4     | 25.9     | .085                                                |
| 1N2826             | 1N3327             | 39                                                           | 320                                   | 4.0                         | 90                                        | 1050                                                         | 5                                      | 29.7     | 28.1     | .090                                                |
| 1N2827             | 1N3328             | 43                                                           | 290                                   | 4.5                         | 90                                        | 975                                                          | 5                                      | 32.7     | 31.0     | .090                                                |
| 1N2828             | 1N3329             | 45                                                           | 280                                   | 4.5                         | 100                                       | 930                                                          | 5                                      | 34.2     | 32.4     | .090                                                |
| 1N2829             | 1N3330             | 47                                                           | 270                                   | 5.0                         | 100                                       | 880                                                          | 5                                      | 35.8     | 33.8     | .090                                                |
| 1N2830             | 1N3331             | 50                                                           | 250                                   | 5.0                         | 100                                       | 830                                                          | 5                                      | 38.0     | 36.0     | .090                                                |
| 1N2831             | 1N3332             | 51                                                           | 245                                   | 5.2                         | 100                                       | 810                                                          | 5                                      | 38.8     | 36.7     | .090                                                |
| —                  | 1N3333             | 52                                                           | 240                                   | 5.5                         | 100                                       | 790                                                          | 5                                      | 39.5     | 37.4     | .090                                                |
| 1N2832             | 1N3334             | 56                                                           | 220                                   | 6                           | 110                                       | 740                                                          | 5                                      | 42.6     | 40.3     | .090                                                |
| 1N2833             | 1N3335             | 62                                                           | 200                                   | 7                           | 120                                       | 660                                                          | 5                                      | 47.1     | 44.6     | .090                                                |
| 1N2834             | 1N3336             | 68                                                           | 180                                   | 8                           | 140                                       | 600                                                          | 5                                      | 51.7     | 49.0     | .090                                                |
| 1N2835             | 1N3337             | 75                                                           | 170                                   | 9                           | 150                                       | 540                                                          | 5                                      | 56.0     | 54.0     | .090                                                |
| 1N2836             | 1N3338             | 82                                                           | 150                                   | 11                          | 160                                       | 490                                                          | 5                                      | 62.2     | 59.0     | .090                                                |
| 1N2837             | 1N3339             | 91                                                           | 140                                   | 15                          | 180                                       | 420                                                          | 5                                      | 69.2     | 65.5     | .090                                                |
| 1N2838             | 1N3340             | 100                                                          | 120                                   | 20                          | 200                                       | 400                                                          | 5                                      | 76.0     | 72.0     | .090                                                |
| 1N2839             | 1N3341             | 105                                                          | 120                                   | 25                          | 210                                       | 380                                                          | 5                                      | 79.8     | 75.6     | .095                                                |
| 1N2840             | 1N3342             | 110                                                          | 110                                   | 30                          | 220                                       | 365                                                          | 5                                      | 83.6     | 79.2     | .095                                                |
| 1N2841             | 1N3343             | 120                                                          | 100                                   | 40                          | 240                                       | 335                                                          | 5                                      | 91.2     | 86.4     | .095                                                |
| 1N2842             | 1N3344             | 130                                                          | 95                                    | 50                          | 275                                       | 310                                                          | 5                                      | 98.8     | 93.6     | .095                                                |
| —                  | 1N3345             | 140                                                          | 90                                    | 60                          | 325                                       | 290                                                          | 5                                      | 106.4    | 100.8    | .095                                                |
| 1N2843             | 1N3346             | 150                                                          | 85                                    | 75                          | 400                                       | 270                                                          | 5                                      | 114.0    | 108.0    | .095                                                |
| 1N2844             | 1N3347             | 160                                                          | 80                                    | 80                          | 450                                       | 250                                                          | 5                                      | 121.6    | 115.2    | .095                                                |
| —                  | 1N3348             | 175                                                          | 70                                    | 85                          | 500                                       | 230                                                          | 5                                      | 133.0    | 126.0    | .095                                                |
| 1N2845             | 1N3349             | 180                                                          | 68                                    | 90                          | 525                                       | 220                                                          | 5                                      | 136.8    | 129.6    | .095                                                |
| 1N2846             | 1N3350             | 200                                                          | 65                                    | 100                         | 600                                       | 200                                                          | 5                                      | 152.0    | 144.0    | .100                                                |



## MAXIMUM RATINGS

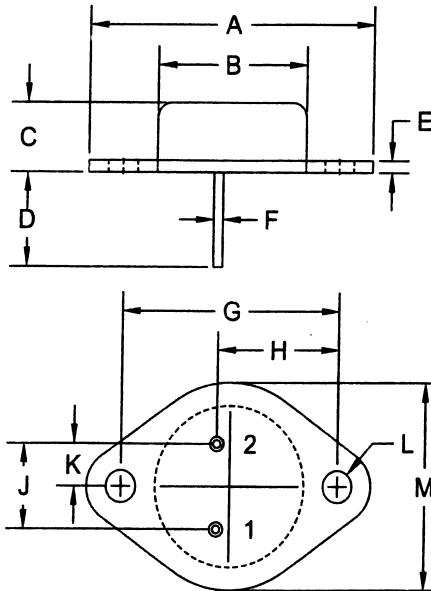
Junction and Storage Temperature:  $-65^\circ\text{C}$  to  $+175^\circ\text{C}$ .

DC Power Dissipation: 50 Watts. (Derate 0.5 W/°C above  $75^\circ\text{C}$ ).

TOLERANCE DESIGNATION: The type numbers shown have a standard tolerance of  $\pm 20\%$  on the nominal zener voltage. Add suffix "A" for  $\pm 10\%$  units or "B" for  $\pm 5\%$  units. (2% and 1% tolerance also available.)

New Jersey Semi-Conductors

# TO-3 50 mil



| DIMENSIONS |        |       |             |       |
|------------|--------|-------|-------------|-------|
| SYMBOL     | INCHES |       | MILLIMETERS |       |
|            | MIN    | MAX   | MIN         | MAX   |
| A          | 1.516  | 1.573 | 38.50       | 39.96 |
| B (DIA)    | 0.748  | 0.875 | 19.00       | 22.23 |
| C          | 0.250  | 0.450 | 6.35        | 11.43 |
| D          | 0.433  | 0.516 | 11.00       | 13.10 |
| E          | 0.054  | 0.065 | 1.38        | 1.65  |
| F          | 0.048  | 0.051 | 1.22        | 1.30  |
| G          | 1.177  | 1.197 | 29.90       | 30.40 |
| H          | 0.650  | 0.681 | 16.50       | 17.30 |
| J          | 0.420  | 0.440 | 10.67       | 11.18 |
| K          | 0.205  | 0.225 | 5.21        | 5.72  |
| L (DIA)    | 0.151  | 0.172 | 3.84        | 4.36  |
| M          | 0.984  | 1.050 | 25.00       | 26.67 |

TO-3 50 MIL (REV: R0)

## Lead Codes

|                   | PIN 1 | PIN 2 | CASE |
|-------------------|-------|-------|------|
| SCR               | G     | C     | A    |
| Zener (B suffix)  | C     | C     | A    |
| Zener (RB suffix) | A     | A     | C    |

R0

- Standard voltage tolerances are +/- 5% with B suffix, +/-10% with an A suffix, and +/-20% with no suffix
- Consult factory for +/-2% or +/-1% with a C or D suffix respectively
- Reverse polarity available
- Standard polarity is anode to case
- Reverse polarity with cathode to case by designating R suffix in part number, e.g. 1N2804RB, etc.