

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.
- Available as surface mount by adding UR suffix.

### MAXIMUM RATINGS

|                                    |                    |
|------------------------------------|--------------------|
| Operating and Storage Temperature: | -65 to +175°C      |
| DC Power Dissipation:              | 500 mW @ +50°C     |
| DC Power Derating:                 | 4mW/°C above +50°C |
| Forward Voltage @ 200mA:           | 1.1 Volts maximum  |

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)

| Part number<br>(note 1) | Nominal Zener Voltage | Zener Test Current | Maximum Voltage Regulation<br>(note 2) | Maximum Reverse Leakage Current |       | Maximum DC Zener Current |
|-------------------------|-----------------------|--------------------|--|---------------------------------|-------|--------------------------|
|                         | V <sub>Z</sub>        | I <sub>ZT</sub>    | ΔV <sub>Z</sub>                        | I <sub>R</sub> @ V <sub>R</sub> |       | I <sub>ZM</sub>          |
|                         | Volts                 | μA                 | Volts                                  | μA                              | Volts | mA                       |
| 1N4678(UR)              | 1.8                   | 50                 | 0.70                                   | 7.5                             | 1.0   | 240                      |
| 1N4679(UR)              | 2.0                   | 50                 | 0.70                                   | 5.0                             | 1.0   | 220                      |
| 1N4680(UR)              | 2.2                   | 50                 | 0.75                                   | 4.0                             | 1.0   | 200                      |
| 1N4681(UR)              | 2.4                   | 50                 | 0.80                                   | 2.0                             | 1.0   | 190                      |
| 1N4682(UR)              | 2.7                   | 50                 | 0.85                                   | 1.0                             | 1.0   | 180                      |
| 1N4683(UR)              | 3.0                   | 50                 | 0.90                                   | 0.8                             | 1.0   | 170                      |
| 1N4684(UR)              | 3.3                   | 50                 | 0.95                                   | 7.5                             | 1.5   | 160                      |
| 1N4685(UR)              | 3.6                   | 50                 | 0.95                                   | 7.5                             | 2.0   | 150                      |
| 1N4686(UR)              | 3.9                   | 50                 | 0.97                                   | 5.0                             | 2.0   | 140                      |
| 1N4687(UR)              | 4.3                   | 50                 | 0.99                                   | 4.0                             | 2.0   | 130                      |
| 1N4688(UR)              | 4.7                   | 50                 | 0.99                                   | 10.0                            | 3.0   | 120                      |
| 1N4689(UR)              | 5.1                   | 50                 | 0.97                                   | 10.0                            | 3.0   | 110                      |
| 1N4690(UR)              | 5.6                   | 50                 | 0.96                                   | 10.0                            | 4.0   | 100                      |
| 1N4691(UR)              | 6.2                   | 50                 | 0.95                                   | 10.0                            | 5.0   | 90                       |
| 1N4692(UR)              | 6.8                   | 50                 | 0.90                                   | 10.0                            | 5.1   | 70                       |
| 1N4693(UR)              | 7.5                   | 50                 | 0.75                                   | 10.0                            | 5.7   | 63.6                     |
| 1N4694(UR)              | 8.2                   | 50                 | 0.50                                   | 1.0                             | 6.2   | 58.0                     |
| 1N4695(UR)              | 8.7                   | 50                 | 0.10                                   | 1.0                             | 6.6   | 54.8                     |
| 1N4696(UR)              | 9.1                   | 50                 | 0.08                                   | 1.0                             | 6.9   | 52.4                     |
| 1N4697(UR)              | 10.0                  | 50                 | 0.10                                   | 1.0                             | 7.6   | 49.6                     |
| 1N4698(UR)              | 11.0                  | 50                 | 0.11                                   | 0.05                            | 8.4   | 43.2                     |
| 1N4699(UR)              | 12.0                  | 50                 | 0.12                                   | 0.05                            | 9.1   | 40.8                     |
| 1N4700(UR)              | 13.0                  | 50                 | 0.13                                   | 0.05                            | 9.8   | 38.0                     |
| 1N4701(UR)              | 14.0                  | 50                 | 0.14                                   | 0.05                            | 10.6  | 35.0                     |
| 1N4702(UR)              | 15.0                  | 50                 | 0.15                                   | 0.05                            | 11.4  | 32.6                     |
| 1N4703(UR)              | 16.0                  | 50                 | 0.16                                   | 0.05                            | 12.1  | 30.8                     |
| 1N4704(UR)              | 17.0                  | 50                 | 0.17                                   | 0.05                            | 12.9  | 29.0                     |

# 1N4678(UR)-1N4717(UR)

## 500mW AXIAL LEADED ZENER DIODES

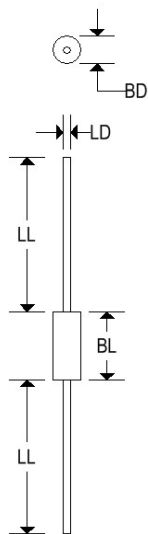
| Part number<br>(note 1) | Nominal Zener Voltage | Zener Test Current | Maximum Voltage Regulation<br>(note 2) | Maximum Reverse Leakage Current |       | Maximum DC Zener Current |
|-------------------------|-----------------------|--------------------|--|---------------------------------|-------|--------------------------|
|                         | $V_z$                 | $I_{zT}$           | $\Delta V_z$                           | $I_R @ V_R$                     |       | $I_{zM}$                 |
|                         | Volts                 | $\mu A$            | Volts                                  | $\mu A$                         | Volts | mA                       |
| 1N4705(UR)              | 18.0                  | 50                 | 0.18                                   | 0.05                            | 13.6  | 26.4                     |
| 1N4706(UR)              | 19.0                  | 50                 | 0.19                                   | 0.05                            | 14.4  | 25.0                     |
| 1N4707(UR)              | 20.0                  | 50                 | 0.20                                   | 0.01                            | 15.2  | 23.8                     |
| 1N4708(UR)              | 22.0                  | 50                 | 0.22                                   | 0.01                            | 16.7  | 21.6                     |
| 1N4709(UR)              | 24.0                  | 50                 | 0.24                                   | 0.01                            | 18.2  | 19.8                     |
| 1N4710(UR)              | 25.0                  | 50                 | 0.25                                   | 0.01                            | 19.0  | 19.0                     |
| 1N4711(UR)              | 27.0                  | 50                 | 0.27                                   | 0.01                            | 20.4  | 17.6                     |
| 1N4712(UR)              | 28.0                  | 50                 | 0.28                                   | 0.01                            | 21.2  | 17.0                     |
| 1N4713(UR)              | 30.0                  | 50                 | 0.30                                   | 0.01                            | 22.8  | 15.8                     |
| 1N4714(UR)              | 33.0                  | 50                 | 0.33                                   | 0.01                            | 25.0  | 14.4                     |
| 1N4715(UR)              | 36.0                  | 50                 | 0.36                                   | 0.01                            | 27.3  | 13.2                     |
| 1N4716(UR)              | 39.0                  | 50                 | 0.39                                   | 0.01                            | 29.6  | 12.2                     |
| 1N4717(UR)              | 43.0                  | 50                 | 0.43                                   | 0.01                            | 32.6  | 11.0                     |

Note 1: All part numbers shown above have a standard tolerance of +/-5% of the nominal zener voltage.  $V_z$  is measured with the diode in thermal equilibrium at 25°C ±3°C.

Note 2:  $\Delta V_z @ 100\mu A$  minus  $V_z @ 10\mu A$ .

### MECHANICAL CHARACTERISTICS

|           |               |
|-----------|---------------|
| Case:     | DO-35 (Glass) |
| Marking:  | Alpha Numeric |
| Polarity: | Cathode Band  |

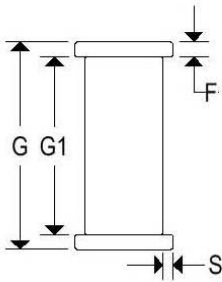
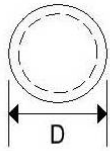


|    | DO-35  |       |             |        |
|----|--------|-------|-------------|--------|
|    | Inches |       | Millimeters |        |
|    | Min    | Max   | Min         | Max    |
| BD | 0.055  | 0.090 | 1.400       | 2.290  |
| BL | 0.120  | 0.200 | 3.050       | 5.080  |
| LD | 0.018  | 0.022 | 0.460       | 0.560  |
| LL | 1.000  | 1.500 | 25.400      | 38.100 |

# 1N4678(UR)-1N4717(UR)

## 500mW AXIAL LEADED ZENER DIODES

|                  |               |
|------------------|---------------|
| <b>Case:</b>     | SOD-80        |
| <b>Marking:</b>  | Alpha Numeric |
| <b>Polarity:</b> | Cathode Band  |



|    | SOD-80    |       |             |       |
|----|-----------|-------|-------------|-------|
|    | Inches    |       | Millimeters |       |
|    | Min       | Max   | Min         | Max   |
| D  | 0.063     | 0.067 | 1.600       | 1.700 |
| F  | 0.016     | 0.022 | 0.410       | 0.550 |
| G  | 0.130     | 0.146 | 3.300       | 3.700 |
| G1 | 0.100 REF |       | 2.540 REF   |       |
| S  | 0.001     | -     | 0.030       | -     |