

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

1N4678 THRU 1N4717

500 mW LOW LEVEL ZENER DIODE
1.8 VOLTS TO 43 VOLTS
5% TOLERANCE

DO-35 CASE

DESCRIPTION

The Central Semiconductor 1n4678 Series types are Silicon Zener Diodes designed for applications requiring an extremely low operating current (50 μ A), and low leakage.

ABSOLUTE MAXIMUM RATINGS

Power Dissipation (@ $T_L \leq 75^\circ\text{C}$)
Operating and Storage Temperature
Tolerance (No Suffix)
Tolerance "C Suffix"
Tolerance "D Suffix"

SYMBOL

P_D
 T_J, T_{STG}

500
-65 TO +200
 ± 5
 ± 2
 ± 1

UNIT

mW
 $^\circ\text{C}$
%
%
%

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$), $V_F = 1.5\text{V MAX @ } I_F = 100\text{mA}$ FOR ALL TYPES

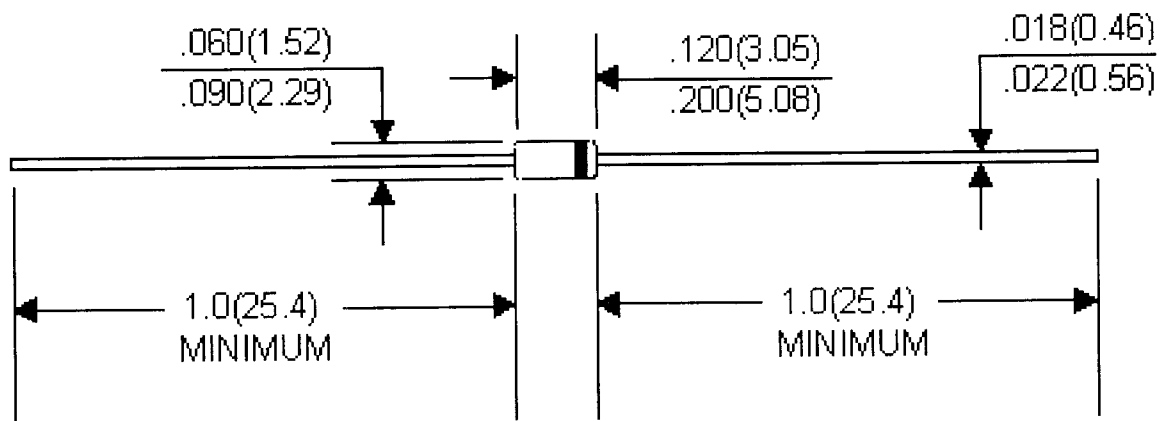
| TYPE | ZENER VOLTAGE $V_Z @ I_{ZT}$ | | | TEST CURRENT | MAXIMUM REVERSE LEAKAGE CURRENT | | MAXIMUM VOLTAGE CHANGE * | MAXIMUM REGULATOR CURRENT |
|--------|---------------------------------|-------|-------|---------------|---------------------------------|-------|--------------------------|---------------------------|
| | NOM | MIN | MAX | I_{ZT} | I_R @ | V_R | ΔV_Z | I_{ZM} |
| | VOLTS | VOLTS | VOLTS | μA | μA | VOLTS | VOLTS | mA |
| 1N4678 | 1.8 | 1.710 | 1.890 | 50 | 7.5 | 1.0 | 0.70 | 120.0 |
| 1N4679 | 2.0 | 1.900 | 2.100 | 50 | 5.0 | 1.0 | 0.70 | 110.0 |
| 1N4680 | 2.2 | 2.090 | 2.310 | 50 | 4.0 | 1.0 | 0.75 | 100.0 |
| 1N4681 | 2.4 | 2.280 | 2.520 | 50 | 2.0 | 1.0 | 0.80 | 95.0 |
| 1N4682 | 2.7 | 2.565 | 2.835 | 50 | 1.0 | 1.0 | 0.85 | 90.0 |
| 1N4683 | 3.0 | 2.850 | 3.150 | 50 | 0.8 | 1.0 | 0.90 | 85.0 |
| 1N4684 | 3.3 | 3.135 | 3.465 | 50 | 7.5 | 1.5 | 0.95 | 80.0 |
| 1N4685 | 3.6 | 3.420 | 3.780 | 50 | 7.5 | 2.0 | 0.95 | 75.0 |
| 1N4686 | 3.9 | 3.705 | 4.095 | 50 | 5.0 | 2.0 | 0.97 | 70.0 |
| 1N4687 | 4.3 | 4.085 | 4.515 | 50 | 4.0 | 2.0 | 0.99 | 65.0 |
| 1N4688 | 4.7 | 4.465 | 4.935 | 50 | 10 | 3.0 | 0.99 | 60.0 |
| 1N4689 | 5.1 | 4.845 | 5.355 | 50 | 10 | 3.0 | 0.97 | 55.0 |
| 1N4690 | 5.6 | 5.320 | 5.880 | 50 | 10 | 4.0 | 0.96 | 50.0 |
| 1N4691 | 6.2 | 5.890 | 6.510 | 50 | 10 | 5.0 | 0.95 | 45.0 |
| 1N4692 | 6.8 | 6.460 | 7.140 | 50 | 10 | 5.1 | 0.90 | 35.0 |
| 1N4693 | 7.5 | 7.125 | 7.875 | 50 | 10 | 5.7 | 0.75 | 31.8 |
| 1N4694 | 8.2 | 7.790 | 8.610 | 50 | 1.0 | 6.2 | 0.50 | 29.0 |
| 1N4695 | 8.7 | 8.265 | 9.135 | 50 | 1.0 | 6.6 | 0.10 | 27.6 |
| 1N4696 | 9.1 | 8.645 | 9.555 | 50 | 1.0 | 6.9 | 0.08 | 26.2 |
| 1N4697 | 10 | 9.500 | 10.50 | 50 | 1.0 | 7.6 | 0.10 | 24.8 |

* $\Delta V_Z = V_Z @ 100\mu\text{A}$ Minus $V_Z @ 10\mu\text{A}$

| TYPE | ZENER VOLTAGE $V_Z @ I_{ZT}$ | | | TEST CURRENT | MAXIMUM REVERSE LEAKAGE CURRENT | | MAXIMUM VOLTAGE CHANGE * | MAXIMUM REGULATOR CURRENT |
|--------|---------------------------------|-------|-------|--------------|---------------------------------|---------|--------------------------|---------------------------|
| | NOM | MIN | MAX | I_{ZT} | I_R | @ V_R | ΔV_Z | I_{ZM} |
| | VOLTS | VOLTS | VOLTS | μA | μA | VOLTS | VOLTS | mA |
| 1N4698 | 11 | 10.45 | 11.55 | 50 | 0.05 | 8.4 | 0.11 | 21.6 |
| 1N4699 | 12 | 11.40 | 12.60 | 50 | 0.05 | 9.1 | 0.12 | 20.4 |
| 1N4700 | 13 | 12.35 | 13.65 | 50 | 0.05 | 9.8 | 0.13 | 19.0 |
| 1N4701 | 14 | 13.30 | 14.70 | 50 | 0.05 | 10.6 | 0.14 | 17.5 |
| 1N4702 | 15 | 14.25 | 15.75 | 50 | 0.05 | 11.4 | 0.15 | 16.3 |
| 1N4703 | 16 | 15.20 | 16.80 | 50 | 0.05 | 12.1 | 0.16 | 15.4 |
| 1N4704 | 17 | 16.15 | 17.85 | 50 | 0.05 | 12.9 | 0.17 | 14.5 |
| 1N4705 | 18 | 17.10 | 18.90 | 50 | 0.05 | 13.6 | 0.18 | 13.2 |
| 1N4706 | 19 | 18.05 | 19.95 | 50 | 0.05 | 14.4 | 0.19 | 12.5 |
| 1N4707 | 20 | 19.00 | 21.00 | 50 | 0.01 | 15.2 | 0.20 | 11.9 |
| 1N4708 | 22 | 20.90 | 23.10 | 50 | 0.01 | 16.7 | 0.22 | 10.8 |
| 1N4709 | 24 | 22.80 | 25.20 | 50 | 0.01 | 18.2 | 0.24 | 9.9 |
| 1N4710 | 25 | 23.75 | 26.25 | 50 | 0.01 | 19.0 | 0.25 | 9.5 |
| 1N4711 | 27 | 25.65 | 28.35 | 50 | 0.01 | 20.4 | 0.27 | 8.8 |
| 1N4712 | 28 | 26.60 | 29.40 | 50 | 0.01 | 21.2 | 0.28 | 8.5 |
| 1N4713 | 30 | 28.50 | 31.50 | 50 | 0.01 | 22.8 | 0.30 | 7.9 |
| 1N4714 | 33 | 31.35 | 34.65 | 50 | 0.01 | 25.0 | 0.33 | 7.2 |
| 1N4715 | 36 | 34.20 | 37.80 | 50 | 0.01 | 27.3 | 0.36 | 6.6 |
| 1N4716 | 39 | 37.05 | 40.95 | 50 | 0.01 | 29.6 | 0.39 | 6.1 |
| 1N4717 | 43 | 40.85 | 45.15 | 50 | 0.01 | 32.6 | 0.43 | 5.5 |

* $\Delta V_Z = V_Z @ 100\mu A$ Minus $V_Z @ 10\mu A$

DO-35 CASE - MECHANICAL OUTLINE



All Dimensions in Inches (mm).

Central[™]
Semiconductor Corp.