

### Axial Lead Zener Diodes

**(Pb)** Lead(Pb)-Free

#### Features:

- \* Low leakage
- \* High reliability

#### Applications:

- \* Voltage stabilization

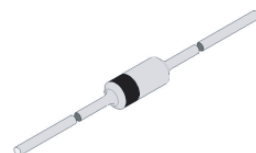
#### Construction:

- \* Silicon epitaxial planar

#### Mechanical Data:

- \* Case : DO-35 Glass Case
- \* Weight : Approx 0.13 gram

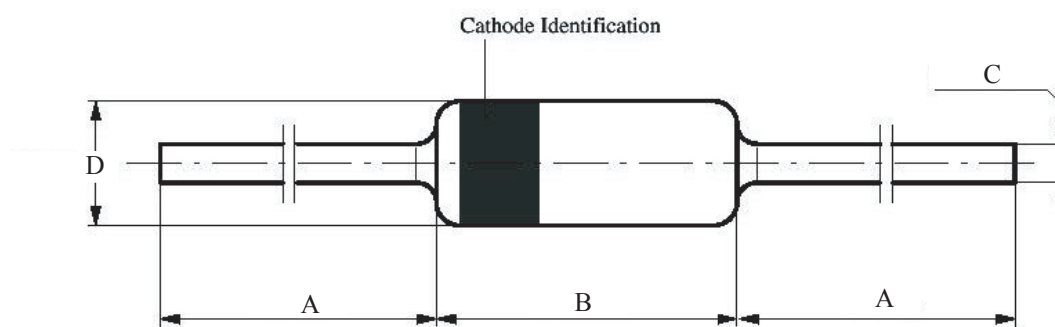
**SMALL SIGNAL  
ZENER DIODES  
0.5WATTS**



**DO-35**

### DO-35 Outline Dimensions

Unit:mm



|       | A    |     | B   |      | C   |      | D   |     |
|-------|------|-----|-----|------|-----|------|-----|-----|
| DIM   | Min  | Max | Min | Max  | Min | Max  | Min | Max |
| DO-35 | 26.0 | -   | -   | 4.20 | -   | 0.55 | -   | 2.0 |

**Maximum Ratings and Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  Unless Otherwise Noted)

| Parameter                                               | Symbol           | Value    | Unit               |
|---------------------------------------------------------|------------------|----------|--------------------|
| Power dissipation<br>$R_{\theta JA} \leq 300\text{K/W}$ | $P_V$            | 500      | mW                 |
| Junction ambient<br>on PC board 50mm x 50mm x 1.6mm     | $R_{\theta JA}$  | 500      | K/W                |
| Junction temperature                                    | $T_J$            | 175      | $^{\circ}\text{C}$ |
| Storage temperature range                               | $T_{\text{stg}}$ | -65~+175 | $^{\circ}\text{C}$ |

## Electrical Characteristics T<sub>j</sub>=25°C

| Type   | Zener voltage      |      |       |                     | Operating resistance |                     | Rising operating resistance |                     | Reverse current     |                    |
|--------|--------------------|------|-------|---------------------|----------------------|---------------------|-----------------------------|---------------------|---------------------|--------------------|
|        | V <sub>z</sub> (V) |      |       |                     | Z <sub>zt</sub> (Ω)  |                     | Z <sub>zk</sub> (Ω)         |                     | I <sub>R</sub> (μA) |                    |
|        | Rank               | Min. | Max.  | I <sub>z</sub> (mA) | Max.                 | I <sub>z</sub> (mA) | Max.                        | I <sub>z</sub> (mA) | Max.                | V <sub>R</sub> (V) |
| ZJ 2.0 | A                  | 1.88 | 2.10  | 5                   | 100                  | 5                   | 1000                        | 0.5                 | 120                 | 0.5                |
|        | B                  | 2.02 | 2.20  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 2.2 | A                  | 2.12 | 2.30  | 5                   | 100                  | 5                   | 1000                        | 0.5                 | 100                 | 0.7                |
|        | B                  | 2.22 | 2.41  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 2.4 | A                  | 2.33 | 2.52  | 5                   | 100                  | 5                   | 1000                        | 0.5                 | 120                 | 1.0                |
|        | B                  | 2.43 | 2.63  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 2.7 | A                  | 2.54 | 2.75  | 5                   | 110                  | 5                   | 1000                        | 0.5                 | 100                 | 1.0                |
|        | B                  | 2.69 | 2.91  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 3.0 | A                  | 2.85 | 3.07  | 5                   | 120                  | 5                   | 1000                        | 0.5                 | 50                  | 1.0                |
|        | B                  | 3.01 | 3.22  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 3.3 | A                  | 3.16 | 3.38  | 5                   | 120                  | 5                   | 1000                        | 0.5                 | 20                  | 1.0                |
|        | B                  | 3.32 | 3.53  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 3.6 | A                  | 3.46 | 3.69  | 5                   | 100                  | 5                   | 1000                        | 1                   | 10                  | 1.0                |
|        | B                  | 3.60 | 3.84  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 3.9 | A                  | 3.74 | 4.01  | 5                   | 100                  | 5                   | 1000                        | 1                   | 5                   | 1.0                |
|        | B                  | 3.89 | 4.16  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 4.3 | A                  | 4.04 | 4.29  | 5                   | 100                  | 5                   | 1000                        | 1                   | 5                   | 1.0                |
|        | B                  | 4.17 | 4.43  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 4.30 | 4.57  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 4.7 | A                  | 4.44 | 4.68  | 5                   | 90                   | 5                   | 900                         | 1                   | 5                   | 1.0                |
|        | B                  | 4.55 | 4.80  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 4.68 | 4.93  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 5.1 | A                  | 4.81 | 5.07  | 5                   | 80                   | 5                   | 800                         | 1                   | 5                   | 1.5                |
|        | B                  | 4.94 | 5.20  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 5.09 | 5.37  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 5.6 | A                  | 5.28 | 5.55  | 5                   | 60                   | 5                   | 500                         | 1                   | 5                   | 2.5                |
|        | B                  | 5.45 | 5.73  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 5.61 | 5.91  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 6.2 | A                  | 5.78 | 6.09  | 5                   | 60                   | 5                   | 300                         | 1                   | 5                   | 3.0                |
|        | B                  | 5.96 | 6.27  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 6.12 | 6.44  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 6.8 | A                  | 6.29 | 6.63  | 5                   | 20                   | 5                   | 150                         | 0.5                 | 2                   | 3.5                |
|        | B                  | 6.49 | 6.83  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 6.66 | 7.01  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 7.5 | A                  | 6.85 | 7.22  | 5                   | 20                   | 5                   | 120                         | 0.5                 | 0.5                 | 4.0                |
|        | B                  | 7.07 | 7.45  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 7.29 | 7.67  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 8.2 | A                  | 7.53 | 7.92  | 5                   | 20                   | 5                   | 120                         | 0.5                 | 0.5                 | 5.0                |
|        | B                  | 7.78 | 8.19  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 8.03 | 8.45  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 9.1 | A                  | 8.29 | 8.73  | 5                   | 25                   | 5                   | 120                         | 0.5                 | 0.5                 | 6.0                |
|        | B                  | 8.57 | 9.01  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 8.83 | 9.30  |                     |                      |                     |                             |                     |                     |                    |
| ZJ 10  | A                  | 9.12 | 9.59  | 5                   | 30                   | 5                   | 120                         | 0.5                 | 0.2                 | 7.0                |
|        | B                  | 9.41 | 9.90  |                     |                      |                     |                             |                     |                     |                    |
|        | C                  | 9.70 | 10.20 |                     |                      |                     |                             |                     |                     |                    |
|        | D                  | 9.94 | 10.44 |                     |                      |                     |                             |                     |                     |                    |

| Type  | Zener voltage |       |       |         | Operating resistance |         | Rising operating resistance |         | Reverse current |        |
|-------|---------------|-------|-------|---------|----------------------|---------|-----------------------------|---------|-----------------|--------|
|       | Vz (V)        |       |       |         | Zzt (Ω)              |         | Zzk (Ω)                     |         | IR(μA)          |        |
|       | Rank          | Min.  | Max.  | Iz (mA) | Max.                 | Iz (mA) | Max.                        | Iz (mA) | Max.            | VR (V) |
| ZJ 11 | A             | 10.18 | 10.71 | 5       | 30                   | 5       | 120                         | 0.5     | 0.2             | 8.0    |
|       | B             | 10.50 | 11.05 |         |                      |         |                             |         |                 |        |
|       | C             | 10.82 | 11.38 |         |                      |         |                             |         |                 |        |
| ZJ 12 | A             | 11.13 | 11.71 | 5       | 30                   | 5       | 110                         | 0.5     | 0.2             | 9.0    |
|       | B             | 11.44 | 12.03 |         |                      |         |                             |         |                 |        |
|       | C             | 11.74 | 12.35 |         |                      |         |                             |         |                 |        |
| ZJ 13 | A             | 12.11 | 12.75 | 5       | 35                   | 5       | 110                         | 0.5     | 0.2             | 10     |
|       | B             | 12.55 | 13.21 |         |                      |         |                             |         |                 |        |
|       | C             | 12.99 | 13.66 |         |                      |         |                             |         |                 |        |
| ZJ 15 | A             | 13.44 | 14.13 | 5       | 40                   | 5       | 110                         | 0.5     | 0.2             | 11     |
|       | B             | 13.89 | 14.62 |         |                      |         |                             |         |                 |        |
|       | C             | 14.35 | 15.09 |         |                      |         |                             |         |                 |        |
| ZJ 16 | A             | 14.80 | 15.57 | 5       | 40                   | 5       | 150                         | 0.5     | 0.2             | 12     |
|       | B             | 15.25 | 16.04 |         |                      |         |                             |         |                 |        |
|       | C             | 15.69 | 16.51 |         |                      |         |                             |         |                 |        |
| ZJ 18 | A             | 16.22 | 17.06 | 5       | 45                   | 5       | 150                         | 0.5     | 0.2             | 13     |
|       | B             | 16.82 | 17.70 |         |                      |         |                             |         |                 |        |
|       | C             | 17.42 | 18.33 |         |                      |         |                             |         |                 |        |
| ZJ 20 | A             | 18.20 | 18.96 | 5       | 55                   | 5       | 200                         | 0.5     | 0.2             | 15     |
|       | B             | 18.63 | 19.59 |         |                      |         |                             |         |                 |        |
|       | C             | 19.23 | 20.22 |         |                      |         |                             |         |                 |        |
|       | D             | 19.72 | 20.72 |         |                      |         |                             |         |                 |        |
| ZJ 22 | A             | 20.15 | 21.20 | 5       | 30                   | 5       | 200                         | 0.5     | 0.2             | 17     |
|       | B             | 20.64 | 21.71 |         |                      |         |                             |         |                 |        |
|       | C             | 21.08 | 22.17 |         |                      |         |                             |         |                 |        |
|       | D             | 21.52 | 22.63 |         |                      |         |                             |         |                 |        |
| ZJ 24 | A             | 22.05 | 23.18 | 5       | 35                   | 5       | 200                         | 0.5     | 0.2             | 19     |
|       | B             | 22.61 | 23.77 |         |                      |         |                             |         |                 |        |
|       | C             | 23.12 | 24.13 |         |                      |         |                             |         |                 |        |
|       | D             | 23.63 | 24.85 |         |                      |         |                             |         |                 |        |
| ZJ 27 | A             | 24.26 | 25.52 | 5       | 45                   | 5       | 250                         | 0.5     | 0.2             | 21     |
|       | B             | 24.97 | 26.26 |         |                      |         |                             |         |                 |        |
|       | C             | 25.63 | 26.95 |         |                      |         |                             |         |                 |        |
|       | D             | 26.29 | 27.64 |         |                      |         |                             |         |                 |        |
| ZJ 30 | A             | 26.99 | 28.39 | 5       | 55                   | 5       | 250                         | 0.5     | 0.2             | 23     |
|       | B             | 27.70 | 29.13 |         |                      |         |                             |         |                 |        |
|       | C             | 28.36 | 29.82 |         |                      |         |                             |         |                 |        |
|       | D             | 29.02 | 30.51 |         |                      |         |                             |         |                 |        |
| ZJ 33 | A             | 29.68 | 31.22 | 5       | 65                   | 5       | 250                         | 0.5     | 0.2             | 25     |
|       | B             | 30.32 | 31.88 |         |                      |         |                             |         |                 |        |
|       | C             | 30.90 | 32.50 |         |                      |         |                             |         |                 |        |
|       | D             | 31.49 | 33.11 |         |                      |         |                             |         |                 |        |
| ZJ 36 | A             | 32.14 | 33.79 | 5       | 75                   | 5       | 250                         | 0.5     | 0.2             | 27     |
|       | B             | 32.79 | 34.49 |         |                      |         |                             |         |                 |        |
|       | C             | 33.40 | 35.13 |         |                      |         |                             |         |                 |        |
|       | D             | 34.01 | 35.77 |         |                      |         |                             |         |                 |        |
| ZJ 39 | A             | 34.68 | 36.47 | 5       | 85                   | 5       | 250                         | 0.5     | 0.2             | 30     |
|       | B             | 35.36 | 37.19 |         |                      |         |                             |         |                 |        |
|       | C             | 36.00 | 37.85 |         |                      |         |                             |         |                 |        |
|       | D             | 36.63 | 38.52 |         |                      |         |                             |         |                 |        |