

HZ Series

Silicon Epitaxial Planar Zener Diode for Stabilized Power Supply



ADE-208-117A(Z)  
Rev 1  
November 1996

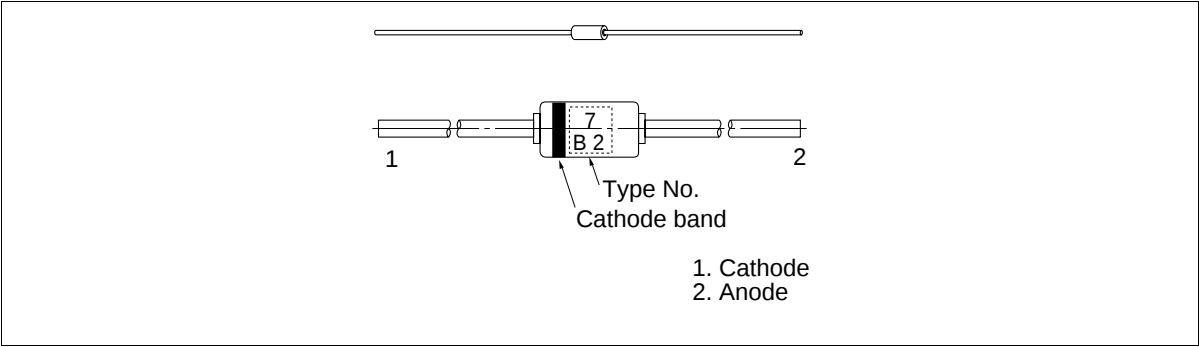
Features

- Low leakage, low zener impedance and maximum power dissipation of 500 mW are ideally suited for stabilized power supply, etc.
- Wide spectrum from 1.5V through 38V of zener voltage provide flexible application.

Ordering Information

| Type No.  | Mark     | Package Code |
|-----------|----------|--------------|
| HZ Series | Type No. | DO-35        |

Outline



HZ Series

Absolute Maximum Ratings (Ta = 25°C)

| Item                 | Symbol | Value       | Unit |
|----------------------|--------|-------------|------|
| Power dissipation    | Pd     | 500         | mW   |
| Junction temperature | Tj     | 175         | °C   |
| Storage temperature  | Tstg   | -55 to +175 | °C   |

Electrical Characteristics (Ta = 25°C)

| Type | Grade | Zener Voltage |     | Reverse Current |         | Dynamic Resistance |        |
|------|-------|---------------|-----|-----------------|---------|--------------------|--------|
|      |       | VZ (V)*1      |     | Test Condition  | IR (μA) | Test Condition     | rd (Ω) |
|      |       | Min           | Max | IZ (mA)         | Max     | VR (V)             | Max    |
| HZ1  | C3    | 1.5           | 1.7 | 5               | 25      | 0.5                | 100    |
|      |       |               |     |                 |         |                    |        |
| HZ2  | A1    | 1.6           | 1.8 | 5               | 25      | 0.5                | 100    |
|      | A2    | 1.7           | 1.9 |                 |         |                    |        |
|      | A3    | 1.8           | 2.0 |                 |         |                    |        |
|      | B1    | 1.9           | 2.1 | 5               | 5       | 0.5                | 100    |
|      | B2    | 2.0           | 2.2 |                 |         |                    |        |
|      | B3    | 2.1           | 2.3 |                 |         |                    |        |
|      | C1    | 2.2           | 2.4 |                 |         |                    |        |
|      | C2    | 2.3           | 2.5 |                 |         |                    |        |
|      | C3    | 2.4           | 2.6 |                 |         |                    |        |
|      |       |               |     |                 |         |                    |        |
| HZ3  | A1    | 2.5           | 2.7 | 5               | 5       | 0.5                | 100    |
|      | A2    | 2.6           | 2.8 |                 |         |                    |        |
|      | A3    | 2.7           | 2.9 |                 |         |                    |        |
|      | B1    | 2.8           | 3.0 |                 |         |                    |        |
|      | B2    | 2.9           | 3.1 |                 |         |                    |        |
|      | B3    | 3.0           | 3.2 |                 |         |                    |        |
|      | C1    | 3.1           | 3.3 |                 |         |                    |        |
|      | C2    | 3.2           | 3.4 |                 |         |                    |        |
|      | C3    | 3.3           | 3.5 |                 |         |                    |        |
| HZ4  | A1    | 3.4           | 3.6 | 5               | 5       | 1.0                | 100    |
|      | A2    | 3.5           | 3.7 |                 |         |                    |        |
|      | A3    | 3.6           | 3.8 |                 |         |                    |        |

Note: 1. Tested with DC.

| HZ Series |       |               |     |                |                 |                |                    |                |
|-----------|-------|---------------|-----|----------------|-----------------|----------------|--------------------|----------------|
| Type      | Grade | Zener Voltage |     | Test Condition | Reverse Current |                | Dynamic Resistance |                |
|           |       | VZ (V)*1      |     |                | IR (μA)         | Test Condition | rd (Ω)             | Test Condition |
|           |       | Min           | Max | IZ (mA)        | Max             | VR (V)         | Max                | IZ (mA)        |
| HZ4       | B1    | 3.7           | 3.9 | 5              | 5               | 1.0            | 100                | 5              |
|           | B2    | 3.8           | 4.0 |                |                 |                |                    |                |
|           | B3    | 3.9           | 4.1 |                |                 |                |                    |                |
|           | C1    | 4.0           | 4.2 |                |                 |                |                    |                |
|           | C2    | 4.1           | 4.3 |                |                 |                |                    |                |
|           | C3    | 4.2           | 4.4 |                |                 |                |                    |                |
| HZ5       | A1    | 4.3           | 4.5 | 5              | 5               | 1.5            | 100                | 5              |
|           | A2    | 4.4           | 4.6 |                |                 |                |                    |                |
|           | A3    | 4.5           | 4.7 |                |                 |                |                    |                |
|           | B1    | 4.6           | 4.8 |                |                 |                |                    |                |
|           | B2    | 4.7           | 4.9 |                |                 |                |                    |                |
|           | B3    | 4.8           | 5.0 |                |                 |                |                    |                |
|           | C1    | 4.9           | 5.1 |                |                 |                |                    |                |
|           | C2    | 5.0           | 5.2 |                |                 |                |                    |                |
|           | C3    | 5.1           | 5.3 |                |                 |                |                    |                |
| HZ6       | A1    | 5.2           | 5.5 | 5              | 5               | 2.0            | 40                 | 5              |
|           | A2    | 5.3           | 5.6 |                |                 |                |                    |                |
|           | A3    | 5.4           | 5.7 |                |                 |                |                    |                |
|           | B1    | 5.5           | 5.8 |                |                 |                |                    |                |
|           | B2    | 5.6           | 5.9 |                |                 |                |                    |                |
|           | B3    | 5.7           | 6.0 |                |                 |                |                    |                |
|           | C1    | 5.8           | 6.1 |                |                 |                |                    |                |
|           | C2    | 6.0           | 6.3 |                |                 |                |                    |                |
|           | C3    | 6.1           | 6.4 |                |                 |                |                    |                |
| HZ7       | A1    | 6.3           | 6.6 | 5              | 1               | 3.5            | 15                 | 5              |
|           | A2    | 6.4           | 6.7 |                |                 |                |                    |                |
|           | A3    | 6.6           | 6.9 |                |                 |                |                    |                |
|           | B1    | 6.7           | 7.0 |                |                 |                |                    |                |
|           | B2    | 6.9           | 7.2 |                |                 |                |                    |                |
|           | B3    | 7.0           | 7.3 |                |                 |                |                    |                |

Note: 1. Tested with DC.

## HZ Series

|      |       | Zener Voltage |      | Reverse Current |         | Dynamic Resistance |        |                |
|------|-------|---------------|------|-----------------|---------|--------------------|--------|----------------|
|      |       | VZ (V)*1      |      | Test Condition  | IR (μA) | Test Condition     | rd (Ω) | Test Condition |
| Type | Grade | Min           | Max  | IZ (mA)         | Max     | VR (V)             | Max    | IZ (mA)        |
| HZ7  | C1    | 7.2           | 7.6  | 5               | 1       | 3.5                | 15     | 5              |
|      | C2    | 7.3           | 7.7  |                 |         |                    |        |                |
|      | C3    | 7.5           | 7.9  |                 |         |                    |        |                |
| HZ9  | A1    | 7.7           | 8.1  | 5               | 1       | 5.0                | 20     | 5              |
|      | A2    | 7.9           | 8.3  |                 |         |                    |        |                |
|      | A3    | 8.1           | 8.5  |                 |         |                    |        |                |
|      | B1    | 8.3           | 8.7  |                 |         |                    |        |                |
|      | B2    | 8.5           | 8.9  |                 |         |                    |        |                |
|      | B3    | 8.7           | 9.1  |                 |         |                    |        |                |
|      | C1    | 8.9           | 9.3  |                 |         |                    |        |                |
|      | C2    | 9.1           | 9.5  |                 |         |                    |        |                |
|      | C3    | 9.3           | 9.7  |                 |         |                    |        |                |
| HZ11 | A1    | 9.5           | 9.9  | 5               | 1       | 7.5                | 25     | 5              |
|      | A2    | 9.7           | 10.1 |                 |         |                    |        |                |
|      | A3    | 9.9           | 10.3 |                 |         |                    |        |                |
|      | B1    | 10.2          | 10.6 |                 |         |                    |        |                |
|      | B2    | 10.4          | 10.8 |                 |         |                    |        |                |
|      | B3    | 10.7          | 11.1 |                 |         |                    |        |                |
|      | C1    | 10.9          | 11.3 |                 |         |                    |        |                |
|      | C2    | 11.1          | 11.6 |                 |         |                    |        |                |
|      | C3    | 11.4          | 11.9 |                 |         |                    |        |                |
| HZ12 | A1    | 11.6          | 12.1 | 5               | 1       | 9.5                | 35     | 5              |
|      | A2    | 11.9          | 12.4 |                 |         |                    |        |                |
|      | A3    | 12.2          | 12.7 |                 |         |                    |        |                |
|      | B1    | 12.4          | 12.9 |                 |         |                    |        |                |
|      | B2    | 12.6          | 13.1 |                 |         |                    |        |                |
|      | B3    | 12.9          | 13.4 |                 |         |                    |        |                |
|      | C1    | 13.2          | 13.7 |                 |         |                    |        |                |
|      | C2    | 13.5          | 14.0 |                 |         |                    |        |                |
|      | C3    | 13.8          | 14.3 |                 |         |                    |        |                |

Note: 1. Tested with DC.

## HZ Series

|      |       | Zener Voltage |      | Reverse Current |         | Dynamic Resistance |        |                |
|------|-------|---------------|------|-----------------|---------|--------------------|--------|----------------|
|      |       | VZ (V)*1      |      | Test Condition  | IR (μA) | Test Condition     | rd (Ω) | Test Condition |
| Type | Grade | Min           | Max  | IZ (mA)         | Max     | VR (V)             | Max    | IZ (mA)        |
| HZ15 | 1     | 14.1          | 14.7 | 5               | 1       | 11.0               | 40     | 5              |
|      | 2     | 14.5          | 15.1 |                 |         |                    |        |                |
|      | 3     | 14.9          | 15.5 |                 |         |                    |        |                |
| HZ16 | 1     | 15.3          | 15.9 | 5               | 1       | 12.0               | 45     | 5              |
|      | 2     | 15.7          | 16.5 |                 |         |                    |        |                |
|      | 3     | 16.3          | 17.1 |                 |         |                    |        |                |
| HZ18 | 1     | 16.9          | 17.7 | 5               | 1       | 13.0               | 55     | 5              |
|      | 2     | 17.5          | 18.3 |                 |         |                    |        |                |
|      | 3     | 18.1          | 19.0 |                 |         |                    |        |                |
| HZ20 | 1     | 18.8          | 19.7 | 2               | 1       | 15.0               | 60     | 2              |
|      | 2     | 19.5          | 20.4 |                 |         |                    |        |                |
|      | 3     | 20.2          | 21.1 |                 |         |                    |        |                |
| HZ22 | 1     | 20.9          | 21.9 | 2               | 1       | 17.0               | 65     | 2              |
|      | 2     | 21.6          | 22.6 |                 |         |                    |        |                |
|      | 3     | 22.3          | 23.3 |                 |         |                    |        |                |
| HZ24 | 1     | 22.9          | 24.0 | 2               | 1       | 19.0               | 70     | 2              |
|      | 2     | 23.6          | 24.7 |                 |         |                    |        |                |
|      | 3     | 24.3          | 25.5 |                 |         |                    |        |                |
| HZ27 | 1     | 25.2          | 26.6 | 2               | 1       | 21.0               | 80     | 2              |
|      | 2     | 26.2          | 27.6 |                 |         |                    |        |                |
|      | 3     | 27.2          | 28.6 |                 |         |                    |        |                |
| HZ30 | 1     | 28.2          | 29.6 | 2               | 1       | 23.0               | 100    | 2              |
|      | 2     | 29.2          | 30.6 |                 |         |                    |        |                |
|      | 3     | 30.2          | 31.6 |                 |         |                    |        |                |
| HZ33 | 1     | 31.2          | 32.6 | 2               | 1       | 25.0               | 120    | 2              |
|      | 2     | 32.2          | 33.6 |                 |         |                    |        |                |
|      | 3     | 33.2          | 34.6 |                 |         |                    |        |                |
| HZ36 | 1     | 34.2          | 35.7 | 2               | 1       | 27.0               | 140    | 2              |
|      | 2     | 35.3          | 36.8 |                 |         |                    |        |                |
|      | 3     | 36.4          | 38.0 |                 |         |                    |        |                |

Note: 1. Tested with DC.

Note: 2. Type No. is as follows; HZ2B1, HZ2B2, HZ36-3.

HZ Series

Main Characteristic

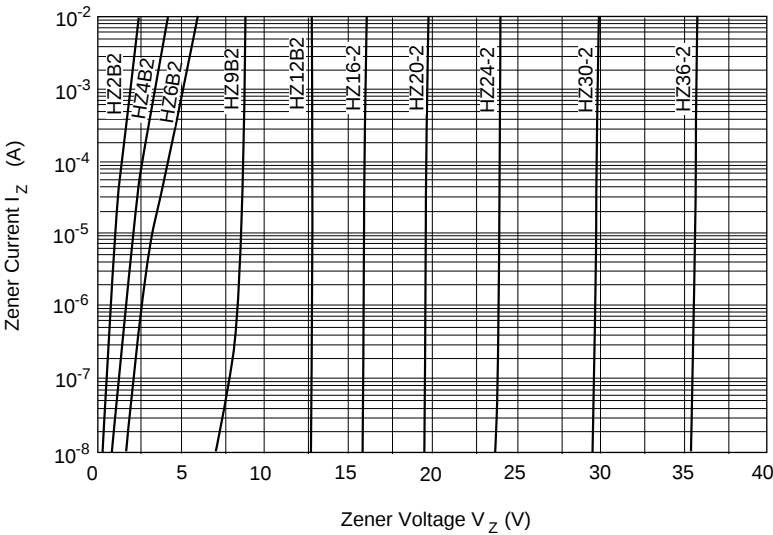


Fig.1 Zener current Vs. Zener voltage

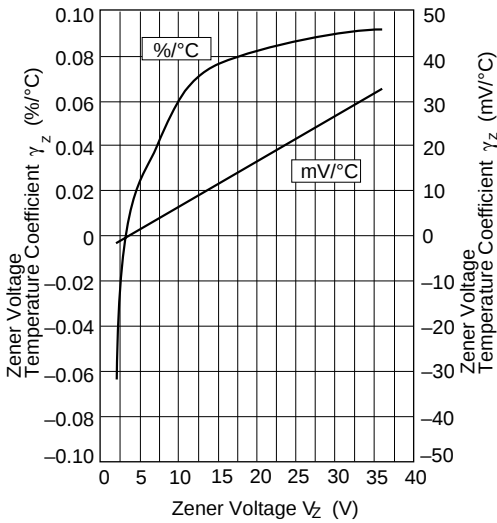


Fig.2 Temperature Coefficient Vs. Zener voltage

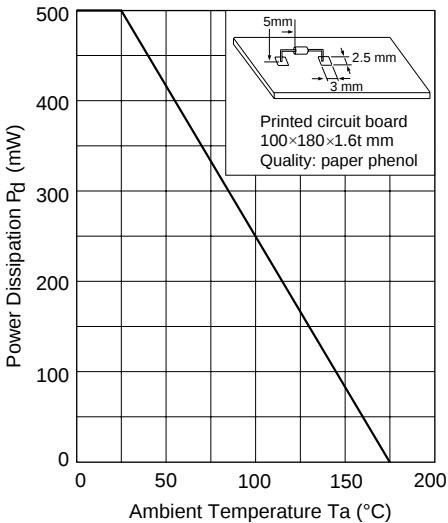


Fig.3 Power Dissipation Vs. Ambient Temperature

Package Dimensions

Unit : mm

