
HZ-P Series

Silicon Epitaxial Planar Zener Diodes
for Voltage Controller & Voltage Limiter

HITACHI

ADE-208-123D (Z)

Rev.4
Sep. 2000

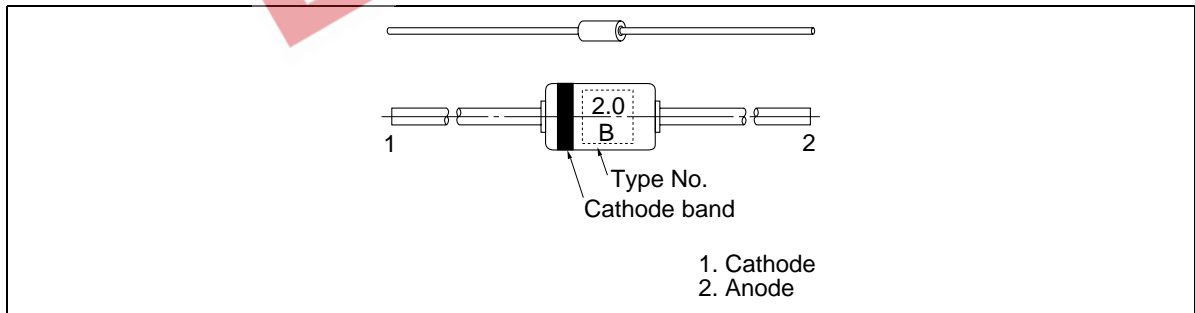
Features

- Wide spectrum from 1.88V through 40V of zener voltage provide flexible application.
- Glass package DO-41 structure ensures high reliability.

Ordering Information

| Type No. | Mark | Package Code |
|-------------|----------|--------------|
| HZ-P Series | Type No. | DO-41 |

Outline



HZ-P Series

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Value | Unit |
|----------------------|--------|-------------|------|
| Power dissipation | Pd | 0.8 | W |
| 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 | | |
|-------|-------|----------------------------------|------|---------------------|---------------------|--------------------|--------------------|---------------------|
| | | V _z (V)* ¹ | | Test Condition | I _R (μA) | Test Condition | r _d (Ω) | Test Condition |
| | | Min | Max | I _z (mA) | Max | V _R (V) | Max | I _z (mA) |
| HZ2.0 | BP | 1.88 | 2.12 | 40 | 200 | 0.5 | 25 | 40 |
| | CP | 2.00 | 2.24 | | | | | |
| HZ2.2 | BP | 2.08 | 2.33 | 40 | 200 | 0.7 | 20 | 40 |
| | CP | 2.20 | 2.45 | | | | | |
| HZ2.4 | BP | 2.28 | 2.56 | 40 | 200 | 1.0 | 15 | 40 |
| | CP | 2.40 | 2.70 | | | | | |
| HZ2.7 | BP | 2.5 | 2.9 | 40 | 200 | 1.0 | 15 | 40 |
| | CP | 2.7 | 3.1 | | | | | |
| HZ3.0 | BP | 2.8 | 3.2 | 40 | 100 | 1.0 | 15 | 40 |
| | CP | 3.0 | 3.4 | | | | | |
| HZ3.3 | BP | 3.1 | 3.5 | 40 | 80 | 1.0 | 15 | 40 |
| | CP | 3.3 | 3.7 | | | | | |
| HZ3.6 | BP | 3.4 | 3.8 | 40 | 60 | 1.0 | 15 | 40 |
| | CP | 3.6 | 4.0 | | | | | |
| HZ3.9 | BP | 3.7 | 4.1 | 40 | 40 | 1.0 | 15 | 40 |
| | CP | 3.9 | 4.4 | | | | | |
| HZ4.3 | BP | 4.0 | 4.5 | 40 | 20 | 1.0 | 15 | 40 |
| | CP | 4.3 | 4.8 | | | | | |
| HZ4.7 | BP | 4.4 | 4.9 | 40 | 20 | 1.0 | 10 | 40 |
| | CP | 4.7 | 5.2 | | | | | |

Note: 1. Tested with DC.

Electrical Characteristics (cont)

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Reverse Current | | Dynamic Resistance | | |
|-------|-------|----------------------------------|------|---------------------|---------------------|--------------------|--------------------|---------------------|
| | | V _z (V)* ¹ | | Test Condition | I _R (μA) | Test Condition | r _d (Ω) | Test Condition |
| | | Min | Max | I _z (mA) | Max | V _R (V) | Max | I _z (mA) |
| HZ5.1 | BP | 4.8 | 5.4 | 40 | 20 | 1.0 | 8 | 40 |
| | CP | 5.1 | 5.7 | | | | | |
| HZ5.6 | BP | 5.3 | 6.0 | 40 | 20 | 1.5 | 8 | 40 |
| | CP | 5.6 | 6.3 | | | | | |
| HZ6.2 | BP | 5.8 | 6.6 | 40 | 20 | 3.0 | 6 | 40 |
| | CP | 6.2 | 7.0 | | | | | |
| HZ6.8 | BP | 6.4 | 7.2 | 40 | 20 | 3.5 | 6 | 40 |
| | CP | 6.8 | 7.7 | | | | | |
| HZ7.5 | BP | 7.0 | 7.9 | 40 | 20 | 4.0 | 4 | 40 |
| | CP | 7.5 | 8.4 | | | | | |
| HZ8.2 | BP | 7.7 | 8.7 | 40 | 20 | 5.0 | 4 | 40 |
| | CP | 8.2 | 9.3 | | | | | |
| HZ9.1 | BP | 8.5 | 9.6 | 40 | 20 | 6.0 | 6 | 40 |
| | CP | 9.1 | 10.2 | | | | | |
| HZ10 | BP | 9.4 | 10.6 | 40 | 10 | 7.0 | 6 | 40 |
| | CP | 10.0 | 11.2 | | | | | |
| HZ11 | BP | 10.4 | 11.6 | 20 | 10 | 8.0 | 8 | 20 |
| | CP | 11.0 | 12.3 | | | | | |
| HZ12 | BP | 11.4 | 12.6 | 20 | 10 | 9.0 | 8 | 20 |
| | CP | 12.0 | 13.5 | | | | | |
| HZ13 | BP | 12.4 | 14.1 | 20 | 10 | 10.0 | 10 | 20 |
| | CP | 13.3 | 15.0 | | | | | |
| HZ15 | BP | 13.8 | 15.6 | 20 | 10 | 11.0 | 10 | 20 |
| | CP | 14.7 | 16.5 | | | | | |
| HZ16 | BP | 15.3 | 17.1 | 20 | 10 | 12.0 | 12 | 20 |
| | CP | 16.2 | 18.3 | | | | | |
| HZ18 | BP | 16.8 | 19.1 | 20 | 10 | 13.0 | 12 | 20 |
| | CP | 18.0 | 20.3 | | | | | |
| HZ20 | BP | 18.8 | 21.2 | 20 | 10 | 15.0 | 14 | 20 |
| | CP | 20.0 | 22.4 | | | | | |

Note: 1. Tested with DC.

HZ-P Series

Electrical Characteristics (cont)

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Reverse Current | | Dynamic Resistance | | |
|------|-------|-------------------------|------|-----------------|------------|--------------------|-----------|----------------|
| | | V_z (V)* ¹ | | Test Condition | I_R (μA) | Test Condition | r_d (Ω) | Test Condition |
| | | Min | Max | I_z (mA) | Max | V_R (V) | Max | I_z (mA) |
| HZ22 | BP | 20.8 | 23.3 | 10 | 10 | 17.0 | 14 | 10 |
| | CP | 22.0 | 24.5 | | | | | |
| HZ24 | BP | 22.8 | 25.6 | 10 | 10 | 19.0 | 16 | 10 |
| | CP | 24.0 | 27.6 | | | | | |
| HZ27 | BP | 25.1 | 28.9 | 10 | 10 | 21.0 | 16 | 10 |
| | CP | 27.0 | 30.8 | | | | | |
| HZ30 | BP | 28.0 | 32.0 | 10 | 10 | 23.0 | 18 | 10 |
| | CP | 30.0 | 34.0 | | | | | |
| HZ33 | BP | 31.0 | 35.0 | 10 | 10 | 25.0 | 18 | 10 |
| | CP | 33.0 | 37.0 | | | | | |
| HZ36 | BP | 34.0 | 38.0 | 10 | 10 | 27.0 | 20 | 10 |
| | CP | 36.0 | 40.0 | | | | | |

Notes: 1. Tested with DC.

2. Type No. is as follows; HZ2.0BP, HZ2.0CP, ••• HZ36BP, HZ36CP.

Main Characteristic



Fig.1 Zener current Vs. Zener voltage



Fig.2 Temperature Coefficient Vs. Zener voltage

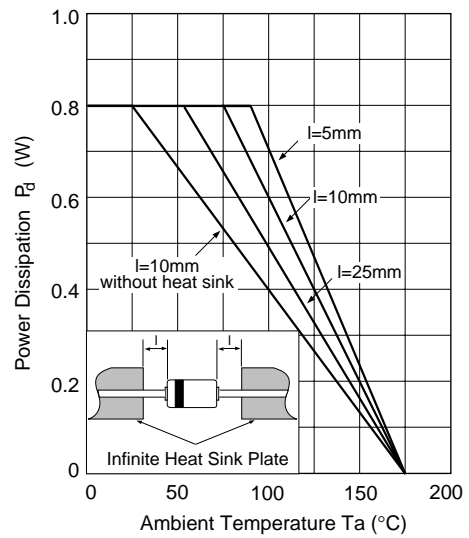


Fig.3 Power Dissipation Vs. Ambient Temperature

HZ-P Series

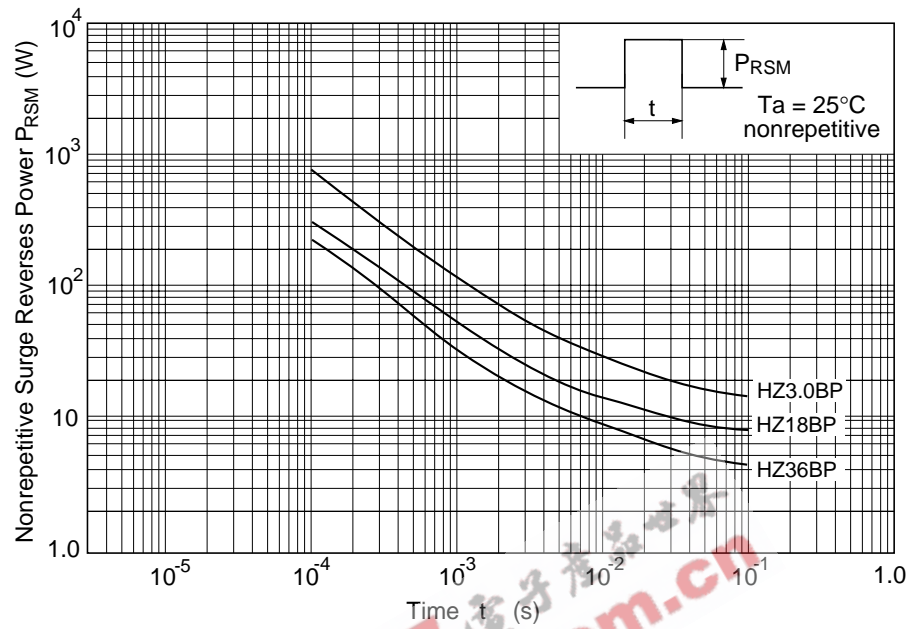


Fig.4 Surge Reverse Power Ratings (Reference Data)

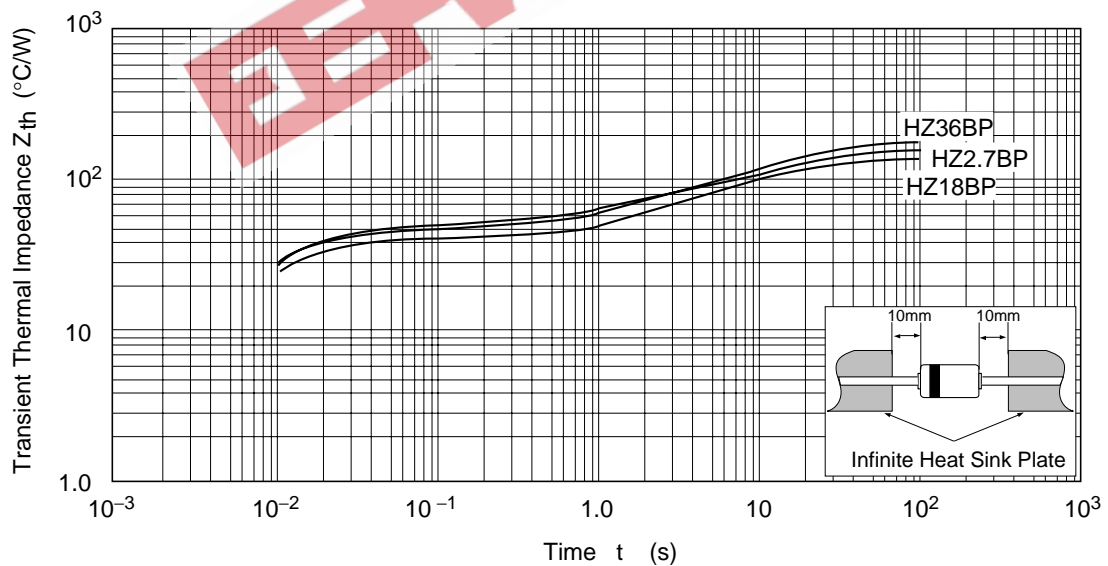
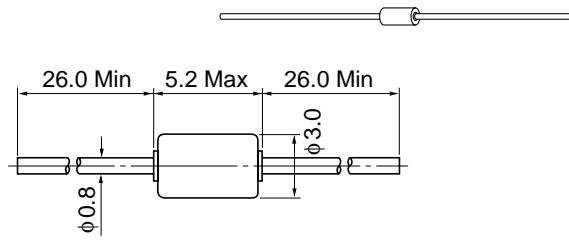


Fig.5 Transient Thermal Impedance

Package Dimensions

Unit: mm



| | |
|------------------------|----------|
| Hitachi Code | DO-41 |
| JEDEC | Conforms |
| EIAJ | Conforms |
| Mass (reference value) | 0.38 g |

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