

# MAZ4xxxN Series (MA4xxx(N) Series)

## Silicon planar type

For stabilization of power supply

### ■ Features

- Extremely low noise voltage caused from diode (1/3 to 1/10 of our conventional MAZ4xxx series)
- Extremely good rising performance (in the low-current range)
- Easy-to-identify the zener-voltage rank by the color bands
- Easy-to-select the optimum diode because of their finely divided zener-voltage ranks
- Easy-to-mount through the adoption of the small glass-sealed DHD package (DO-34-A2)

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                       | Symbol      | Rating      | Unit             |
|---------------------------------|-------------|-------------|------------------|
| Forward current (Average)       | $I_{F(AV)}$ | 250         | mA               |
| Repetitive peak forward current | $I_{FRM}$   | 250         | mA               |
| Power dissipation *             | $P_D$       | 400         | mW               |
| Junction temperature            | $T_j$       | 200         | $^\circ\text{C}$ |
| Storage temperature             | $T_{stg}$   | -65 to +200 | $^\circ\text{C}$ |

Note) \*:  $P_D = 400$  mW achieved with a printed circuit board

### ■ Common Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ \*1

| Parameter                                   | Symbol   | Conditions            | Min   | Typ  | Max  | Unit                       |
|---|----------|-----------------------|---|------|------|----------------------------|
| Forward voltage                             | $V_F$    | $I_F = 10$ mA         |   | 0.83 | 0.90 | V                          |
| Zener voltage *2                            | $V_Z$    | $I_Z$ Specified value |   |      |      | V                          |
| Zener rise operating resistance             | $R_{ZK}$ | $I_Z$ Specified value | Refer to the list of the electrical characteristics within part numbers |      |      | $\Omega$                   |
| Zener operating resistance                  | $R_Z$    | $I_Z$ Specified value |   |      |      | $\Omega$                   |
| Reverse current                             | $I_R$    | $V_R$ Specified value |   |      |      | $\mu\text{A}$              |
| Temperature coefficient of zener voltage *3 | $S_Z$    | $I_Z$ Specified value |   |      |      | $\text{mV}/^\circ\text{C}$ |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

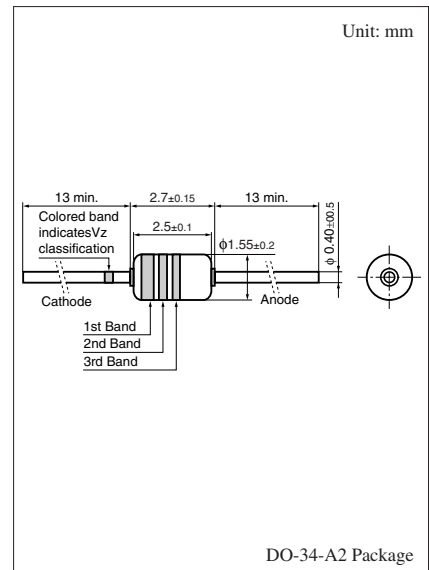
2. Absolute frequency of input and output is 50 MHz.

3. \*1: The temperature must be controlled  $25^\circ\text{C}$  for  $V_Z$  measurement.

$V_Z$  value measured at other temperature must be adjusted to  $V_Z (25^\circ\text{C})$

\*2:  $V_Z$  guaranteed 20 ms after current flow.

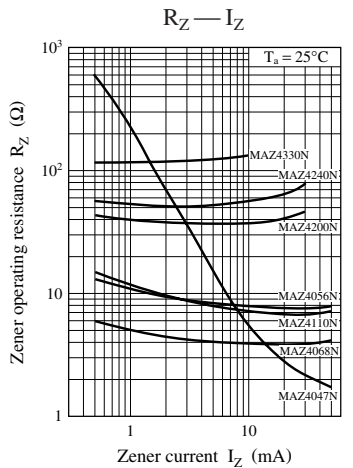
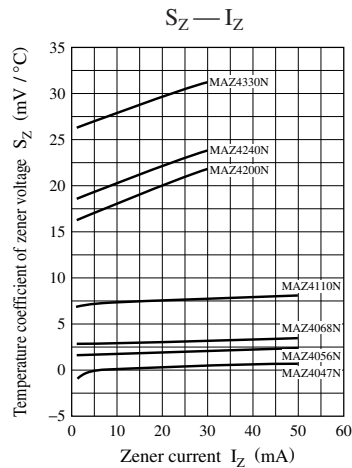
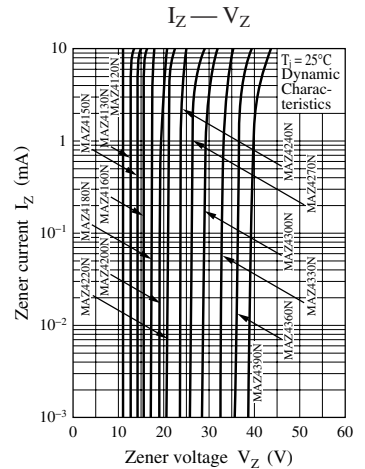
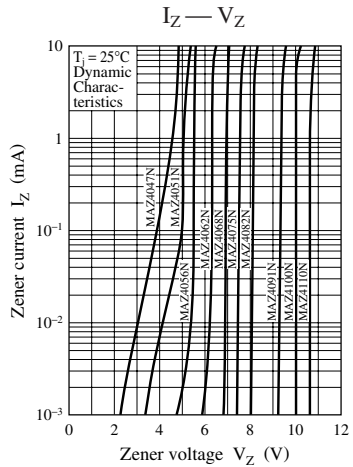
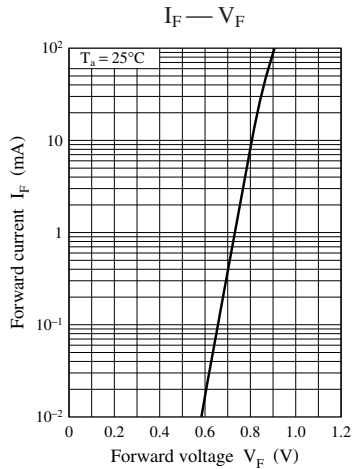
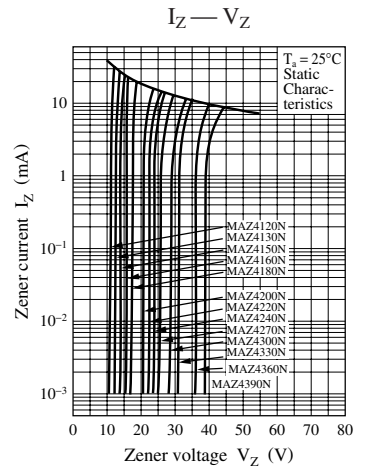
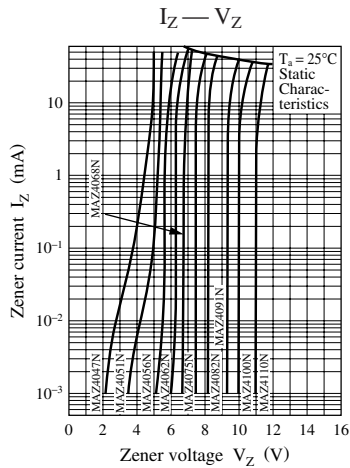
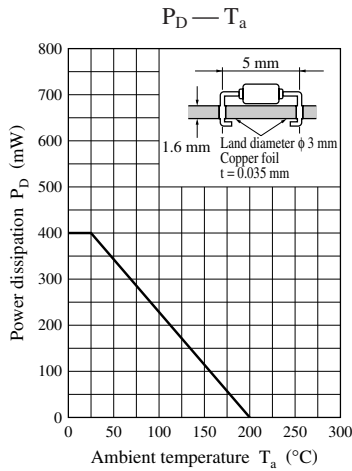
\*3:  $T_j = 25^\circ\text{C}$  to  $150^\circ\text{C}$

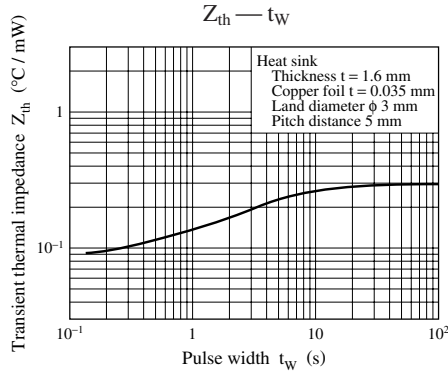


Note) The part number in the parenthesis shows conventional part number.

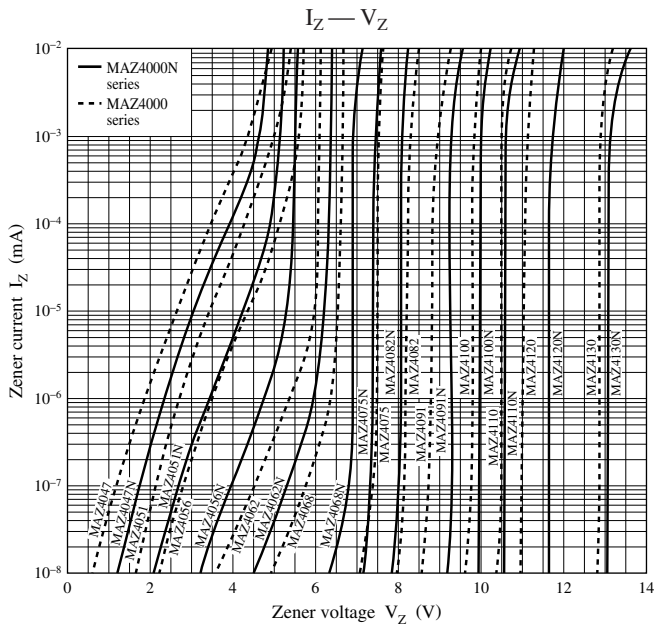
■ Electrical Characteristics within Part Numbers  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Part number | Zener voltage             |       |       | Reverse current                   |              | Zener operating resistance   |               | Zener rise operating resistance |               | Temperature coefficient of zener voltage |               | Marking symbol<br>(Color indication)<br>Main body:<br>Light purple |        |        |
|-------------|---------------------------|-------|-------|-----------------------------------|--------------|------------------------------|---------------|---------------------------------|---------------|--|---------------|--|--------|--------|
|             | $V_Z$ (V)<br>$I_Z = 5$ mA |       |       | $I_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(V) | $R_Z$<br>( $\Omega$ )<br>Max | $I_Z$<br>(mA) | $R_{ZK}$<br>( $\Omega$ )<br>Max | $I_Z$<br>(mA) | $S_Z$<br>(mV/ $^\circ\text{C}$ )<br>Typ  | $I_Z$<br>(mA) | 1st.   | 2nd.   | 3rd.   |
|             | Min                       | Nom   | Max   |                                   |              |                              |               |                                 |               |  |               |  |        |        |
| MAZ4047N    | 4.42                      | 4.66  | 4.90  | 2.0                               | 1.0          | 80                           | 5             | 800                             | 0.5           | -1.4                                     | 5             | Yellow   | Purple | Purple |
| MAZ4051N    | 4.84                      | 5.11  | 5.38  | 1.0                               | 2.0          | 60                           | 5             | 500                             | 0.5           | -0.8                                     | 5             | Green  | Brown  | Brown  |
| MAZ4056N    | 5.32                      | 5.62  | 5.92  | 0.5                               | 2.5          | 40                           | 5             | 200                             | 0.5           | 1.2                                      | 5             | Green  | Blue   | Blue   |
| MAZ4062N    | 5.86                      | 6.20  | 6.53  | 0.2                               | 4.0          | 30                           | 5             | 100                             | 0.5           | 2.3                                      | 5             | Blue   | Red    | Red    |
| MAZ4068N    | 6.47                      | 6.81  | 7.14  | 0.1                               | 4.0          | 20                           | 5             | 60                              | 0.5           | 3.0                                      | 5             | Blue   | Gray   | Gray   |
| MAZ4075N    | 7.07                      | 7.45  | 7.83  | 0.1                               | 5.0          | 20                           | 5             | 60                              | 0.5           | 4.0                                      | 5             | Purple   | Green  | Green  |
| MAZ4082N    | 7.77                      | 8.20  | 8.63  | 0.1                               | 5.0          | 20                           | 5             | 60                              | 0.5           | 4.6                                      | 5             | Gray   | Red    | Red    |
| MAZ4091N    | 8.57                      | 9.05  | 9.53  | 0.1                               | 6.0          | 20                           | 5             | 60                              | 0.5           | 5.5                                      | 5             | White  | Brown  | Brown  |
| MAZ4100N    | 9.47                      | 10.01 | 10.54 | 0.05                              | 7.0          | 30                           | 5             | 60                              | 0.5           | 6.4                                      | 5             | Brown  | Black  | —      |
| MAZ4110N    | 10.45                     | 11.01 | 11.56 | 0.05                              | 8.0          | 30                           | 5             | 60                              | 0.5           | 7.4                                      | 5             | Brown  | Brown  | —      |
| MAZ4120N    | 11.43                     | 12.01 | 12.58 | 0.05                              | 9.0          | 30                           | 5             | 80                              | 0.5           | 8.4                                      | 5             | Brown  | Red    | —      |
| MAZ4130N    | 12.46                     | 13.21 | 13.96 | 0.05                              | 10.0         | 35                           | 5             | 80                              | 0.5           | 9.4                                      | 5             | Brown  | Orange | —      |
| MAZ4150N    | 13.84                     | 14.68 | 15.51 | 0.05                              | 11.0         | 40                           | 5             | 80                              | 0.5           | 11.4                                     | 5             | Brown  | Green  | —      |
| MAZ4160N    | 15.38                     | 16.23 | 17.08 | 0.05                              | 12.0         | 50                           | 5             | 80                              | 0.5           | 12.4                                     | 5             | Brown  | Blue   | —      |
| MAZ4180N    | 16.94                     | 17.98 | 19.02 | 0.05                              | 13.0         | 60                           | 5             | 80                              | 0.5           | 14.4                                     | 5             | Brown  | Gray   | —      |
| MAZ4200N    | 18.88                     | 19.98 | 21.08 | 0.05                              | 15.0         | 80                           | 5             | 100                             | 0.5           | 16.4                                     | 5             | Red  | Black  | —      |
| MAZ4220N    | 20.89                     | 22.02 | 23.15 | 0.05                              | 17.0         | 80                           | 5             | 100                             | 0.5           | 18.4                                     | 5             | Red  | Red    | —      |
| MAZ4240N    | 22.93                     | 24.25 | 25.57 | 0.05                              | 19.0         | 100                          | 5             | 120                             | 0.5           | 20.4                                     | 5             | Red  | Yellow | —      |
| MAZ4270N    | 25.20                     | 26.91 | 28.61 | 0.05                              | 21.0         | 120                          | 5             | 120                             | 0.5           | 23.4                                     | 5             | Red  | Purple | —      |
| MAZ4300N    | 28.22                     | 29.98 | 31.74 | 0.05                              | 23.0         | 160                          | 5             | 160                             | 0.5           | 26.6                                     | 5             | Orange   | Black  | —      |
| MAZ4330N    | 31.18                     | 33.01 | 34.83 | 0.05                              | 25.0         | 200                          | 5             | 200                             | 0.5           | 29.7                                     | 5             | Orange   | Orange | —      |
| MAZ4360N    | 34.12                     | 36.02 | 37.91 | 0.05                              | 27.0         | 250                          | 5             | 250                             | 0.5           | 33.0                                     | 5             | Orange   | Blue   | —      |
| MAZ4390N    | 37.04                     | 39.02 | 40.99 | 0.05                              | 30.0         | 300                          | 5             | 300                             | 0.5           | 35.6                                     | 5             | Orange   | White  | —      |

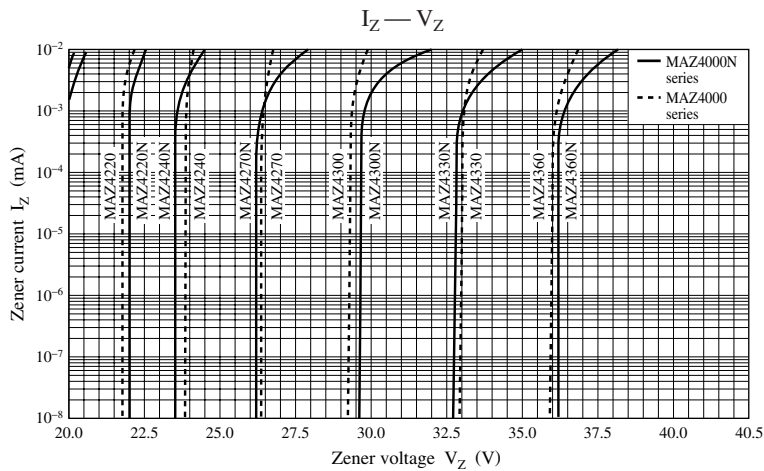




- Comparison (1) of rise performance between MAZ4xxxN and MAZ4xxx series



- Comparison (2) of rise performance between MAZ4xxxN and MAZ4xxx series



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