

# MAZ2xxx Series (MA2xxx Series)

## Silicon planar type

For stabilization of power supply

### ■ Features

- High reliability, achieved by the combination the planar type and the glass seal
- Large power dissipation  $P_D$
- Wide voltage range: Zener voltage  $V_Z = 5.1\text{ V}$  to  $56.0\text{ V}$

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

| Parameter                                         | Symbol    | Rating      | Unit             |
|---------------------------------------------------|-----------|-------------|------------------|
| Repetitive peak forward current                   | $I_{FRM}$ | 400         | mA               |
| Power dissipation *1                              | $P_D$     | 1.0         | W                |
| Non-repetitive reverse surge power dissipation *2 | $P_{ZSM}$ | 75          | W                |
| Junction temperature                              | $T_j$     | 200         | $^\circ\text{C}$ |
| Storage temperature                               | $T_{stg}$ | -55 to +200 | $^\circ\text{C}$ |

Note) \*1:  $P_D = 1.0\text{ W}$  achieved with a printed circuit board

\*2:  $t = 100\ \mu\text{s}$ ,  $T_j = 150^\circ\text{C}$

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

| Parameter                                   | Symbol | Conditions                                                 | Min                                                                     | Typ | Max | Unit                       |
|---------------------------------------------|--------|------------------------------------------------------------|-------------------------------------------------------------------------|-----|-----|----------------------------|
| Forward voltage                             | $V_F$  | $I_F = 200\text{ mA}$                                      |                                                                         |     | 1.0 | V                          |
| Zener voltage *2                            | $V_Z$  | $I_Z$ Specified value                                      |                                                                         |     |     | V                          |
| Zener operating resistance                  | $R_Z$  | $I_Z$ Specified value                                      | Refer to the list of the electrical characteristics within part numbers |     |     | $\Omega$                   |
| Reverse current                             | $I_R$  | $V_R$ Specified value                                      | Refer to the list of the electrical characteristics within part numbers |     |     | $\mu\text{A}$              |
| Temperature coefficient of zener voltage *3 | $S_Z$  | $I_Z$ Specified value                                      | Refer to the list of the electrical characteristics within part numbers |     |     | $\text{mV}/^\circ\text{C}$ |
| Terminal capacitance                        | $C_t$  | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$<br>Specified value |                                                                         |     |     | pF                         |

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

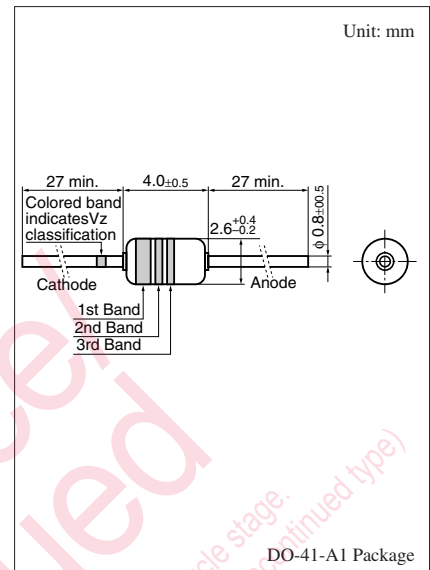
2. Absolute frequency of input and output is 5 MHz.

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.

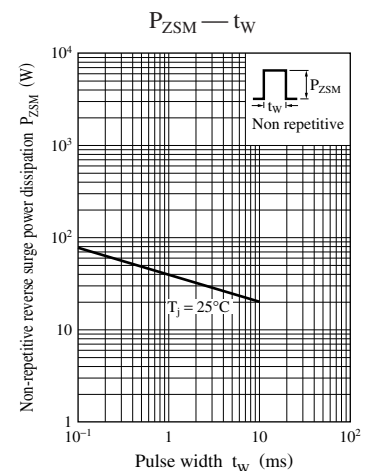
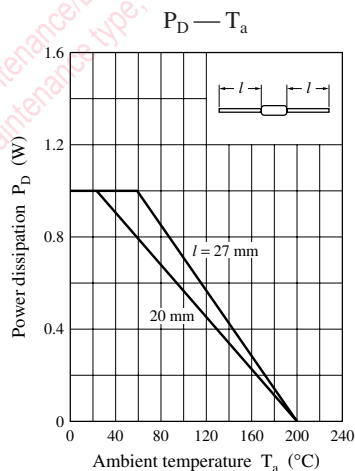
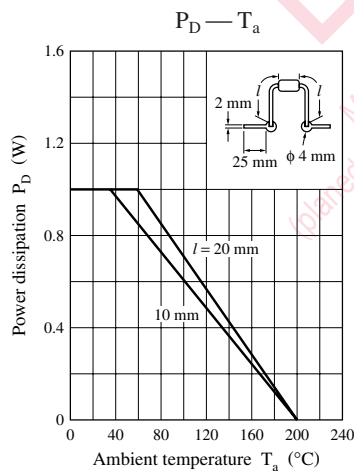
\*3:  $T_j = 25^\circ\text{C}$  to  $150^\circ\text{C}$

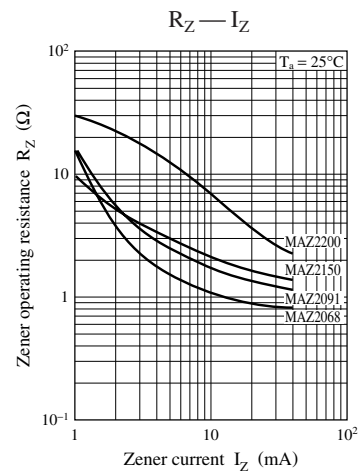
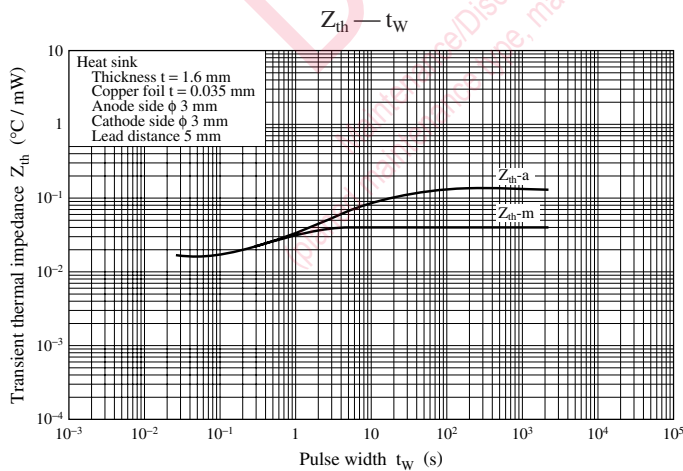
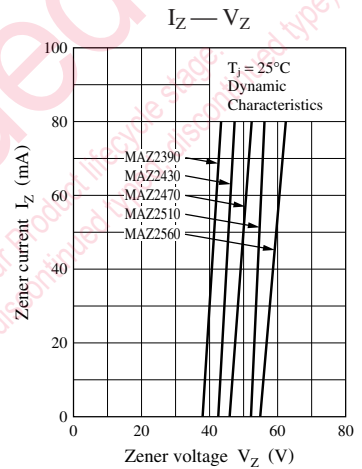
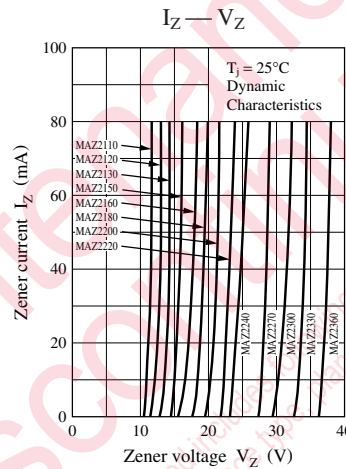
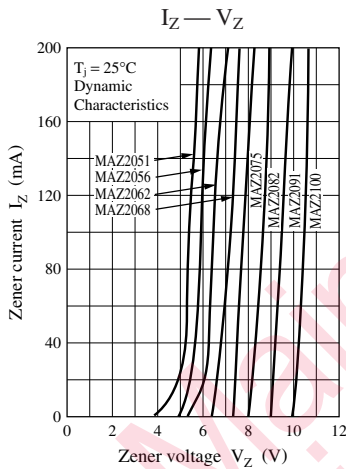
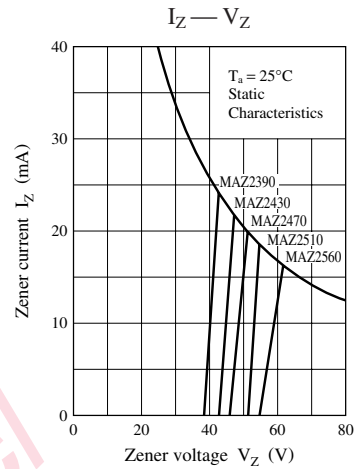
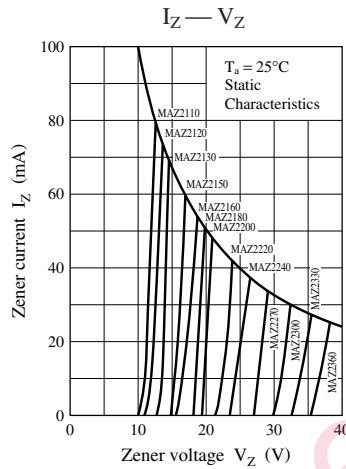
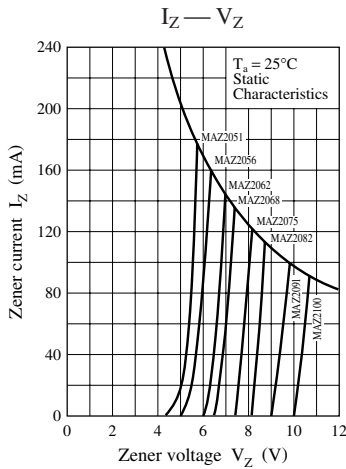


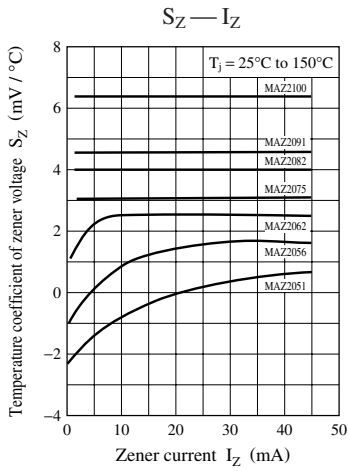
Note) The part number in the parenthesis shows conventional part number.

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

| Part number | Zener voltage $V_Z$ (V) |       |       | Reverse current $I_R$ ( $\mu\text{A}$ ) |     | Zener operating resistance $R_Z$ ( $\Omega$ ) |     | Temperature coefficient of zener voltage $S_Z$ ( $\text{mV}/^\circ\text{C}$ ) |      | Terminal capacitance $C_t$ (pF)<br>( $V_R = 0$ V)<br>$f = 1$ MHz<br>Typ | Marking symbol<br>(Color indication) |        |       |
|-------------|-------------------------|-------|-------|-----------------------------------------|-----|-----------------------------------------------|-----|-------------------------------------------------------------------------------|------|-------------------------------------------------------------------------|--------------------------------------|--------|-------|
|             | $I_Z$ (mA)              | Min   | Max   | $V_R$ (V)                               | Max | $I_Z$ (mA)                                    | Max | $I_Z$ (mA)                                                                    | Typ  |                                                                         | 1st.                                 | 2nd.   | 3rd.  |
|             |                         |       |       |                                         |     |                                               |     |                                                                               |      |                                                                         |                                      |        |       |
| MAZ2051     | 40                      | 4.80  | 5.40  | 1                                       | 20  | 40                                            | 10  | 40                                                                            | 0    | 200                                                                     | Green                                | Brown  | Brown |
| MAZ2056     | 40                      | 5.20  | 6.00  | 2                                       | 20  | 40                                            | 8   | 40                                                                            | 1.5  | 180                                                                     | Green                                | Blue   | Blue  |
| MAZ2062     | 40                      | 5.80  | 6.60  | 3                                       | 20  | 40                                            | 6   | 40                                                                            | 2.4  | 330                                                                     | Blue                                 | Red    | Red   |
| MAZ2068     | 40                      | 6.40  | 7.20  | 3                                       | 10  | 40                                            | 6   | 40                                                                            | 3.1  | 280                                                                     | Blue                                 | Gray   | Gray  |
| MAZ2075     | 40                      | 7.00  | 7.90  | 3                                       | 10  | 40                                            | 5   | 40                                                                            | 3.8  | 250                                                                     | Purple                               | Green  | Green |
| MAZ2082     | 40                      | 7.70  | 8.70  | 4                                       | 10  | 40                                            | 5   | 40                                                                            | 4.5  | 230                                                                     | Gray                                 | Red    | Red   |
| MAZ2091     | 40                      | 8.50  | 9.60  | 5                                       | 10  | 40                                            | 6   | 40                                                                            | 5.4  | 220                                                                     | White                                | Brown  | Brown |
| MAZ2100     | 40                      | 9.40  | 10.60 | 7                                       | 10  | 40                                            | 6   | 40                                                                            | 6.3  | 200                                                                     | Brown                                | Black  | —     |
| MAZ2110     | 20                      | 10.40 | 11.60 | 7                                       | 5   | 20                                            | 8   | 20                                                                            | 7.4  | 160                                                                     | Brown                                | Brown  | —     |
| MAZ2120     | 20                      | 11.40 | 12.70 | 8                                       | 5   | 20                                            | 8   | 20                                                                            | 8.4  | 160                                                                     | Brown                                | Red    | —     |
| MAZ2130     | 20                      | 12.40 | 14.10 | 9                                       | 5   | 20                                            | 10  | 20                                                                            | 9.4  | 155                                                                     | Brown                                | Orange | —     |
| MAZ2150     | 20                      | 13.80 | 15.60 | 10                                      | 5   | 20                                            | 12  | 20                                                                            | 11.4 | 150                                                                     | Brown                                | Green  | —     |
| MAZ2160     | 20                      | 15.30 | 17.10 | 11                                      | 5   | 20                                            | 12  | 20                                                                            | 12.5 | 135                                                                     | Brown                                | Blue   | —     |
| MAZ2180     | 20                      | 16.80 | 19.10 | 12                                      | 5   | 20                                            | 15  | 20                                                                            | 14.5 | 110                                                                     | Brown                                | Gray   | —     |
| MAZ2200     | 20                      | 18.80 | 21.20 | 14                                      | 5   | 20                                            | 15  | 20                                                                            | 16.6 | 110                                                                     | Red                                  | Black  | —     |
| MAZ2220     | 10                      | 20.80 | 23.30 | 15                                      | 5   | 10                                            | 20  | 10                                                                            | 18.6 | 95                                                                      | Red                                  | Red    | —     |
| MAZ2240     | 10                      | 22.80 | 25.60 | 16                                      | 5   | 10                                            | 20  | 10                                                                            | 20.7 | 90                                                                      | Red                                  | Yellow | —     |
| MAZ2270     | 10                      | 25.10 | 28.90 | 18                                      | 2   | 10                                            | 25  | 10                                                                            | 23.8 | 85                                                                      | Red                                  | Purple | —     |
| MAZ2300     | 10                      | 28.00 | 32.00 | 20                                      | 2   | 10                                            | 25  | 10                                                                            | 26.9 | 80                                                                      | Orange                               | Black  | —     |
| MAZ2330     | 10                      | 31.00 | 35.00 | 22                                      | 2   | 10                                            | 30  | 10                                                                            | 30.0 | 75                                                                      | Orange                               | Orange | —     |
| MAZ2360     | 10                      | 34.00 | 38.00 | 24                                      | 2   | 10                                            | 30  | 10                                                                            | 33.4 | 70                                                                      | Orange                               | Blue   | —     |
| MAZ2390     | 10                      | 37.00 | 41.00 | 26                                      | 5   | 10                                            | 50  | 10                                                                            | 36.3 | 65                                                                      | Orange                               | White  | —     |
| MAZ2430     | 10                      | 40.00 | 46.00 | 29                                      | 5   | 10                                            | 50  | 10                                                                            | 41.1 | 60                                                                      | Yellow                               | Orange | —     |
| MAZ2470     | 10                      | 44.00 | 50.00 | 31                                      | 5   | 10                                            | 50  | 10                                                                            | 44.9 | 55                                                                      | Yellow                               | Purple | —     |
| MAZ2510     | 10                      | 48.00 | 54.00 | 33                                      | 5   | 10                                            | 50  | 10                                                                            | 48.6 | 50                                                                      | Green                                | Brown  | —     |
| MAZ2560     | 10                      | 52.00 | 60.00 | 35                                      | 5   | 10                                            | 50  | 10                                                                            | 54.9 | 45                                                                      | Green                                | Blue   | —     |







Maintenance/Discontinued

Maintenance/Discontinued includes following four Product lifecycle stage.  
(planned maintenance type, maintenance type, planned discontinued type, discontinued type)

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