

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

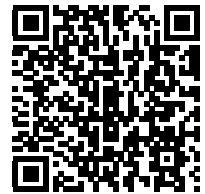
|                      |                                 |
|----------------------|---------------------------------|
| <b>Part Number:</b>  | MAZ31200ML                      |
| <b>Manufacturer:</b> | Panasonic Electronic Components |
| <b>Package:</b>      | Please confirm with sales       |
| <b>Availability:</b> | Please confirm with sales       |

### Product Page:

<https://antrexco.com/product/details/panasonic-electronic-components/maz31200ml.html>

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### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

# MAZ3000 Series (MA3000 Series)

## Silicon planar type

For stabilization of power supply

### ■ Features

- Mini type 3-pin package (Mini3-G1)
- Allowing to achieve a high-density set
- Sharp rising performance
- Wide voltage range:  $V_Z = 2.0 \text{ V}$  to  $36 \text{ V}$

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

| Parameter                                         | Symbol      | Rating      | Unit             |
|---------------------------------------------------|-------------|-------------|------------------|
| Average forward current                           | $I_{F(AV)}$ | 100         | mA               |
| Repetitive peak forward current                   | $I_{FRM}$   | 200         | mA               |
| Total power dissipation *1                        | $P_{tot}$   | 200         | mW               |
| Non-repetitive reverse surge power dissipation *2 | $P_{ZSM}$   | 15          | W                |
| Junction temperature                              | $T_j$       | 150         | $^\circ\text{C}$ |
| Storage temperature                               | $T_{stg}$   | -55 to +150 | $^\circ\text{C}$ |

Note) \*1: With a printed circuit board

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



### Marking Symbol

Refer to the list of the electrical characteristics within part numbers  
(Example) MAZ3020: 2.0  
MAZ30820H: 8.2H

Note) L/M/H marked products will be supplied unless other wise specified

### Internal Connection



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

| Parameter                                   | Symbol   | Conditions            | Min                                                                     | Typ | Max | Unit                 |
|---------------------------------------------|----------|-----------------------|-------------------------------------------------------------------------|-----|-----|----------------------|
| Forward voltage                             | $V_F$    | $I_F = 10 \text{ mA}$ |                                                                         | 0.8 | 0.9 | V                    |
| Zener voltage *2                            | $V_Z$    | $I_Z$ Specified value |                                                                         |     |     | V                    |
| Zener knee operating resistance             | $R_{ZK}$ | $I_Z$ Specified value |                                                                         |     |     | $\Omega$             |
| Zener operating resistance                  | $R_Z$    | $I_Z$ Specified value | Refer to the list of the electrical characteristics within part numbers |     |     | $\Omega$             |
| Reverse current                             | $I_{R1}$ | $V_R$ Specified value |                                                                         |     |     | $\mu\text{A}$        |
|                                             | $I_{R2}$ | $V_R$ Specified value |                                                                         |     |     | $\mu\text{A}$        |
| Temperature coefficient of zener voltage *3 | $S_Z$    | $I_Z$ Specified value |                                                                         |     |     | mV/ $^\circ\text{C}$ |
| Terminal capacitance                        | $C_t$    | $V_R$ Specified value |                                                                         |     |     | pF                   |

Note) 1. Rated input/output frequency: 5 MHz

2. \*1 : The  $V_Z$  value is for the temperature of  $25^\circ\text{C}$ . In other cases, carry out the temperature compensation.

\*2: Guaranteed at 20 ms after power application.

\*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  $T_a = 25^\circ\text{C}$

•  $V_Z = 2.0\text{ V to } 8.2\text{ V}$  ( $I_Z = 5\text{ mA}$ )

| Part number | Zener voltage                    |     |      | Reverse current                         |     |                                         |     | Zener operating resistance                |     |                                     |     | Temperature coefficient of zener voltage |      |     | Terminal capacitance                                       |     | Marking symbol       |
|-------------|----------------------------------|-----|------|-----------------------------------------|-----|-----------------------------------------|-----|-------------------------------------------|-----|-------------------------------------|-----|------------------------------------------|------|-----|------------------------------------------------------------|-----|----------------------|
|             | $V_Z$ (V)<br>$I_Z = 5\text{ mA}$ |     |      | $I_{R1}$ ( $\mu\text{A}$ )<br>$V_R$ (V) |     | $I_{R2}$ ( $\mu\text{A}$ )<br>$V_R$ (V) |     | $R_Z$ ( $\Omega$ )<br>$I_Z = 5\text{ mA}$ |     | $R_{ZK}$ ( $\Omega$ )<br>$I_Z$ (mA) |     | $S_Z$ (mV/°C)<br>$I_Z = 5\text{ mA}$     |      |     | $C_t$ (pF)<br>( $V_R = 0\text{ V}$ )<br>$f = 1\text{ MHz}$ |     |                      |
|             | Min                              | Nom | Max  |                                         | Max |                                         | Max | Typ                                       | Max |                                     | Max | Min                                      | Typ  | Max | Typ                                                        | Max |                      |
| MAZ3020     | 1.88                             | 2.0 | 2.12 | 0.5                                     | 120 | —                                       | —   | 5                                         | 100 | —                                   | —   | -3.5                                     | -1.5 | 0   | —                                                          | —   | 2.0                  |
| MAZ3022     | 2.08                             | 2.2 | 2.32 | 0.7                                     | 120 | —                                       | —   | 5                                         | 100 | —                                   | —   | -3.5                                     | -1.5 | 0   | —                                                          | —   | 2.2                  |
| MAZ3024     | 2.28                             | 2.4 | 2.60 | 1                                       | 120 | —                                       | —   | 5                                         | 100 | —                                   | —   | -3.5                                     | -1.6 | 0   | —                                                          | —   | 2.4                  |
| MAZ3027     | 2.50                             | 2.7 | 2.90 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 2.7L or 2.7H         |
| MAZ30270L   | 2.50                             | 2.6 | 2.75 | 1                                       | 120 | —                                       | —   | 5                                         | 110 | —                                   | —   | -3.5                                     | -2.0 | 0   | —                                                          | —   | 2.7L                 |
| MAZ30270H   | 2.65                             | 2.8 | 2.90 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 2.7H                 |
| MAZ3030     | 2.80                             | 3.0 | 3.20 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.0L or 3.0H         |
| MAZ30300L   | 2.80                             | 2.9 | 3.05 | 1                                       | 50  | —                                       | —   | 5                                         | 120 | —                                   | —   | -3.5                                     | -2.1 | 0   | —                                                          | —   | 3.0L                 |
| MAZ30300H   | 2.95                             | 3.1 | 3.20 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.0H                 |
| MAZ3033     | 3.10                             | 3.3 | 3.50 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.3L or 3.3H         |
| MAZ30330L   | 3.10                             | 3.2 | 3.35 | 1                                       | 20  | —                                       | —   | 5                                         | 130 | —                                   | —   | -3.5                                     | -2.4 | 0   | —                                                          | —   | 3.3L                 |
| MAZ30330H   | 3.25                             | 3.4 | 3.50 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.3H                 |
| MAZ3036     | 3.40                             | 3.6 | 3.80 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.6L or 3.6H         |
| MAZ30360L   | 3.40                             | 3.5 | 3.65 | 1                                       | 10  | —                                       | —   | 5                                         | 130 | —                                   | —   | -3.5                                     | -2.4 | 0   | —                                                          | —   | 3.6L                 |
| MAZ30360H   | 3.55                             | 3.7 | 3.80 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.6H                 |
| MAZ3039     | 3.70                             | 3.9 | 4.10 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.9L or 3.9H         |
| MAZ30390L   | 3.70                             | 3.8 | 3.97 | 1                                       | 10  | —                                       | —   | 5                                         | 130 | —                                   | —   | -3.5                                     | -2.5 | 0   | —                                                          | —   | 3.9L                 |
| MAZ30390H   | 3.87                             | 4.0 | 4.10 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 3.9H                 |
| MAZ3043     | 4.00                             | 4.3 | 4.60 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.3L or 4.3M or 4.3H |
| MAZ30430L   | 4.03                             | 4.1 | 4.26 | 1                                       | 10  | —                                       | —   | 5                                         | 130 | —                                   | —   | -3.5                                     | -2.5 | 0   | —                                                          | —   | 4.3L                 |
| MAZ30430M   | 4.17                             | 4.3 | 4.40 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.3M                 |
| MAZ30430H   | 4.31                             | 4.4 | 4.54 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.3H                 |
| MAZ3047     | 4.4                              | 4.7 | 5.0  |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.7L or 4.7M or 4.7H |
| MAZ30470L   | 4.45                             | 4.6 | 4.69 | 1                                       | 3   | —                                       | —   | 50                                        | 80  | 1                                   | 900 | -3.5                                     | -1.4 | 0.2 | 130                                                        | 180 | 4.7L                 |
| MAZ30470M   | 4.59                             | 4.7 | 4.83 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.7M                 |
| MAZ30470H   | 4.74                             | 4.9 | 4.99 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 4.7H                 |
| MAZ3051     | 4.8                              | 5.1 | 5.4  |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.1L or 5.1M or 5.1H |
| MAZ30510L   | 4.87                             | 5.0 | 5.12 | 2                                       | 2   | —                                       | —   | 40                                        | 60  | 1                                   | 800 | -2.7                                     | -0.8 | 1.2 | 110                                                        | 160 | 5.1L                 |
| MAZ30510M   | 5.0                              | 5.1 | 5.26 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.1M                 |
| MAZ30510H   | 5.14                             | 5.3 | 5.4  |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.1H                 |
| MAZ3056     | 5.3                              | 5.6 | 6.0  |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.6L or 5.6M or 5.6H |
| MAZ30560L   | 5.3                              | 5.4 | 5.58 | 2                                       | 1   | —                                       | —   | 15                                        | 40  | 1                                   | 500 | -2                                       | 1.2  | 2.5 | 95                                                         | 140 | 5.6L                 |
| MAZ30560M   | 5.48                             | 5.6 | 5.76 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.6M                 |
| MAZ30560H   | 5.66                             | 5.8 | 5.95 |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 5.6H                 |
| MAZ3062     | 5.8                              | 6.2 | 6.6  |                                         |     |                                         |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.2L or 6.2M or 6.2H |
| MAZ30620L   | 5.85                             | 6.0 | 6.15 | 4                                       | 3   | 5.3                                     | 60  | 6                                         | 20  | 0.5                                 | 300 | 0.4                                      | 2.3  | 3.7 | 90                                                         | 130 | 6.2L                 |
| MAZ30620M   | 6.05                             | 6.2 | 6.36 |                                         |     | 5.5                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.2M                 |
| MAZ30620H   | 6.24                             | 6.4 | 6.56 |                                         |     | 5.7                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.2H                 |
| MAZ3068     | 6.4                              | 6.8 | 7.2  |                                         |     | 5.9                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.8L or 6.8M or 6.8H |
| MAZ30680L   | 6.44                             | 6.6 | 6.77 | 4                                       | 2   | 5.9                                     | 60  | 6                                         | 15  | 0.5                                 | 140 | 1.2                                      | 3    | 4.5 | 85                                                         | 110 | 6.8L                 |
| MAZ30680M   | 6.64                             | 6.8 | 6.98 |                                         |     | 6.1                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.8M                 |
| MAZ30680H   | 6.85                             | 7.0 | 7.2  |                                         |     | 6.3                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 6.8H                 |
| MAZ3075     | 7.0                              | 7.5 | 7.9  |                                         |     | 6.5                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 7.5L or 7.5M or 7.5H |
| MAZ30750L   | 7.07                             | 7.3 | 7.43 | 5                                       | 1   | 6.5                                     | 60  | 6                                         | 15  | 0.5                                 | 120 | 2.5                                      | 4    | 5.3 | 80                                                         | 100 | 7.5L                 |
| MAZ30750M   | 7.29                             | 7.5 | 7.67 |                                         |     | 6.7                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 7.5M                 |
| MAZ30750H   | 7.51                             | 7.7 | 7.89 |                                         |     | 7.0                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 7.5H                 |
| MAZ3082     | 7.7                              | 8.2 | 8.7  |                                         |     | 7.2                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 8.2L or 8.2M or 8.2H |
| MAZ30820L   | 7.77                             | 7.9 | 8.17 | 5                                       | 0.5 | 7.2                                     | 60  | 6                                         | 15  | 0.5                                 | 120 | 3.2                                      | 4.6  | 6.2 | 75                                                         | 95  | 8.2L                 |
| MAZ30820M   | 8.03                             | 8.2 | 8.43 |                                         |     | 7.5                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 8.2M                 |
| MAZ30820H   | 8.29                             | 8.5 | 8.7  |                                         |     | 7.7                                     |     |                                           |     |                                     |     |                                          |      |     |                                                            |     | 8.2H                 |

■ Electrical characteristics within part numbers (continued)  $T_a = 25^\circ\text{C}$

•  $V_Z = 9.1\text{ V to }24.0\text{ V}$  ( $I_Z = 5\text{ mA}$ )

| Part number | Zener voltage         |      |       | Reverse current      |      |                      |     | Zener operating resistance |     |                     |     | Temperature coefficient of zener voltage |      |     | Terminal capacitance              |     | Marking symbol       |
|-------------|-----------------------|------|-------|----------------------|------|----------------------|-----|----------------------------|-----|---------------------|-----|------------------------------------------|------|-----|-----------------------------------|-----|----------------------|
|             | V <sub>Z</sub> (V)    |      |       | I <sub>R1</sub> (μA) |      | I <sub>R2</sub> (μA) |     | R <sub>Z</sub> (Ω)         |     | R <sub>ZK</sub> (Ω) |     | S <sub>Z</sub> (mV/°C)                   |      |     | C <sub>t</sub> (pF)               |     |                      |
|             | I <sub>Z</sub> = 5 mA |      |       | V <sub>R</sub>       | Max  | V <sub>R</sub>       | Max | I <sub>Z</sub> = 5 mA      | Max | I <sub>Z</sub>      | Max | I <sub>Z</sub> = 5 mA                    |      |     | V <sub>R</sub> = 0 V<br>f = 1 MHz |     |                      |
|             | Min                   | Nom  | Max   | (V)                  | Max  | (V)                  | Max | Typ                        | Max | (mA)                | Max | Min                                      | Typ  | Max | Typ                               | Max |                      |
| MA3091      | 8.5                   | 9.1  | 9.6   | 6                    | 0.2  | 8                    | 60  | 6                          | 15  | 0.5                 | 130 | 3.8                                      | 5.5  | 7   | 70                                | 90  | 9.1L or 9.1M or 9.1H |
| MAZ30910L   | 8.58                  | 8.8  | 9.02  |                      |      | 8                    |     |                            |     |                     |     |                                          |      |     |                                   |     | 9.1L                 |
| MAZ30910M   | 8.87                  | 9.1  | 9.33  |                      |      | 8.3                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 9.1M                 |
| MAZ30910H   | 9.14                  | 9.4  | 9.6   |                      |      | 8.6                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 9.1H                 |
| MAZ3100     | 9.4                   | 10   | 10.6  | 7                    | 0.2  | 8.9                  | 60  | 8                          | 20  | 0.5                 | 130 | 4.5                                      | 6.4  | 8   | 70                                | 90  | 10L or 10M or 10H    |
| MAZ31000L   | 9.44                  | 9.7  | 9.92  |                      |      | 8.9                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 10L                  |
| MAZ31000M   | 9.75                  | 10   | 10.25 |                      |      | 9.2                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 10M                  |
| MAZ31000H   | 10.07                 | 10.3 | 10.59 |                      |      | 9.5                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 10H                  |
| MAZ3110     | 10.4                  | 11   | 11.6  | 7                    | 0.1  | 9.9                  | 60  | 10                         | 20  | 0.5                 | 170 | 5.4                                      | 7.4  | 9   | 65                                | 85  | 11L or 11M or 11H    |
| MAZ31100L   | 10.4                  | 10.7 | 10.94 |                      |      | 9.9                  |     |                            |     |                     |     |                                          |      |     |                                   |     | 11L                  |
| MAZ31100M   | 10.73                 | 11   | 11.28 |                      |      | 10.2                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 11M                  |
| MAZ31100H   | 11.05                 | 11.3 | 11.6  |                      |      | 10.5                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 11H                  |
| MAZ3120     | 11.4                  | 12   | 12.7  | 8                    | 0.1  | 10.9                 | 60  | 10                         | 25  | 0.5                 | 170 | 6                                        | 8.4  | 10  | 65                                | 85  | 12L or 12M or 12H    |
| MAZ31200L   | 11.4                  | 11.7 | 11.96 |                      |      | 10.9                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 12L                  |
| MAZ31200M   | 11.73                 | 12   | 12.33 |                      |      | 11.2                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 12M                  |
| MAZ31200H   | 12.06                 | 12.3 | 12.68 |                      |      | 11.5                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 12H                  |
| MAZ3130     | 12.4                  | 13   | 14.1  | 9                    | 0.1  | 11.9                 | 60  | 10                         | 30  | 0.5                 | 170 | 7                                        | 9.4  | 11  | 60                                | 80  | 13L or 13M or 13H    |
| MAZ31300L   | 12.4                  | 12.7 | 12.99 |                      |      | 11.9                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 13L                  |
| MAZ31300M   | 12.73                 | 13   | 13.4  |                      |      | 12.2                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 13M                  |
| MAZ31300H   | 13.25                 | 13.7 | 14.08 |                      |      | 12.7                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 13H                  |
| MAZ31400M   | 13.65                 | 14   | 14.35 | 9                    | 0.1  | 13.1                 | 60  | 10                         | 30  | 0.5                 | 170 | 7                                        | 10   | 13  | 60                                | 80  | 14M                  |
| MAZ3150     | 13.9                  | 15   | 15.6  | 10                   | 0.05 | 13.4                 | 60  | 10                         | 30  | 0.5                 | 170 | 9.2                                      | 11.4 | 13  | 55                                | 75  | 15L or 15M or 15H    |
| MAZ31500L   | 13.9                  | 14.3 | 14.76 |                      |      | 13.4                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 15L                  |
| MAZ31500M   | 14.6                  | 15   | 15.35 |                      |      | 14.1                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 15M                  |
| MAZ31500H   | 14.95                 | 15.3 | 15.6  |                      |      | 14.4                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 15H                  |
| MAZ3160     | 15.3                  | 16   | 17.1  | 11                   | 0.05 | 14.8                 | 60  | 10                         | 40  | 0.5                 | 170 | 10.4                                     | 12.4 | 14  | 52                                | 75  | 16L or 16M or 16H    |
| MAZ31600L   | 15.3                  | 15.7 | 16.09 |                      |      | 14.8                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 16L                  |
| MAZ31600M   | 15.7                  | 16   | 16.5  |                      |      | 15.2                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 16M                  |
| MAZ31600H   | 16.26                 | 16.7 | 17.1  |                      |      | 15.7                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 16H                  |
| MAZ3180     | 16.9                  | 18   | 19.1  | 13                   | 0.05 | 16.4                 | 60  | 10                         | 45  | 0.5                 | 170 | 12.4                                     | 14.4 | 16  | 47                                | 70  | 18L or 18M or 18H    |
| MAZ31800L   | 16.9                  | 17.3 | 17.76 |                      |      | 16.4                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 18L                  |
| MAZ31800M   | 17.55                 | 18   | 18.45 |                      |      | 17                   |     |                            |     |                     |     |                                          |      |     |                                   |     | 18M                  |
| MAZ31800H   | 18.2                  | 18.7 | 19.1  |                      |      | 17.7                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 18H                  |
| MAZ3200     | 18.8                  | 20   | 21.2  | 14                   | 0.05 | 18.3                 | 60  | 15                         | 55  | 0.5                 | 180 | 14.4                                     | 16.4 | 18  | 36                                | 60  | 20L or 20M or 20H    |
| MAZ32000L   | 18.85                 | 19.3 | 19.81 |                      |      | 18.3                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 20L                  |
| MAZ32000M   | 19.50                 | 20   | 20.5  |                      |      | 19                   |     |                            |     |                     |     |                                          |      |     |                                   |     | 20M                  |
| MAZ32000H   | 20.15                 | 20.7 | 21.19 |                      |      | 19.6                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 20H                  |
| MAZ3220     | 20.8                  | 22   | 23.3  | 15                   | 0.05 | 20.3                 | 60  | 20                         | 55  | 0.5                 | 180 | 16.4                                     | 18.4 | 20  | 34                                | 60  | 22L or 22M or 22H    |
| MAZ32200L   | 20.8                  | 21.3 | 21.86 |                      |      | 20.3                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 22L                  |
| MAZ32200M   | 21.45                 | 22   | 22.55 |                      |      | 20.9                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 22M                  |
| MAZ32200H   | 22.1                  | 22.7 | 23.24 |                      |      | 21.6                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 22H                  |
| MAZ3240     | 22.8                  | 24   | 25.6  | 17                   | 0.05 | 22.3                 | 60  | 25                         | 70  | 0.5                 | 180 | 18.4                                     | 20.4 | 22  | 33                                | 55  | 24L or 24M or 24H    |
| MAZ32400L   | 22.8                  | 23.3 | 23.97 |                      |      | 22.3                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 24L                  |
| MAZ32400M   | 23.5                  | 24   | 24.7  |                      |      | 23                   |     |                            |     |                     |     |                                          |      |     |                                   |     | 24M                  |
| MAZ32400H   | 24.35                 | 25   | 25.6  |                      |      | 23.8                 |     |                            |     |                     |     |                                          |      |     |                                   |     | 24H                  |

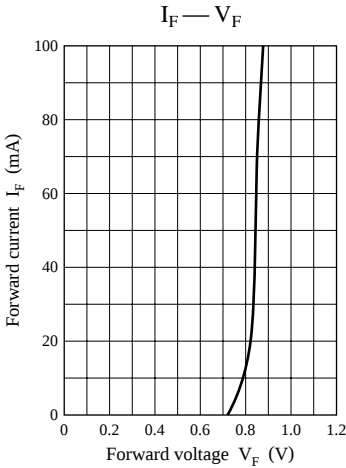
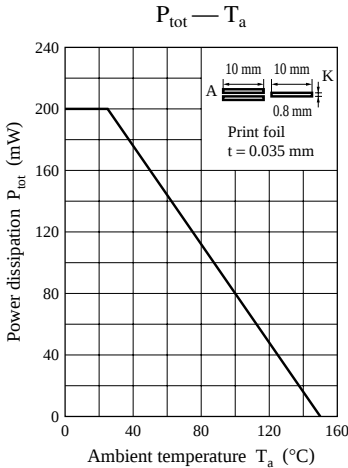
■ Electrical characteristics within part numbers (continued)  $T_a = 25^\circ\text{C}$

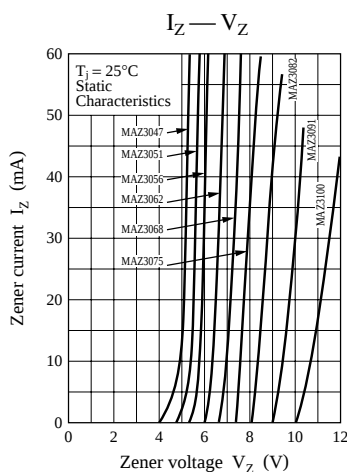
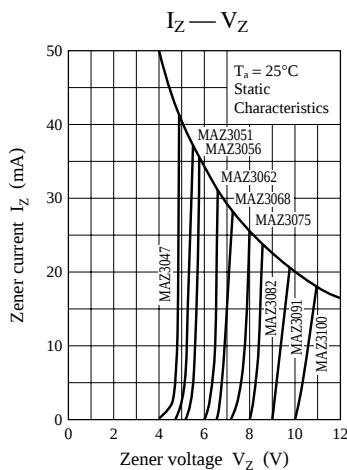
•  $V_Z = 27.0\text{ V}$  to  $36.0\text{ V}$  ( $I_Z = 2\text{ mA}$ )

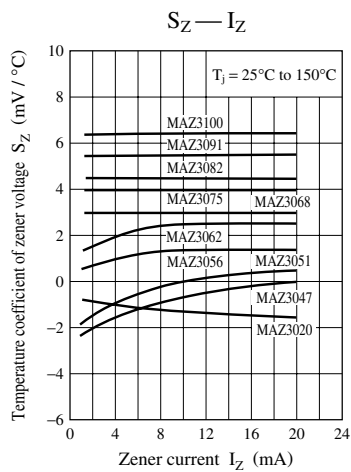
| Part number | Zener voltage         |     |      | Reverse current      |      |                      |     | Zener operating resistance |     |                     |     | Temperature coefficient of zener voltage |      |      | Terminal capacitance   |     | Marking symbol    |
|-------------|-----------------------|-----|------|----------------------|------|----------------------|-----|----------------------------|-----|---------------------|-----|------------------------------------------|------|------|------------------------|-----|-------------------|
|             | V <sub>Z</sub> (V)    |     |      | I <sub>R1</sub> (μA) |      | I <sub>R2</sub> (μA) |     | R <sub>Z</sub> (Ω)         |     | R <sub>ZK</sub> (Ω) |     | S <sub>Z</sub> (mV/°C)                   |      |      | C <sub>T</sub> (pF)    |     |                   |
|             | I <sub>Z</sub> = 2 mA |     |      | V <sub>R</sub>       |      | V <sub>R</sub>       |     | I <sub>Z</sub> = 2 mA      |     | I <sub>Z</sub>      |     | I <sub>Z</sub> = 2 mA                    |      |      | (V <sub>R</sub> = 0 V) |     |                   |
|             | Min                   | Nom | Max  | (V)                  | Max  | (V)                  | Max | Typ                        | Max | (mA)                | Max | Min                                      | Typ  | Max  | Typ                    | Max |                   |
| MAZ3270     | 25.1                  | 27  | 28.9 | 19                   | 0.05 | 24.8                 | 60  | 25                         | 80  | 0.5                 | 200 | 21.4                                     | 23.4 | 25.3 | 30                     | 50  | 27L or 27M or 27H |
| MAZ32700L   | 25.3                  | 26  | 26.7 |                      |      | 24.8                 |     |                            |     |                     |     |                                          |      |      |                        |     | 27L               |
| MAZ32700M   | 26.3                  | 27  | 27.7 |                      |      | 25.8                 |     |                            |     |                     |     |                                          |      |      |                        |     | 27M               |
| MAZ32700H   | 27.3                  | 28  | 28.7 |                      |      | 26.8                 |     |                            |     |                     |     |                                          |      |      |                        |     | 27H               |
| MAZ3300     | 28                    | 30  | 32   | 21                   | 0.05 | 27.8                 | 60  | 30                         | 80  | 0.5                 | 200 | 24.4                                     | 26.6 | 29.4 | 27                     | 50  | 30L or 30M or 30H |
| MAZ33000L   | 28.3                  | 29  | 29.7 |                      |      | 27.8                 |     |                            |     |                     |     |                                          |      |      |                        |     | 30L               |
| MAZ33000M   | 29.3                  | 30  | 30.8 |                      |      | 28.8                 |     |                            |     |                     |     |                                          |      |      |                        |     | 30M               |
| MAZ33000H   | 30.2                  | 31  | 31.8 |                      |      | 29.7                 |     |                            |     |                     |     |                                          |      |      |                        |     | 30H               |
| MAZ3330     | 31                    | 33  | 35   | 23                   | 0.05 | 30.7                 | 60  | 35                         | 80  | 0.5                 | 200 | 27.4                                     | 29.7 | 33.4 | 25                     | 45  | 33L or 33M or 33H |
| MAZ33300L   | 31.2                  | 32  | 32.8 |                      |      | 30.7                 |     |                            |     |                     |     |                                          |      |      |                        |     | 33L               |
| MAZ33300M   | 32.2                  | 33  | 33.8 |                      |      | 31.7                 |     |                            |     |                     |     |                                          |      |      |                        |     | 33M               |
| MAZ33300H   | 33.2                  | 34  | 34.9 |                      |      | 32.7                 |     |                            |     |                     |     |                                          |      |      |                        |     | 33H               |
| MAZ3360     | 34                    | 36  | 38   | 25                   | 0.05 | 33.6                 | 60  | 35                         | 90  | 0.5                 | 200 | 30.4                                     | 33   | 37.4 | 23                     | 45  | 36L or 36M or 36H |
| MAZ33600L   | 34.1                  | 35  | 35.9 |                      |      | 33.6                 |     |                            |     |                     |     |                                          |      |      |                        |     | 36L               |
| MAZ33600M   | 35.1                  | 36  | 36.9 |                      |      | 34.6                 |     |                            |     |                     |     |                                          |      |      |                        |     | 36M               |
| MAZ33600H   | 36.1                  | 37  | 37.9 |                      |      | 35.6                 |     |                            |     |                     |     |                                          |      |      |                        |     | 36H               |

Note) 1. The  $V_Z$  value is the one after power application for 20 ms at  $T_a = 25^\circ\text{C}$ .

2. The zener voltage temperature coefficient is the one for  $T_j = 25^\circ\text{C}$  to  $150^\circ\text{C}$ .







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