

MA1000 Series

Silicon planer type

For stabilization of power supply

■ Features

- High reliability because of combination of a planer chip and glass seal
- Large power dissipation : $P_D = 500\text{mW}$ (With a printed-circuit board)
- Wide voltage range : $V_Z = 2.0$ to 39V
- Easy to use because of fine classification of voltage ranks : L, M, and H ranks
- Sharp rising performance

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

| Parameter | Symbol | Rating | Unit |
|--|----------------|---------------|------------------|
| Average forward current | $I_{F(AV)}$ | 250 | mA |
| Repetitive peak forward current | I_{FRM} | 250 | mA |
| Total power dissipation | P_{tot}^{*1} | 500 | mW |
| Non-repetitive reverse surge power dissipation | P_{ZSM}^{*2} | 30 | W |
| Junction temperature | T_j | 200 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | - 65 to + 200 | $^\circ\text{C}$ |

*1 With a printed-circuit board

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

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

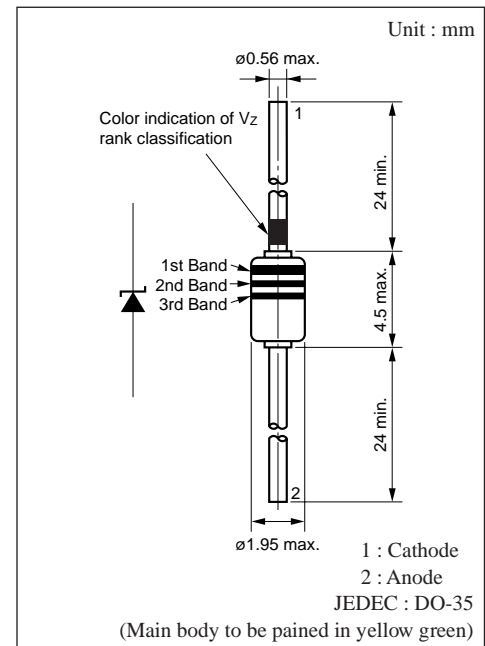
| Parameter | Symbol | Condition | min | typ | max | Unit |
|--|------------|-----------------------------|---|-----|-----|----------------------------|
| Forward voltage | V_F | $I_F = 10\text{mA}$ | | 0.8 | 0.9 | V |
| Zener voltage | V_Z^{*2} | I_Z Specified value | | | | V |
| Operating resistance | R_{ZK} | I_Z Specified value | | | | Ω |
| | R_Z | I_Z Specified value | Refer to the electrical characteristics | | | Ω |
| Reverse current | I_R | V_R Specified value | list of P433 to P435 | | | μA |
| Temperature coefficient of zener voltage | S_Z^{*3} | I_Z Specified value | | | | $\text{mV}/^\circ\text{C}$ |
| Terminal capacitance | C_t | V_R Specified value | | | | pF |

Note 1. Rated input/output frequency : 5MHz

2. *1 : The V_Z value is for the temperature of 25°C . In other cases, carry out the temperature compensation.

*2 : Guaranteed at 20ms after power application

*3 : $T_j = 25$ to 150°C



● Color indication of V_Z rank classification

| L rank | M rank | H rank |
|--------|--------|--------|
| Black | Blue | Red |

■ Electrical Characteristics (T_a= 25°C)

- V_Z= 2.0 to 6.8V (I_Z= 5mA)

| Part Number | Zener voltage | | | Reverse current | | | | Operating resistance | | | | Temperature coefficient of zener voltage | | | Terminal capacitance | | Marking (Color indication Main body : Yellow green) | | | |
|-------------|--|-----|------|-----------------------|-------------|-----------------------|-------------|--|-----|------------------------|------------|--|------|-----|--|-----|--|--------|--------|------|
| | V _Z (V) I _Z = 5mA | | | I _{R1} | | I _{R2} | | R _Z (Ω) I _Z = 5mA | | R _{ZK} | | S _Z (mV/°C) I _Z = 5mA | | | C _t (pF) (V _R = 0V) f=1MHz | | 1st. | 2nd. | 3rd. | |
| | min | nom | max | V _R (V) | max (μA) | V _R (V) | max (μA) | typ | max | I _Z (mA) | max (Ω) | min | typ | max | typ | max | | | | |
| | | | | | | | | | | | | | | | | | C _t (pF) (V _R = 0V) f=1MHz | | | |
| MA1020 | 1.88 | — | 2.24 | 0.5 | 120 | — | — | 5 | 100 | 1 | 2000 | -3.5 | -1.5 | 0 | 375 | 450 | Red | Black | Black | |
| MA1020-L | 1.88 | — | 2.12 | | | | | | | | | | | | | | | | | |
| MA1020-H | 2.01 | — | 2.24 | | | | | | | | | | | | | | | | | |
| MA1022 | 2.08 | — | 2.45 | 0.7 | 120 | — | — | 5 | 100 | 1 | 2000 | -3.5 | -1.5 | 0 | 375 | 450 | Red | Red | Red | |
| MA1022-L | 2.08 | — | 2.33 | | | | | | | | | | | | | | | | | |
| MA1022-H | 2.20 | — | 2.45 | | | | | | | | | | | | | | | | | |
| MA1024 | 2.28 | 2.4 | 2.7 | 1 | 120 | — | — | — | 100 | 1 | 2000 | -3.5 | -1.6 | 0 | 375 | 450 | Red | Yellow | Yellow | |
| MA1024-L | 2.28 | — | 2.56 | | | | | | | | | | | | | | | | | |
| MA1024-H | 2.4 | — | 2.7 | | | | | | | | | | | | | | | | | |
| MA1027 | 2.5 | 2.7 | 2.9 | 1 | 100 | — | — | — | 100 | 1 | 1000 | -3.5 | -2 | 0 | 350 | 450 | Red | Purple | Purple | |
| MA1027-L | 2.5 | 2.6 | 2.75 | | | | | | | | | | | | | | | | | |
| MA1027-H | 2.65 | 2.8 | 2.9 | | | | | | | | | | | | | | | | | |
| MA1030 | 2.8 | 3.0 | 3.2 | 1 | 50 | — | — | 85 | 100 | 1 | 1000 | -3.5 | -2.1 | 0 | 350 | 450 | Orange | Black | Black | |
| MA1030-L | 2.83 | 2.9 | 2.97 | | | | | | | | | | | | | | | | | |
| MA1030-M | 2.93 | 3.0 | 3.08 | | | | | | | | | | | | | | | | | |
| MA1030-H | 3.02 | 3.1 | 3.18 | | | | | | | | | | | | | | | | | |
| MA1033 | 3.1 | 3.3 | 3.5 | 1 | 20 | — | — | 83 | 100 | 1 | 1000 | -3.5 | -2.4 | 0 | 325 | 450 | Orange | Orange | Orange | |
| MA1033-L | 3.12 | 3.2 | 3.28 | | | | | | | | | | | | | | | | | |
| MA1033-M | 3.22 | 3.3 | 3.38 | | | | | | | | | | | | | | | | | |
| MA1033-H | 3.32 | 3.4 | 3.49 | | | | | | | | | | | | | | | | | |
| MA1036 | 3.4 | 3.6 | 3.8 | 1 | 10 | — | — | 81 | 100 | 1 | 1000 | -3.5 | -2.4 | 0 | 300 | 450 | Orange | Blue | Blue | |
| MA1036-L | 3.41 | 3.5 | 3.59 | | | | | | | | | | | | | | | | | |
| MA1036-M | 3.51 | 3.6 | 3.69 | | | | | | | | | | | | | | | | | |
| MA1036-H | 3.61 | 3.7 | 3.79 | | | | | | | | | | | | | | | | | |
| MA1039 | 3.7 | 3.9 | 4.1 | 1 | 10 | — | — | 79 | 100 | 1 | 1000 | -3.5 | -2.5 | 0 | 300 | 450 | Orange | White | White | |
| MA1039-L | 3.71 | 3.8 | 3.9 | | | | | | | | | | | | | | | | | |
| MA1039-M | 3.8 | 3.9 | 4.0 | | | | | | | | | | | | | | | | | |
| MA1039-H | 3.9 | 4.0 | 4.1 | | | | | | | | | | | | | | | | | |
| MA1043 | 4.0 | 4.3 | 4.6 | 1 | 10 | — | — | 75 | 100 | 1 | 1000 | -3.5 | -2.5 | 0 | 275 | 450 | Yellow | Orange | Orange | |
| MA1043-L | 4.03 | 4.1 | 4.26 | | | | | | | | | | | | | | | | | |
| MA1043-M | 4.17 | 4.3 | 4.4 | | | | | | | | | | | | | | | | | |
| MA1043-H | 4.31 | 4.4 | 4.54 | | | | | | | | | | | | | | | | | |
| MA1047 | 4.4 | 4.7 | 5.0 | 1 | 3 | — | — | 50 | 80 | 1 | 900 | -3.5 | -1.4 | 0.2 | 130 | 180 | Yellow | Purple | Purple | |
| MA1047-L | 4.45 | 4.6 | 4.69 | | | | | | | | | | | | | | | | | |
| MA1047-M | 4.59 | 4.7 | 4.83 | | | | | | | | | | | | | | | | | |
| MA1047-H | 4.74 | 4.9 | 4.99 | | | | | | | | | | | | | | | | | |
| MA1051 | 4.8 | 5.1 | 5.4 | 2 | 2 | — | — | 40 | 60 | 1 | 800 | -2.7 | -0.8 | 1.2 | 110 | 160 | Green | Brown | Brown | |
| MA1051-L | 4.87 | 5.0 | 5.12 | | | | | | | | | | | | | | | | | |
| MA1051-M | 5.0 | 5.1 | 5.26 | | | | | | | | | | | | | | | | | |
| MA1051-H | 5.14 | 5.3 | 5.4 | | | | | | | | | | | | | | | | | |
| MA1056 | 5.3 | 5.6 | 6.0 | 2 | 1 | — | — | 15 | 40 | 1 | 500 | -2 | 1.2 | 2.5 | 95 | 140 | Green | Blue | Blue | |
| MA1056-L | 5.3 | 5.4 | 5.58 | | | | | | | | | | | | | | | | | |
| MA1056-M | 5.48 | 5.6 | 5.76 | | | | | | | | | | | | | | | | | |
| MA1056-H | 5.66 | 5.8 | 5.95 | | | | | | | | | | | | | | | | | |
| MA1062 | 5.8 | 6.2 | 6.6 | 4 | 3 | — | — | 60 | 6 | 20 | 0.5 | 300 | 0.4 | 2.3 | 3.7 | 90 | 130 | Blue | Red | Red |
| MA1062-L | 5.85 | 6.0 | 6.15 | | | | | | | | | | | | | | | | | |
| MA1062-M | 6.05 | 6.2 | 6.36 | | | | | | | | | | | | | | | | | |
| MA1062-H | 6.24 | 6.4 | 6.56 | | | | | | | | | | | | | | | | | |
| MA1068 | 6.4 | 6.8 | 7.2 | 4 | 2 | — | — | 60 | 6 | 15 | 0.5 | 140 | 1.2 | 3 | 4.5 | 85 | 110 | Blue | Gray | Gray |
| MA1068-L | 6.44 | 6.6 | 6.77 | | | | | | | | | | | | | | | | | |
| MA1068-M | 6.64 | 6.8 | 6.98 | | | | | | | | | | | | | | | | | |
| MA1068-H | 6.85 | 7.0 | 7.2 | | | | | | | | | | | | | | | | | |

● $V_Z = 7.5$ to $22V(I_Z = 5mA)$

| Part Number | Zener voltage | | | Reverse current | | | | Operating resistance | | | | Temperature coefficient of zener voltage | | | Terminal capacitance | | Marking (Color indication Main body: Yellow green) | | | | | | | | | | | | | | | | | |
|-------------|-------------------------|------|-------|-----------------|--------------------|--------------|--------------------|------------------------------|-----|---------------|---------------------|--|------|-----|---|-----|---|--------|-------|------|------|----|----|----|-----|-----|-----|------|----|----|----|-------|--------|---|
| | $V_Z(V)$ $I_Z = 5mA$ | | | I_{R1} | | I_{R2} | | $R_Z(\Omega)$ $I_Z = 5mA$ | | R_{ZK} | | $S_Z (mV/^\circ C)$ $I_Z = 5mA$ | | | $C_t(pF)$ ($V_R = 0V$) $f = 1MHz$ | | | | | | | | | | | | | | | | | | | |
| | min | nom | max | V_R (V) | max (μA) | V_R (V) | max (μA) | typ | max | I_Z (mA) | max (Ω) | min | typ | max | typ | max | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | 1st. | 2nd. | 3rd. | | | | | | | | | | | | | | | |
| MA1075 | 7.0 | 7.5 | 7.9 | 5 | 1 | 6.5 | 60 | 6 | 15 | 0.5 | 120 | 2.5 | 4 | 5.3 | 80 | 100 | Purple | Green | Green | | | | | | | | | | | | | | | |
| MA1075-L | 7.07 | 7.3 | 7.43 | | | 6.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1075-M | 7.29 | 7.5 | 7.67 | | | 6.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1075-H | 7.51 | 7.7 | 7.89 | | | 7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1082 | 7.7 | 8.2 | 8.7 | 5 | 0.5 | 7.2 | 60 | 6 | 15 | 0.5 | 120 | 3.2 | 4.6 | 6.2 | 75 | 95 | Gray | Red | Red | | | | | | | | | | | | | | | |
| MA1082-L | 7.77 | 7.9 | 8.17 | | | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1082-M | 8.03 | 8.2 | 8.43 | | | 7.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1082-H | 8.29 | 8.5 | 8.7 | | | 7.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1091 | 8.5 | 9.1 | 9.6 | 6 | 0.2 | 8 | 60 | 6 | 15 | 0.5 | 130 | 3.8 | 5.5 | 7 | 70 | 90 | White | Brown | Brown | | | | | | | | | | | | | | | |
| MA1091-L | 8.58 | 8.8 | 9.02 | | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1091-M | 8.87 | 9.1 | 9.33 | | | 8.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1091-H | 9.14 | 9.4 | 9.6 | | | 8.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1100 | 9.4 | 10 | 10.6 | 7 | 0.2 | 8.9 | 60 | 8 | 20 | 0.5 | 130 | 4.5 | 6.4 | 8 | 70 | 90 | Brown | Black | — | | | | | | | | | | | | | | | |
| MA1100-L | 9.44 | 9.7 | 9.92 | | | 8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1100-M | 9.75 | 10 | 10.25 | | | 9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1100-H | 10.07 | 10.3 | 10.59 | | | 9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1110 | 10.4 | 11 | 11.6 | 7 | 0.1 | 9.9 | 60 | 10 | 20 | 0.5 | 170 | 5.4 | 7.4 | 9 | 65 | 85 | Brown | Brown | — | | | | | | | | | | | | | | | |
| MA1110-L | 10.4 | 10.7 | 10.94 | | | 9.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1110-M | 10.73 | 11 | 11.28 | | | 10.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1110-H | 11.05 | 11.3 | 11.6 | | | 10.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1120 | 11.4 | 12 | 12.7 | 8 | 0.1 | 10.9 | 60 | 10 | 25 | 0.5 | 170 | 6 | 8.4 | 10 | 65 | 85 | Brown | Red | — | | | | | | | | | | | | | | | |
| MA1120-L | 11.4 | 11.7 | 11.96 | | | 10.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1120-M | 11.73 | 12 | 12.33 | | | 11.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1120-H | 12.06 | 12.3 | 12.68 | | | 11.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1130 | 12.4 | 13 | 14.1 | 9 | 0.1 | 11.9 | 60 | 10 | 30 | 0.5 | 170 | 7 | 9.4 | 11 | 60 | 80 | Brown | Orange | — | | | | | | | | | | | | | | | |
| MA1130-L | 12.4 | 12.7 | 12.99 | | | 11.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1130-M | 12.73 | 13 | 13.4 | | | 12.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1130-H | 13.25 | 13.7 | 14.08 | | | 12.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1140-M | 13.65 | 14 | 14.35 | 9 | 0.1 | 13.1 | 60 | 10 | 30 | 0.5 | 170 | 7 | 10 | 13 | 60 | 80 | Brown | Yellow | — | | | | | | | | | | | | | | | |
| MA1150 | 13.9 | 15 | 15.6 | | | 10 | | | | | | | | | | | | | | 0.05 | 13.4 | 60 | 10 | 30 | 0.5 | 170 | 9.2 | 11.4 | 13 | 55 | 75 | Brown | Purple | — |
| MA1150-L | 13.9 | 14.3 | 14.76 | | | | | | | | | | | | | | | | | | 13.4 | | | | | | | | | | | | | |
| MA1150-M | 14.6 | 15 | 15.35 | | | | | | | | | | | | | | | | | | 14.1 | | | | | | | | | | | | | |
| MA1150-H | 14.95 | 15.3 | 15.6 | 14.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1160 | 15.3 | 16 | 17.1 | 11 | 0.05 | 14.8 | 60 | 10 | 40 | 0.5 | 170 | 10.4 | 12.4 | 14 | 52 | 75 | Brown | Blue | — | | | | | | | | | | | | | | | |
| MA1160-L | 15.3 | 15.7 | 16.09 | | | 14.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1160-M | 15.7 | 16 | 16.5 | | | 15.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1160-H | 16.26 | 16.7 | 17.1 | | | 15.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1180 | 16.9 | 18 | 19.1 | 13 | 0.05 | 16.4 | 60 | 10 | 45 | 0.5 | 170 | 12.4 | 14.4 | 16 | 47 | 70 | Brown | Gray | — | | | | | | | | | | | | | | | |
| MA1180-L | 16.9 | 17.3 | 17.76 | | | 16.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1180-M | 17.55 | 18 | 18.45 | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1180-H | 18.2 | 18.7 | 19.1 | | | 17.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1200 | 18.8 | 20 | 21.2 | 14 | 0.05 | 18.3 | 60 | 15 | 55 | 0.5 | 180 | 14.4 | 16.4 | 18 | 36 | 60 | Red | Black | — | | | | | | | | | | | | | | | |
| MA1200-L | 18.85 | 19.3 | 19.81 | | | 18.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1200-M | 19.50 | 20 | 20.5 | | | 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1200-H | 20.15 | 20.7 | 21.19 | | | 19.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1220 | 20.8 | 22 | 23.3 | 15 | 0.05 | 20.3 | 60 | 20 | 55 | 0.5 | 180 | 16.4 | 18.4 | 20 | 34 | 60 | Red | Red | — | | | | | | | | | | | | | | | |
| MA1220-L | 20.8 | 21.3 | 21.86 | | | 20.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1220-M | 21.45 | 22 | 22.55 | | | 20.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MA1220-H | 22.1 | 22.7 | 23.24 | | | 21.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

● $V_Z = 24V$ ($I_Z = 5mA$)

| Part Number | Zener voltage | | | Reverse current | | | | Operating resistance | | | | Temperature coefficient of zener voltage | | | Terminal capacitance | | Marking (Color indication Main body: Yellow green) | | |
|-------------|---------------|------|-------|-----------------|-------------|----------|-------------|----------------------|-----|----------|--------------|--|------|-----|----------------------|-----|---|--------|------|
| | V_Z (V) | | | I_{R1} | | I_{R2} | | $R_Z(\Omega)$ | | R_{ZK} | | S_Z (mV/°C) | | | C_t (pF) | | 1st. | 2nd. | 3rd. |
| | $I_Z = 5mA$ | | | V_R | max | V_R | max | $I_Z = 5mA$ | | I_Z | max | $I_Z = 5mA$ | | | $(V_R = 0V)$ | | | | |
| | min | nom | max | (V) | (μA) | (V) | (μA) | typ | max | (mA) | (Ω) | min | typ | max | typ | max | f=1MHz | | |
| MA1240 | 22.8 | 24 | 25.6 | 17 | 0.05 | 22.3 | 60 | 25 | 70 | 0.5 | 180 | 18.4 | 20.4 | 22 | 33 | 55 | Red | Yellow | — |
| MA1240-L | 22.8 | 23.3 | 23.97 | | | 22.3 | | | | | | | | | | | | | |
| MA1240-M | 23.5 | 24 | 24.7 | | | 23 | | | | | | | | | | | | | |
| MA1240-H | 24.35 | 25 | 25.6 | | | 23 | | | | | | | | | | | | | |

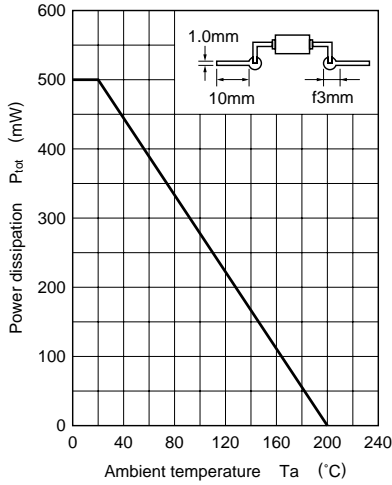
● $V_Z = 27$ to $39V$ ($I_Z = 2mA$)

| Part Number | Zener voltage | | | Reverse current | | | | Operating resistance | | | | Temperature coefficient of zener voltage | | | Terminal capacitance | | Marking (Color indication Main body: Yellow green) | | |
|-------------|---------------|-----|------|-----------------|-------------|----------|-------------|----------------------|-----|----------|--------------|--|------|------|----------------------|-----|---|--------|------|
| | V_Z (V) | | | I_{R1} | | I_{R2} | | $R_Z(\Omega)$ | | R_{ZK} | | S_Z (mV/°C) | | | C_t (pF) | | 1st. | 2nd. | 3rd. |
| | $I_Z = 2mA$ | | | V_R | max | V_R | max | $I_Z = 2mA$ | | I_Z | max | $I_Z = 2mA$ | | | $(V_R = 0V)$ | | | | |
| | min | nom | max | (V) | (μA) | (V) | (μA) | typ | max | (mA) | (Ω) | min | typ | max | typ | max | f=1MHz | | |
| MA1270 | 25.1 | 27 | 28.9 | 19 | 0.05 | 24.8 | 60 | 25 | 80 | 0.5 | 200 | 21.4 | 23.4 | 25.3 | 30 | | Red | Purple | — |
| MA1270-L | 25.3 | 26 | 26.7 | | | 24.8 | | | | | | | | | | | | | |
| MA1270-M | 26.3 | 27 | 27.7 | | | 25.8 | | | | | | | | | | | | | |
| MA1270-H | 27.3 | 28 | 28.7 | | | 26.8 | | | | | | | | | | | | | |
| MA1300 | 28 | 30 | 32 | 21 | 0.05 | 27.8 | 60 | 30 | 80 | 0.5 | 200 | 24.4 | 26.6 | 29.4 | 27 | | Orange | Black | — |
| MA1300-L | 28.3 | 29 | 29.7 | | | 27.8 | | | | | | | | | | | | | |
| MA1300-M | 29.3 | 30 | 30.8 | | | 28.8 | | | | | | | | | | | | | |
| MA1300-H | 30.2 | 31 | 31.8 | | | 29.7 | | | | | | | | | | | | | |
| MA1330 | 31 | 33 | 35 | 23 | 0.05 | 30.7 | 60 | 35 | 80 | 0.5 | 200 | 27.4 | 29.7 | 33.4 | 25 | | Orange | Orange | — |
| MA1330-L | 31.2 | 32 | 32.8 | | | 30.7 | | | | | | | | | | | | | |
| MA1330-M | 32.2 | 33 | 33.8 | | | 31.7 | | | | | | | | | | | | | |
| MA1330-H | 33.2 | 34 | 34.9 | | | 32.7 | | | | | | | | | | | | | |
| MA1360 | 34 | 36 | 38 | 25 | 0.05 | 33.6 | 60 | 35 | 90 | 0.5 | 200 | 30.4 | 33 | 37.4 | 23 | | Orange | Blue | — |
| MA1360-L | 34.1 | 35 | 35.9 | | | 33.6 | | | | | | | | | | | | | |
| MA1360-M | 35.1 | 36 | 36.9 | | | 34.6 | | | | | | | | | | | | | |
| MA1360-H | 36.1 | 37 | 37.9 | | | 35.6 | | | | | | | | | | | | | |
| MA1390 | 37 | — | 41 | 27 | 0.05 | 36 | 60 | — | 130 | 0.5 | 250 | 33.4 | 36.4 | 41.2 | 21 | | Orange | White | — |
| MA1390-L | 37.1 | — | 39 | | | 36 | | | | | | | | | | | | | |
| MA1390-M | 38 | — | 40 | | | 36 | | | | | | | | | | | | | |
| MA1390-H | 39 | — | 41 | | | 36 | | | | | | | | | | | | | |

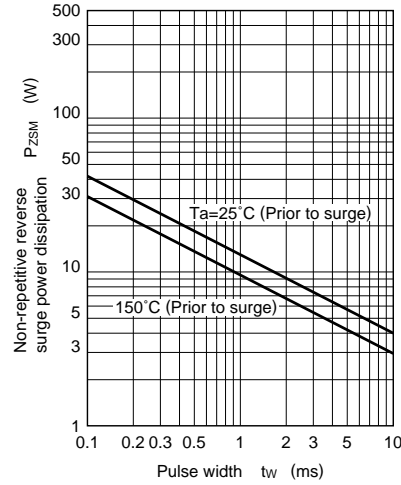
Note 1. The V_Z value is the one after power application for 20ms at $T_a = 25^\circ C$.

Note 2. The Zener voltage temperature coefficient is the one for $T_j = 25$ to $150^\circ C$.

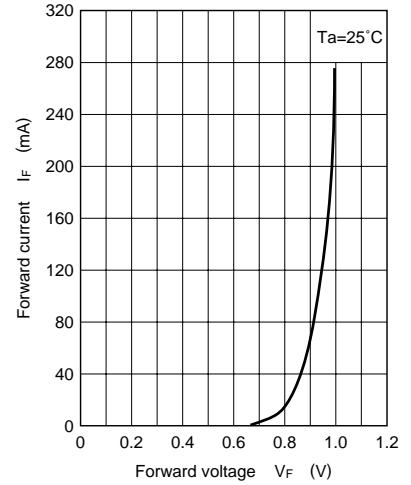
$P_{tot} - T_a$



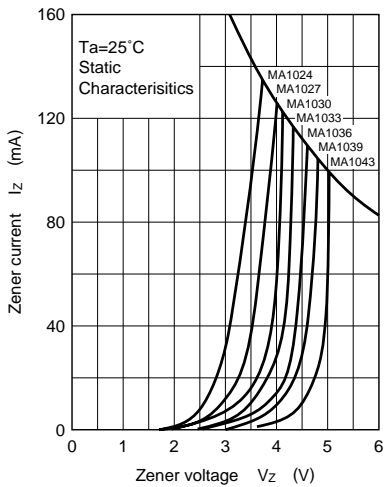
$P_{ZSM} - t_w$



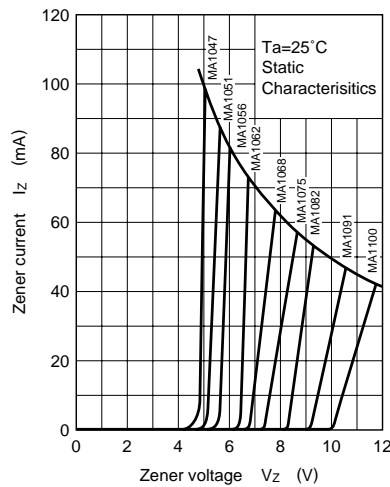
$I_F - V_F$



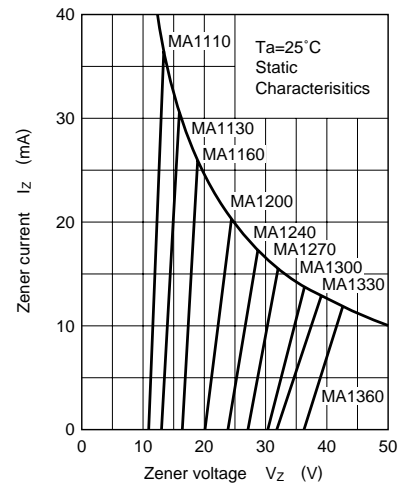
$I_Z - V_Z$



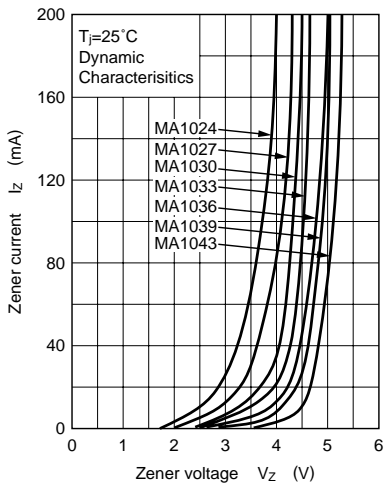
$I_Z - V_Z$



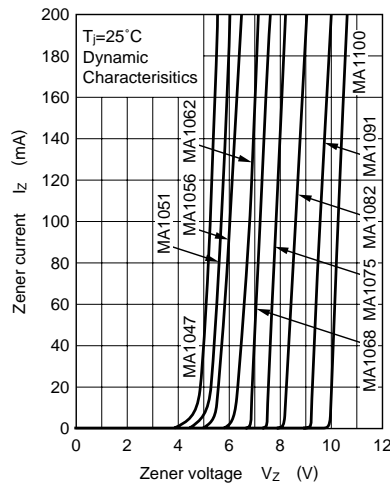
$I_Z - V_Z$



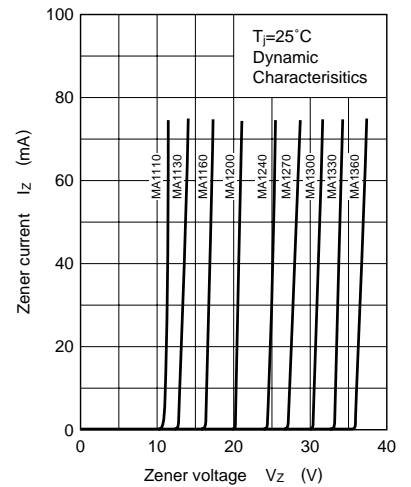
$I_Z - V_Z$



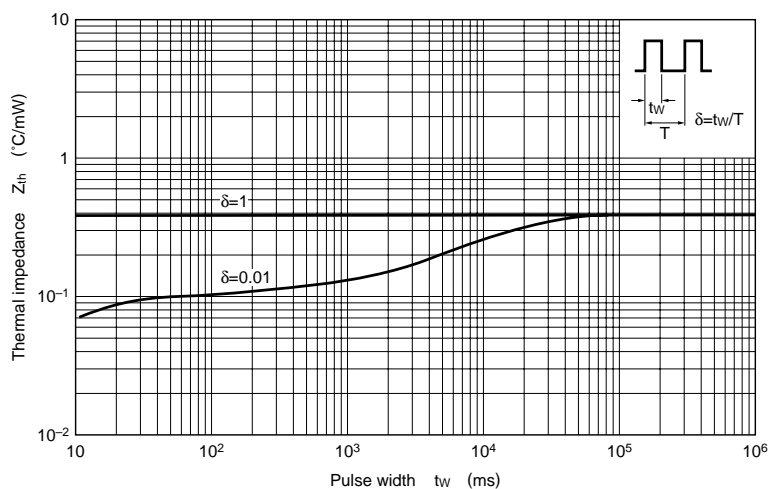
$I_Z - V_Z$



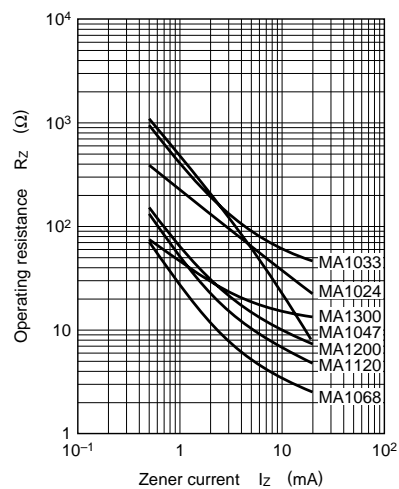
$I_Z - V_Z$



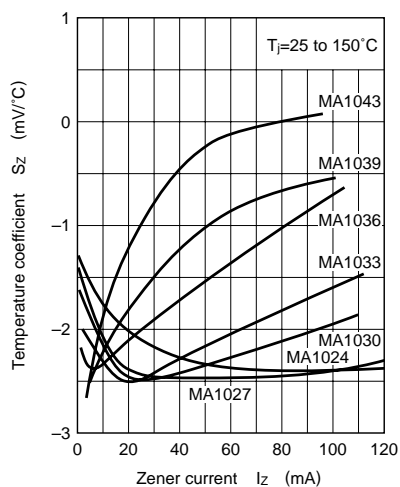
$Z_{th} - t_w$



$R_Z - I_Z$



$S_Z - I_Z$



$S_Z - I_Z$

