

# MA3100WK

## Silicon planer type

Constant voltage, constant current, waveform clipper and surge absorption circuit

### ■ Features

- Mini type package (3-pin)
- Two cathode-common wiring of MA3100

### ■ Absolute Maximum Ratings (Ta= 25°C)

| Parameter                                      | Symbol                   | Rating             | Unit |
|------------------------------------------------|--------------------------|--------------------|------|
| Average forward current                        | $I_{F(AV)}$              | 100 * <sup>1</sup> | mA   |
| Instantaneous forward current                  | $I_{FRM}$                | 200 * <sup>1</sup> | mA   |
| Total power dissipation                        | $P_{tot}$ * <sup>2</sup> | 100 * <sup>1</sup> | mW   |
| Non-repetitive reverse surge power dissipation | $P_{ZSM}$ * <sup>3</sup> | 15                 | W    |
| Junction temperature                           | $T_j$                    | 150                | °C   |
| Storage temperature                            | $T_{stg}$                | - 55 to + 150      | °C   |

\*<sup>1</sup> Working value in a single piece

\*<sup>2</sup> With a printed-circuit board

\*<sup>3</sup>  $t=100\mu s$ ,  $T_j=150^\circ C$

### ■ Electrical Characteristics (Ta= 25°C) \*<sup>1</sup>

| Parameter                                | Symbol               | Condition    | min  | typ | max   | Unit     |
|------------------------------------------|----------------------|--------------|------|-----|-------|----------|
| Forward voltage                          | $V_F$                | $I_F=10mA$   |      | 0.8 | 0.9   | V        |
| Zener voltage                            | $V_Z$ * <sup>2</sup> | $I_Z= 5mA$   | 9.40 |     | 10.60 | V        |
| Operating resistance                     | $R_{ZK}$             | $I_Z= 0.5mA$ |      |     | 130   | $\Omega$ |
|                                          | $R_Z$                | $I_Z= 5mA$   |      |     | 20    | $\Omega$ |
| Reverse current                          | $I_{R1}$             | $V_R= 7.0V$  |      |     | 0.2   | $\mu A$  |
|                                          | $I_{R2}$             | $V_R= 8.9V$  |      |     | 60    | $\mu A$  |
| Temperature coefficient of zener voltage | $S_Z$ * <sup>3</sup> | $I_Z= 5mA$   | 4.5  | 6.4 | 8.0   | mV/°C    |

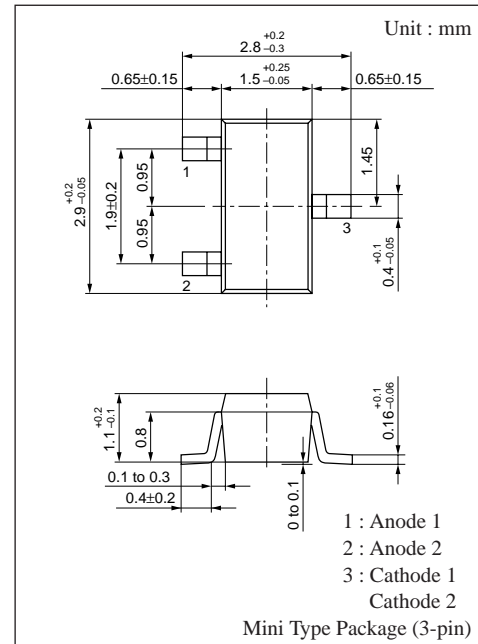
Note 1. Rated input/output frequency : 5MHz

2. \*<sup>1</sup> : The  $V_Z$  value is for the temperature of 25°C. In other cases, carry out the temperature compensation.

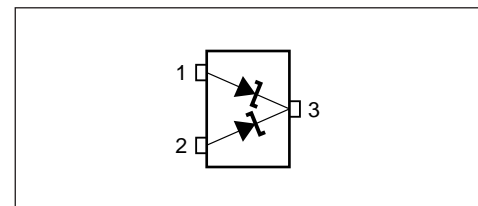
\*<sup>2</sup> : Guaranteed at 20ms after power application

\*<sup>3</sup> :  $T_j= 25$  to  $150^\circ C$

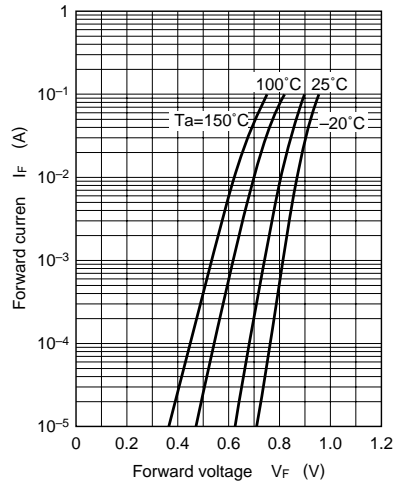
### ■ Marking



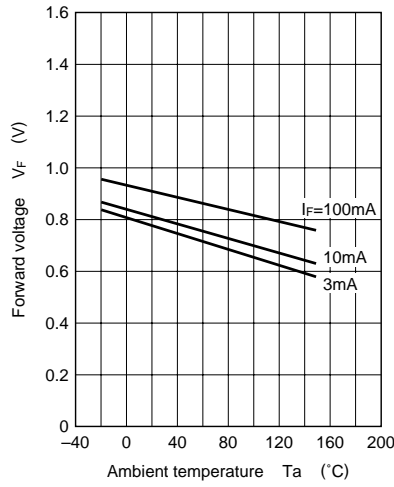
### ■ Internal Connection



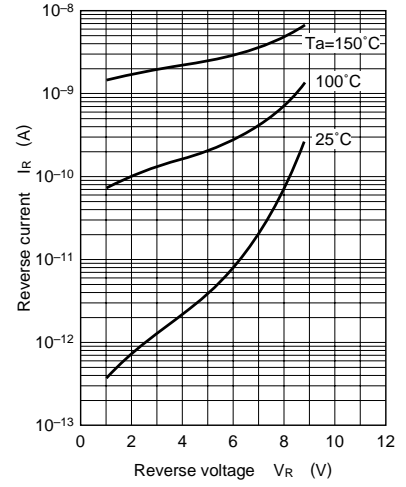
$I_F - V_F$



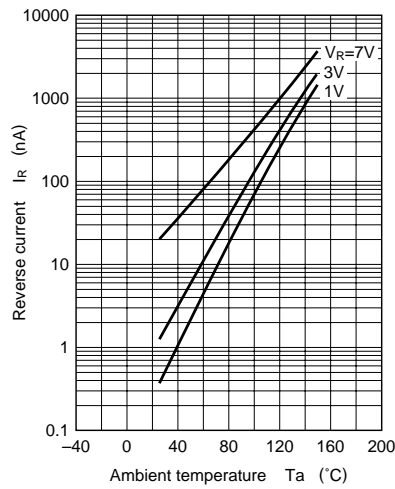
$V_F - T_a$



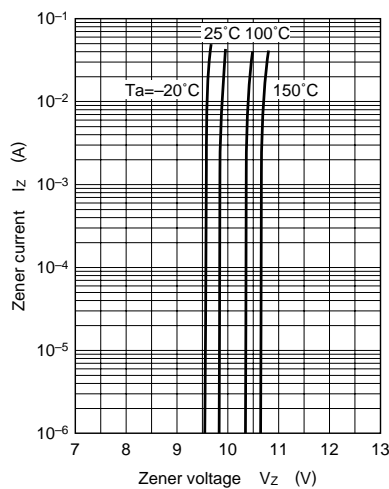
$I_R - V_R$



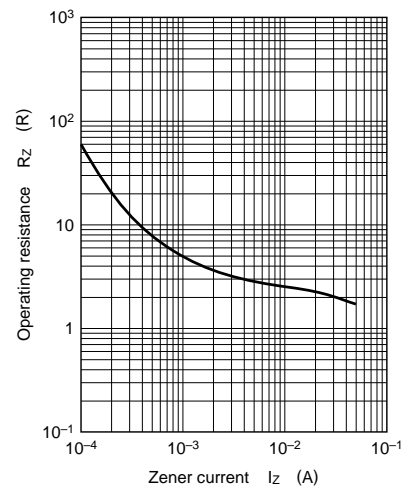
$I_R - T_a$



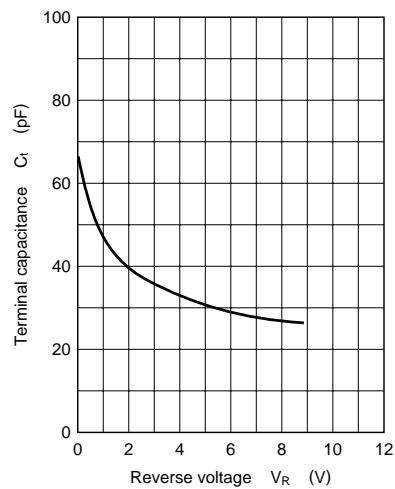
$I_Z - V_Z$



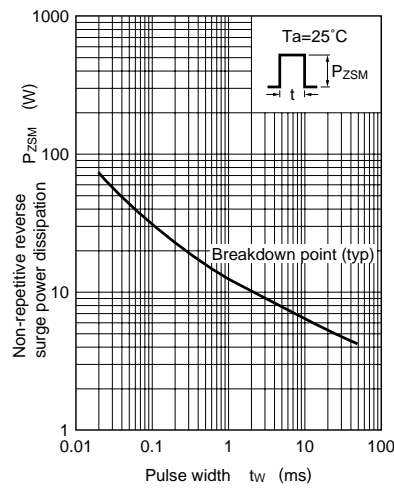
$R_Z - I_Z$



$C_t - V_R$



$P_{ZSM} - t_w$



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