

$V_{RM} = 600\text{ V}$, $I_{F(AV)} = 0.5\text{ A}$, $t_{rr} = 100\text{ ns}$

Fast Recovery Diode

AG01A

Description

The AG01A is a fast recovery diode of 600 V / 0.5 A. The maximum t_{rr} of 100 ns is realized by optimizing a life-time control.

Features

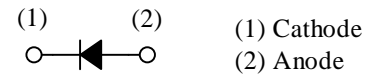
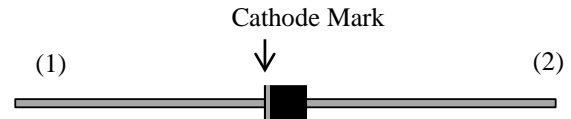
- V_{RM} ----- 600 V
- $I_{F(AV)}$ ----- 0.5 A
- V_F ----- 1.8 V
- t_{rr1} ----- 100 ns
- Bare Leads: Pb-free (RoHS Compliant)

Applications

- White Goods
- Audiovisual Equipment
- Lighting Equipment
- Industrial Electronic Equipment
(Communication Equipment and Factory Automation)
- Freewheel Diode
(Offline Buck and Buck-boost Converter)

Package

Axial ($\phi 2.4 \times 2.9L / \phi 0.57$)



Not to scale

Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25\text{ }^\circ\text{C}$

| Parameter | Symbol | Rating | Unit | Conditions |
|---------------------------------|-------------|------------|----------------------|---|
| Peak Repetitive Reverse Voltage | V_{RSM} | 600 | V | |
| Repetitive Reverse Voltage | V_{RM} | 600 | V | |
| Average Forward Current | $I_{F(AV)}$ | 0.5 | A | See Figure 2 and Figure 3. $T_L = 130\text{ }^\circ\text{C}$ |
| Surge Forward Current | I_{FSM} | 15 | A | Half cycle sine wave, positive side, 10 ms, 1 shot |
| I^2t Limiting Value | I^2t | 1.13 | A^2s | $1\text{ ms} \leq t \leq 10\text{ ms}$ |
| Junction Temperature | T_J | -40 to 150 | $^\circ\text{C}$ | |
| Storage Temperature | T_{STG} | -40 to 150 | $^\circ\text{C}$ | |

Electrical Characteristics

Unless otherwise specified, $T_A = 25\text{ }^\circ\text{C}$

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|--|---------------|--|------|------|------|--------------------|
| Forward Voltage Drop | V_F | $T_J = 25\text{ }^\circ\text{C}, I_F = 0.5\text{ A}$ | — | — | 1.8 | V |
| | | $T_J = 100\text{ }^\circ\text{C}, I_F = 0.5\text{ A}$ | — | 1.1 | — | V |
| Reverse Leakage Current | I_R | $V_R = V_{RM}$ | — | — | 100 | μA |
| Reverse Leakage Current Under High Temperature | $H \cdot I_R$ | $V_R = V_{RM}, T_J = 100\text{ }^\circ\text{C}$ | — | — | 500 | μA |
| Reverse Recovery Time | t_{rr1} | $I_F = I_{RP} = 100\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^\circ\text{C}$ | — | — | 100 | ns |
| | t_{rr2} | $I_F = 100\text{ mA},$ $I_{RP} = 200\text{ mA},$ 75% recovery point, $T_J = 25\text{ }^\circ\text{C}$ | — | — | 50 | ns |
| Thermal Resistance ⁽¹⁾ | $R_{th(J-L)}$ | See Figure 1. | — | — | 22 | $^\circ\text{C/W}$ |

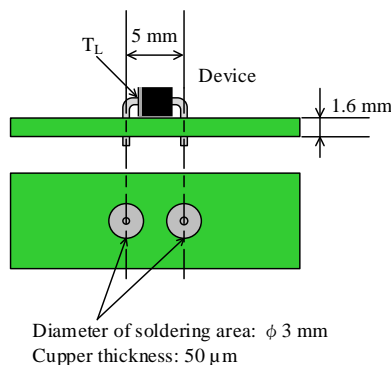


Figure 1 Lead Temperature Measurement Conditions

⁽¹⁾ $R_{th(J-L)}$ is thermal resistance between junction and lead.

Rating and Characteristic Curves

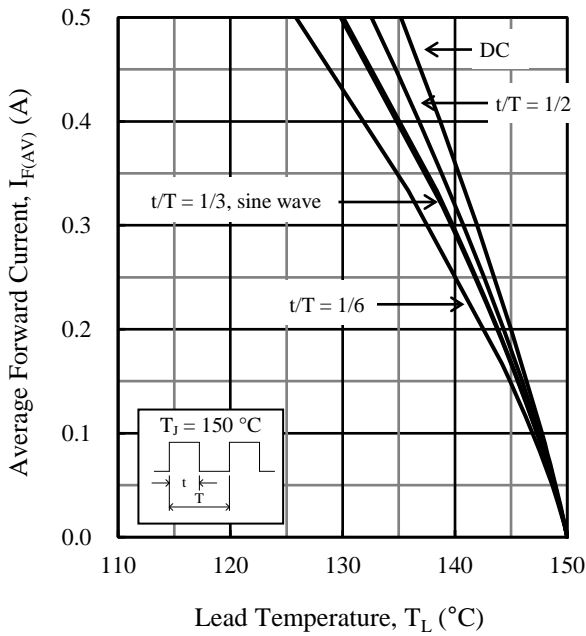


Figure 2. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 0\text{ V}$)

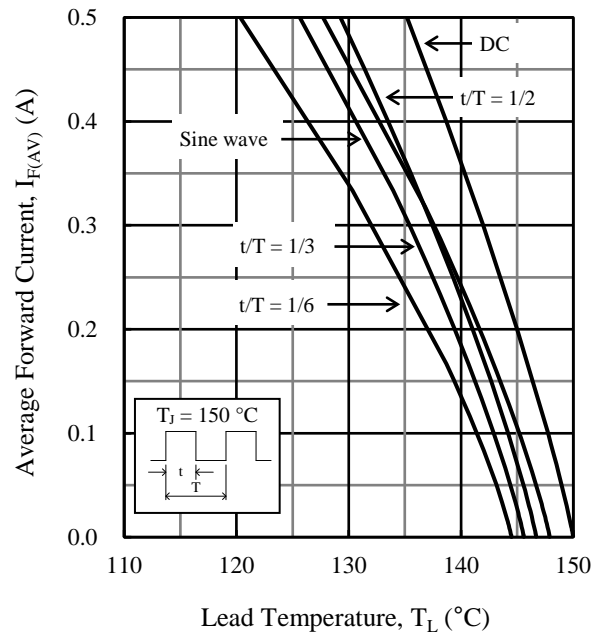


Figure 3. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 600\text{ V}$)

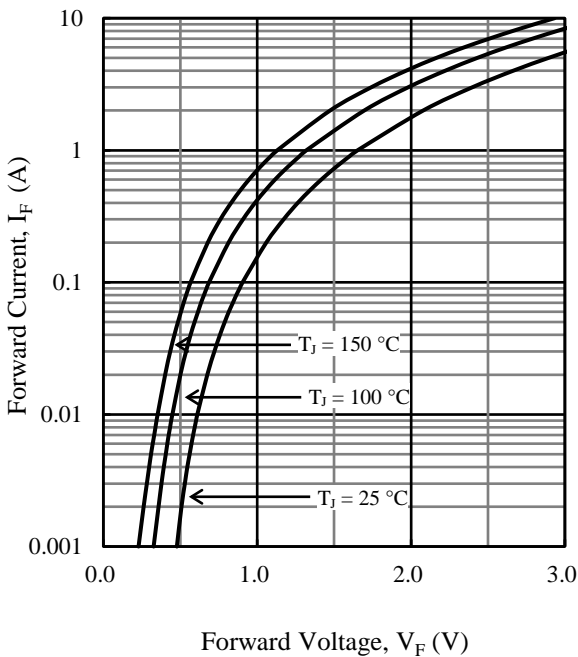


Figure 4. V_F vs. I_F Typical Characteristics

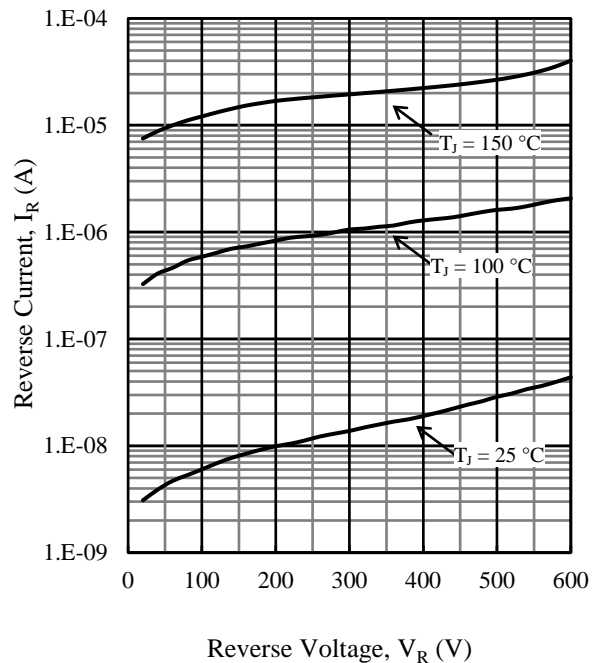


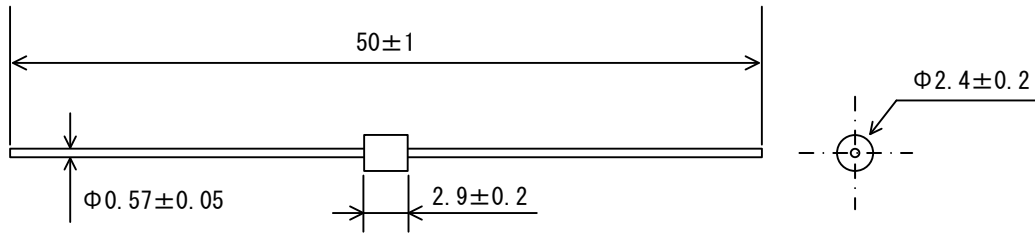
Figure 5. V_R vs. I_R Typical Characteristics

⁽²⁾ See Figure 1 for the lead temperature measurement conditions.

AG01A

Physical Dimensions

- Axial ($\phi 2.4 \times 2.9L / \phi 0.57$)



NOTES:

- Dimensions in millimeters
- Bare leads: Pb-free (RoHS compliant)
- When soldering the products, it is required to minimize the working time, within the following limits:
Flow: $260 \pm 5 \text{ }^\circ\text{C} / 10 \pm 1 \text{ s}$, 2 times
- Soldering Iron: $380 \pm 10 \text{ }^\circ\text{C} / 3.5 \pm 0.5 \text{ s}$, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the product.)

Marking Diagram

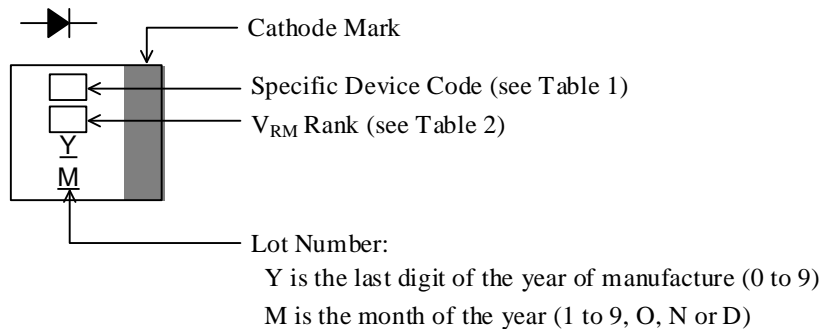


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| G | AG01A |

Table 2. V_{RM} Rank

| Rank | V_{RM} |
|------|----------|
| A | 600 V |



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