

$V_{RSM} = 40\text{ V}$, $I_{F(AV)} = 1.0\text{ A}$
Schottky Diode
AK04

Description

The AK04 is a 40 V, 1.0 A Schottky diode with allowing improvements in V_F and I_R characteristics.

These characteristic features contribute to improving power supply efficiency and to enabling high-frequency systems.

Features

- V_{RSM} ----- 40 V
- $I_{F(AV)}$ ----- 1.0 A
- V_F ($I_F = 1.0\text{ A}$) ----- 0.49 V typ.
- Bare Leads: Pb-free (RoHS Compliant)

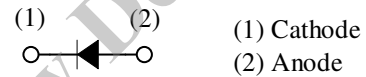
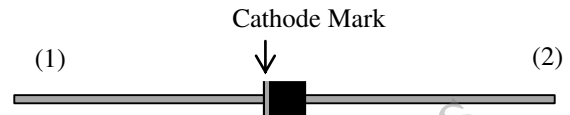
Applications

The high speed switching applications as follows:

- DC-DC Converter
- Adapter

Package

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



Not to scale

Not Recommended for New Designs

Absolute Maximum Ratings

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

| Parameter | Symbol | Rating | Unit | Conditions |
|---------------------------------|-------------|------------|------------------|--|
| Peak Repetitive Reverse Voltage | V_{RSM} | 40 | V | |
| Repetitive Reverse Voltage | V_{RM} | 40 | V | |
| Average Forward Current | $I_{F(AV)}$ | 1.0 | A | See Figure 2 and Figure 3 |
| Surge Forward Current | I_{FSM} | 25 | A | Half cycle sine wave, positive side, 10 ms, 1 shot |
| I^2t Limiting Value | I^2t | 3.125 | 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 | $I_F = 1.0\text{ A}$ | — | 0.49 | 0.55 | V |
| Reverse Leakage Current | I_R | $V_R = V_{RM}$ | — | — | 5 | mA |
| Reverse Leakage Current Under High Temperature | $H \cdot I_R$ | $V_R = V_{RM}, T_J = 150\text{ }^\circ\text{C}$ | — | — | 35 | mA |
| Thermal Resistance ⁽¹⁾ | $R_{th(J-L)}$ | See Figure 1 | — | — | 22 | $^\circ\text{C/W}$ |

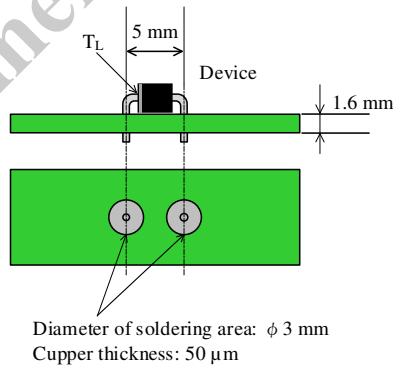


Figure 1 Lead Temperature Measurement Conditions

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

Rating and Characteristic Curves

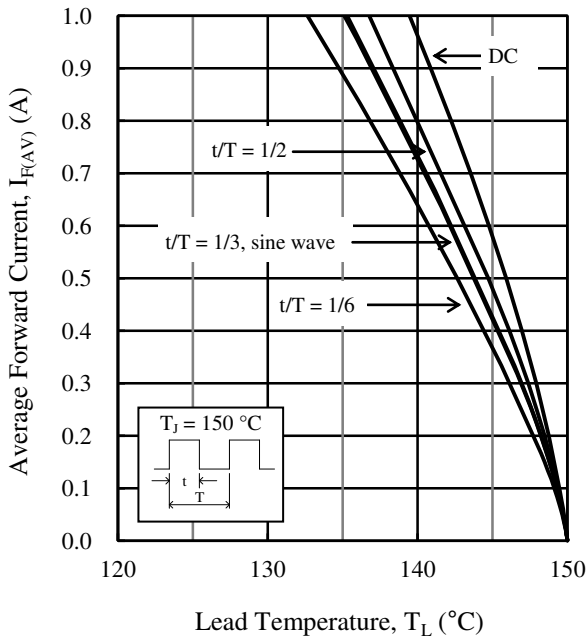


Figure 2. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 0$ V)

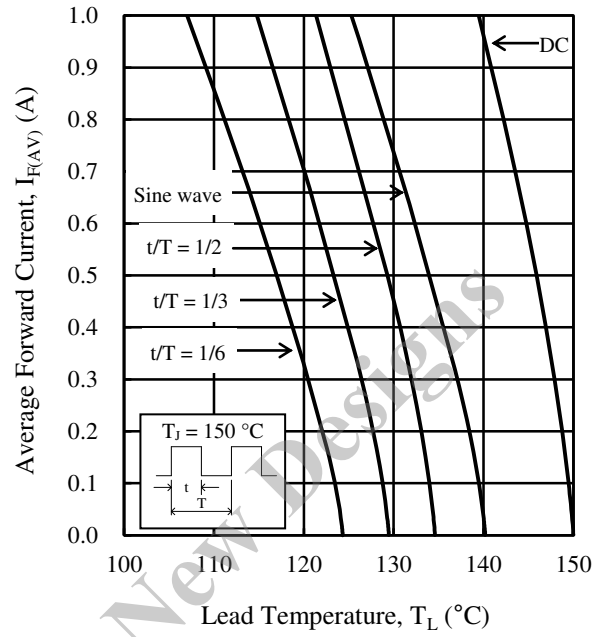


Figure 3. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 40$ V)

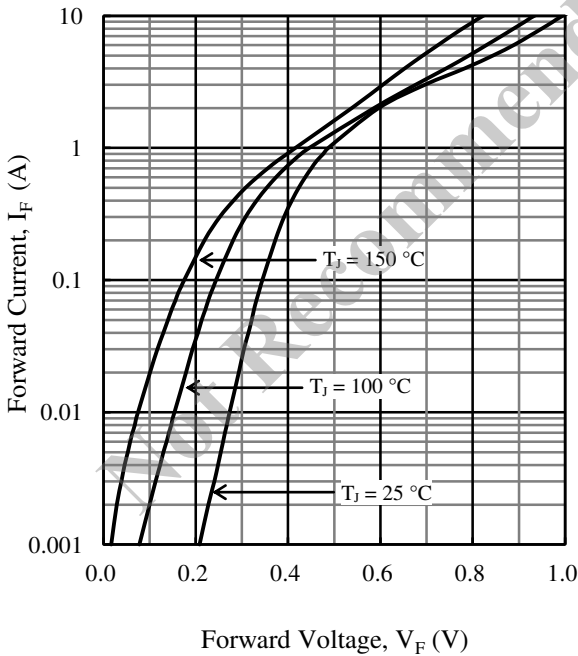


Figure 4. V_F vs. I_F Typical Characteristics

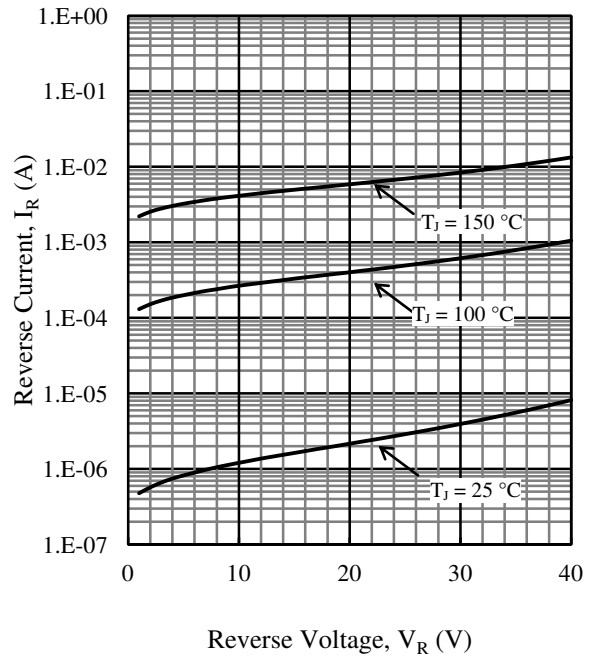
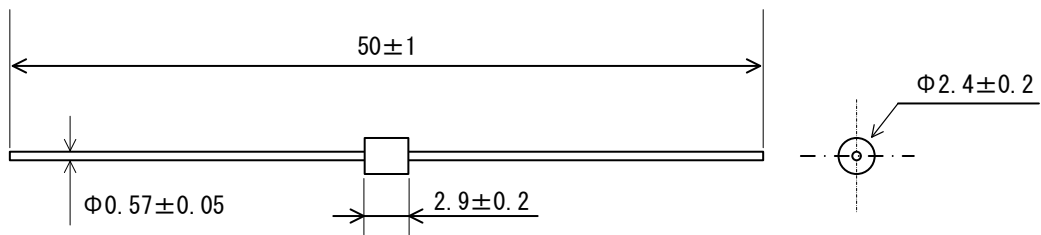


Figure 5. V_R vs. I_R Typical Characteristics

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

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

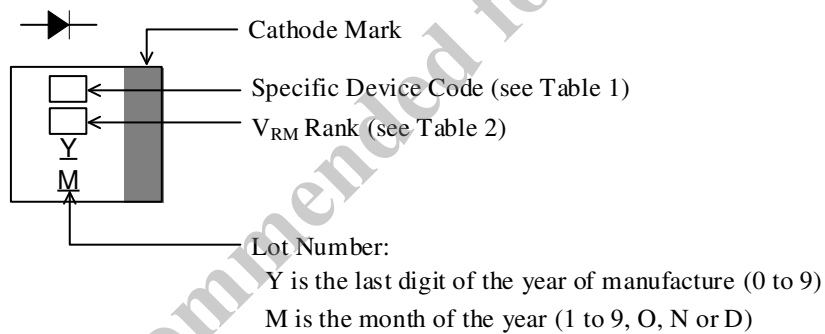


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| K | AK04 |

Table 2. V_{RM} Rank

| Rank | V_{RM} |
|------|----------|
| 4 | 40 V |

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