**$V_{RM}$ = 600 V, $I_{F(AV)}$ = 3.0 A, $t_{rr}$ = 400 ns**
**Fast Recovery Diode**

# RU4A

**Data Sheet**

## Description

The RU4A is a high voltage fast recovery diode of 600 V / 3.0 A, and has a low forward voltage drop characteristic. The maximum trr of 400 ns is realized by optimizing a life-time control.

## Features

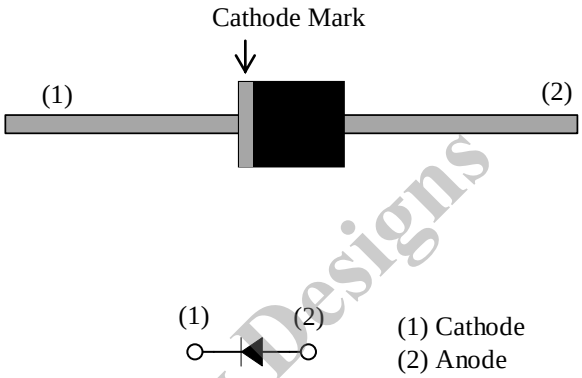
- $V_{RM}$ ---------- 600 V
- $I_{F(AV)}$ ---------- 3.0 A
- $V_F$ ---------- 1.5 V
- $t_{rr1}$ ---------- 400 ns
- Bare Leads: Pb-free (RoHS Compliant)

## Applications

- Secondary Side Rectifier Diode
  (Flyback Converter, LLC Converter, etc.)
- Freewheel Diode
  (Offline Buck and Buck-boost Converter)

## Package

Axial (φ6.5 × 8.0L / φ1.4)







(1) Cathode
(2) Anode

Not to scale

## Absolute Maximum Ratings

Unless otherwise specified, $T_A$ = 25 °C

| Parameter | Symbol | Rating | Unit | Conditions |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage | $V_{RSM}$ | 650 | V | |
| Repetitive Reverse Voltage | $V_{RM}$ | 600 | V | |
| Average Forward Current | $I_{F(AV)}$ | 3.0 | A | See Figure 2 and Figure 3. |
| Surge Forward Current | $I_{FSM}$ | 50 | A | Half cycle sine wave, positive side, 10 ms, 1 shot |
| $I^2t$ Limiting Value | $I^2t$ | 12.5 | $A^2s$ | 1 ms ≤ t ≤ 10 ms |
| Junction Temperature | $T_J$ | −40 to 150 | °C | |
| Storage Temperature | $T_{STG}$ | −40 to 150 | °C | |

## Electrical Characteristics

Unless otherwise specified, $T_A$ = 25 °C

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | $T_J$ = 25 °C, $I_F$ = 3.0 A | — | — | 1.5 | V |
| | | $T_J$ = 100 °C, $I_F$ = 3.0 A | — | 1.0 | — | V |
| Reverse Leakage Current | $I_R$ | $V_R = V_{RM}$ | — | — | 10 | μA |
| Reverse Leakage Current Under High Temperature | $H \cdot I_R$ | $V_R = V_{RM}$, $T_J$ = 100 °C | — | — | 300 | μA |
| Reverse Recovery Time | $t_{rr1}$ | $I_F = I_{RP}$ = 10 mA, 90% recovery point, $T_J$ = 25 °C | — | — | 400 | ns |
| | $t_{rr2}$ | $I_F$ = 10 mA, $I_{RP}$ = 20 mA, 75% recovery point, $T_J$ = 25 °C | — | — | 180 | ns |
| Thermal Resistance [1] | $R_{th(J-L)}$ | See Figure 1. | — | — | 8.0 | °C/W |



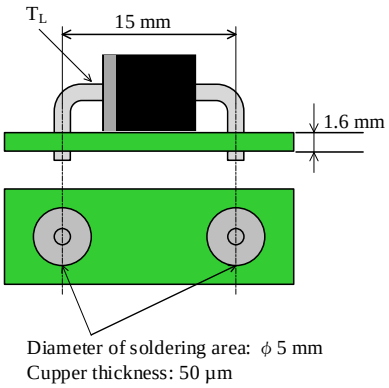



Figure 1 Lead Temperature Measurement Conditions

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

## Rating and Characteristic Curves

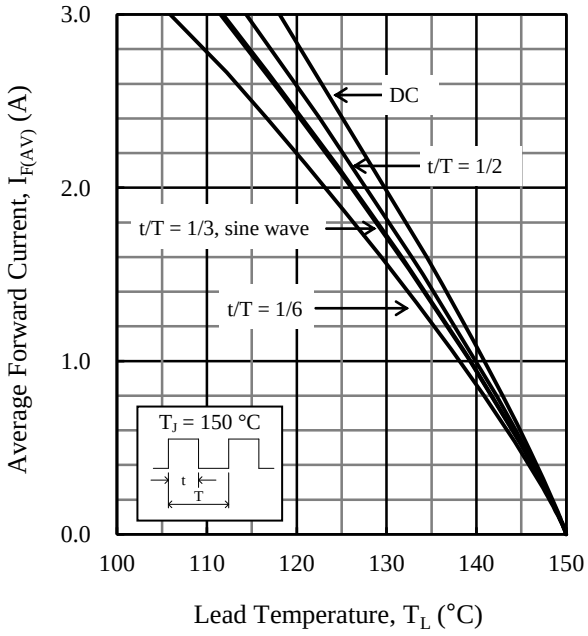



Figure 2. $I_{F(AV)}$ vs. $T_L$ Typical Characteristics[(2)] ($V_R$ = 0 V)

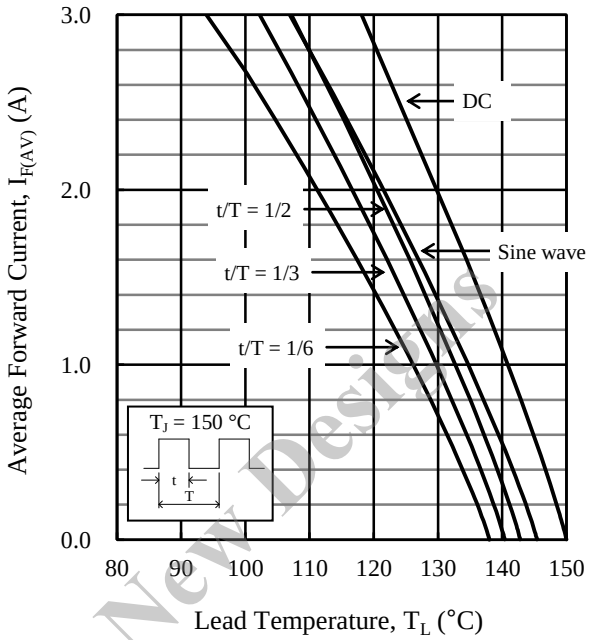



Figure 3. $I_{F(AV)}$ vs. $T_L$ Typical Characteristics[(2)] ($V_R$ = 600 V)

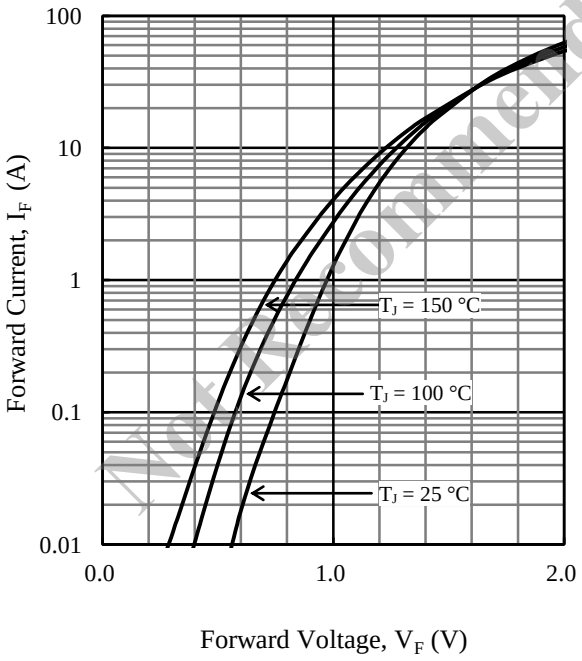



Figure 4. $V_F$ vs. $I_F$ Typical Characteristics

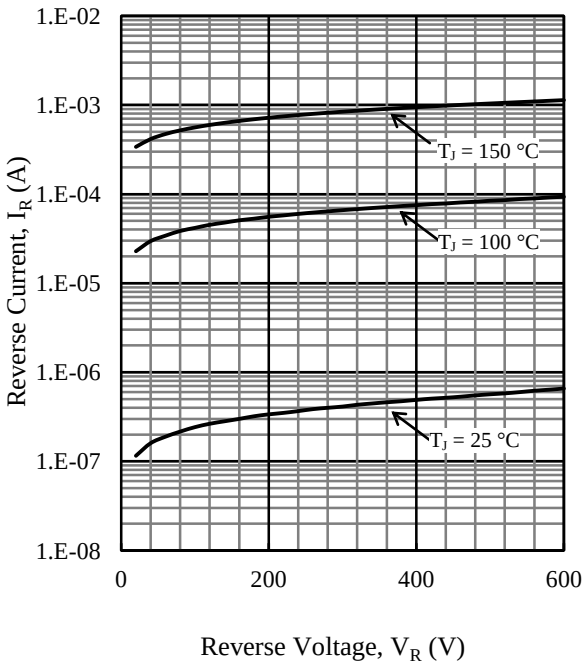


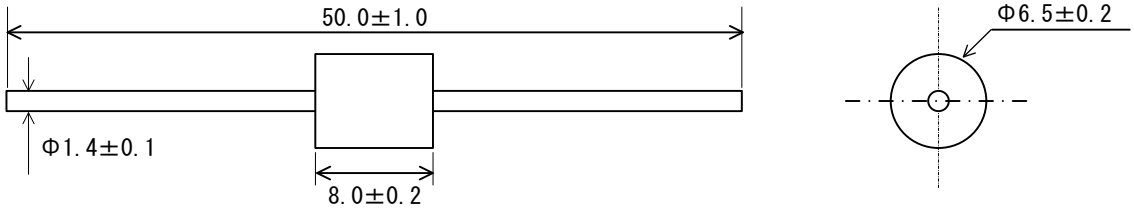

Figure 5. $V_R$ vs. $I_R$ Typical Characteristics



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

## Physical Dimensions

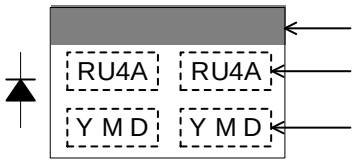
● **Axial (φ6.5 × 8.0L / φ1.4)**




**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 ± 5 °C / 10 ± 1 s, 2 times
  Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time
  Soldering should be at a distance of at least 1.5 mm from the body of the product.

## Marking Diagram




Cathode Mark

Part Number

Lot Number:

Y is the last digit of the year of manufacture (0 to 9)

M is the month of the year (1 to 9, O, N or D)

D is the period of days represented by:

- • : the first 10 days of the month (1st to 10th)
- •• : the second 10 days of the month (11th to 20th)
- ••• : the last 10–11 days of the month (21st to 31st)

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