

$V_{RM} = 600\text{ V}$, $I_{F(AV)} = 3.0\text{ A}$, $t_{rr} = 400\text{ ns}$
Fast Recovery Diode
RU4A

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 t_{rr} of 400 ns is realized by optimizing a life-time control.

Features

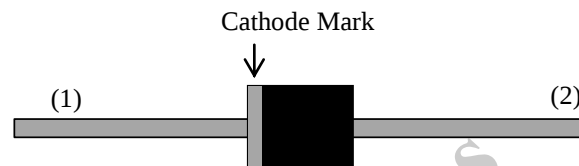
- V_{RM} ----- 600 V
- $I_{F(AV)}$ ----- 3.0 A
- V_F ----- 1.5 V
- t_{rr1} ----- 400 ns
- Bare Leads: Pb-free (RoHS Compliant)

Applications

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

Package

Axial ($\phi 6.5 \times 8.0L / \phi 1.4$)



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}	650	V	
Repetitive Reverse Voltage	V_{RM}	600	V	
Average Forward Current	$I_{\text{F(AV)}}$	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	$1\text{ ms} \leq t \leq 10\text{ ms}$
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	$T_J = 25\text{ }^{\circ}\text{C}$, $I_F = 3.0\text{ A}$	—	—	1.5	V
		$T_J = 100\text{ }^{\circ}\text{C}$, $I_F = 3.0\text{ A}$	—	1.0	—	V
Reverse Leakage Current	I_R	$V_R = V_{\text{RM}}$	—	—	10	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{\text{RM}}$, $T_J = 100\text{ }^{\circ}\text{C}$	—	—	300	μA
Reverse Recovery Time	t_{rr1}	$I_F = I_{\text{RP}} = 10\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	400	ns
	t_{rr2}	$I_F = 10\text{ mA}$, $I_{\text{RP}} = 20\text{ mA}$, 75% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	180	ns
Thermal Resistance ⁽¹⁾	$R_{\text{th(J-L)}}$	See Figure 1.	—	—	8.0	$^{\circ}\text{C/W}$

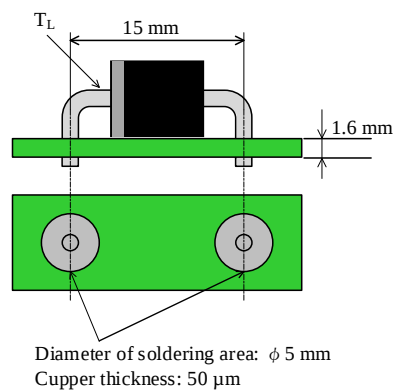


Figure 1 Lead Temperature Measurement Conditions

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

Rating and Characteristic Curves

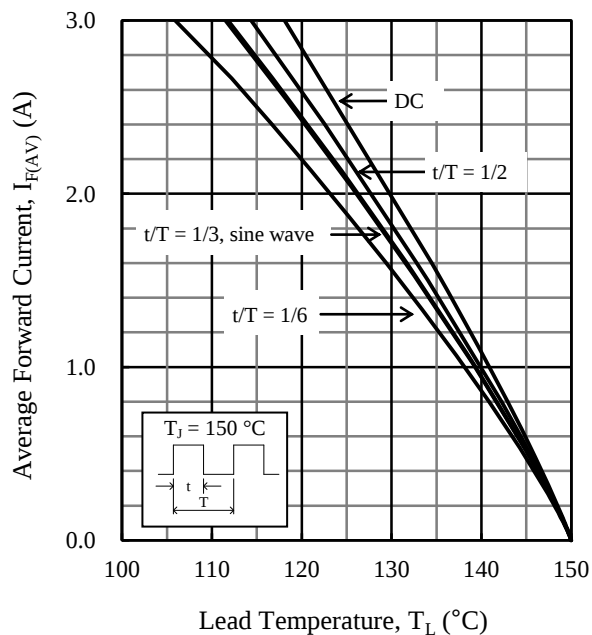


Figure 2. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 0$ V)

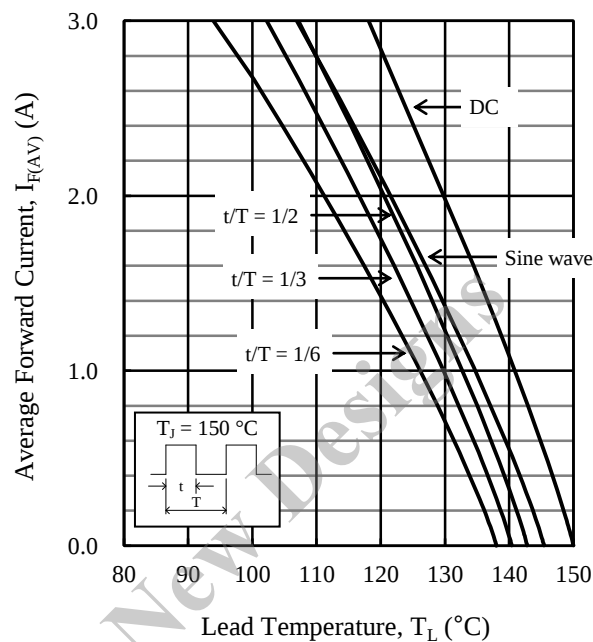


Figure 3. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 600$ V)

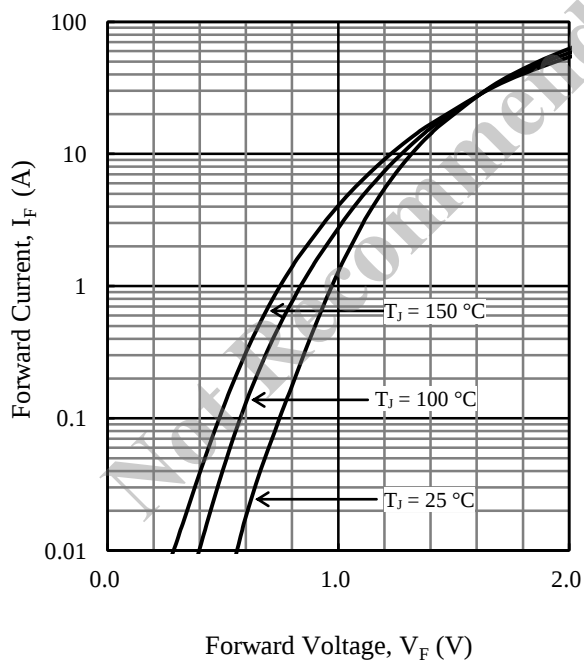


Figure 4. V_F vs. I_F Typical Characteristics

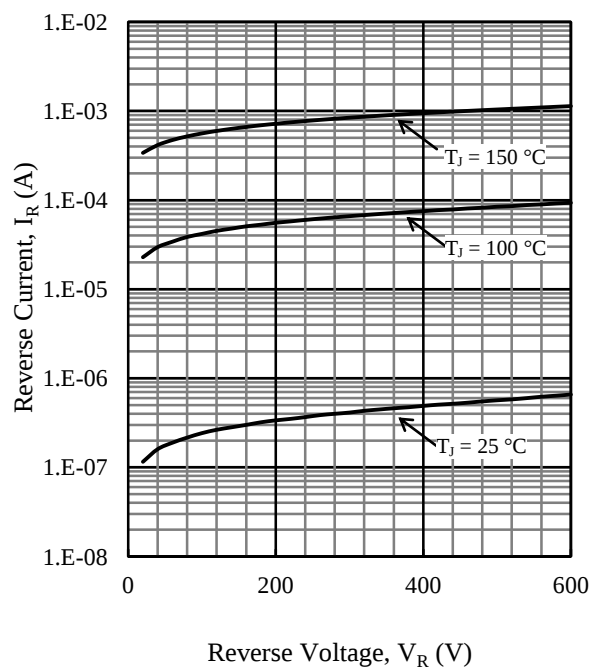
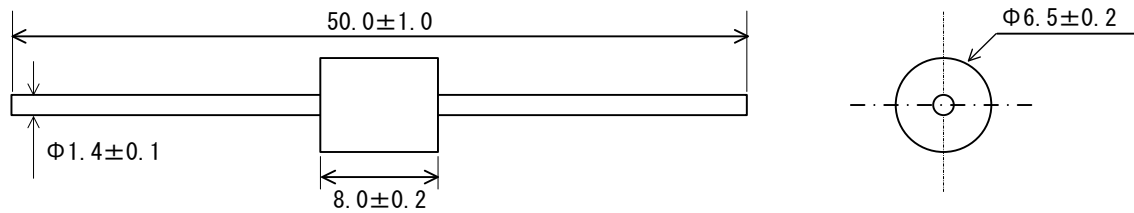


Figure 5. V_R vs. I_R Typical Characteristics

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

Physical Dimensions

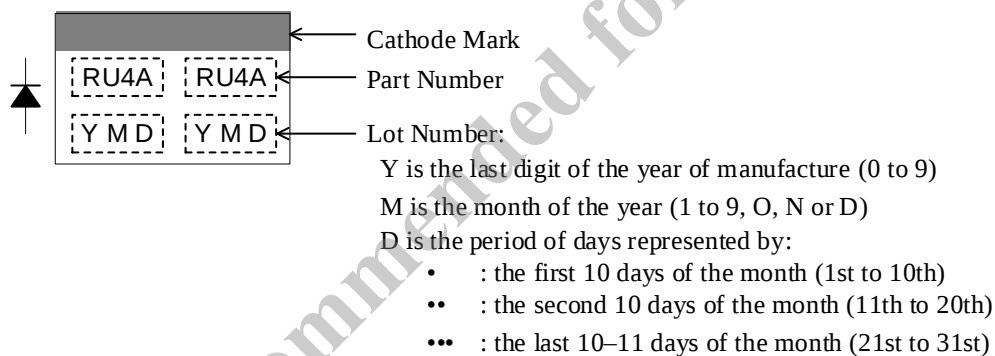
• Axial ($\phi 6.5 \times 8.0L / \phi 1.4$)



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



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