

$V_{RM} = 400\text{ V}$, $I_{F(AV)} = 1.0\text{ A}$, $t_{rr} = 50\text{ ns}$
Fast Recovery Diode
AL01

Description

The AL01 is a fast recovery diode of 400 V / 1.0 A. The maximum t_{rr} of 50 ns is realized by optimizing a life-time control.

Features

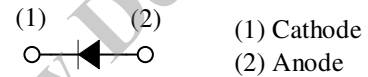
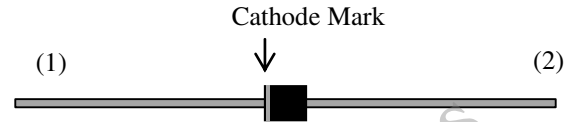
- V_{RM} ----- 400 V
- $I_{F(AV)}$ ----- 1.0 A
- V_F ----- 1.4 V
- t_{rr1} ----- 50 ns
- Bare Leads: Pb-free (RoHS Compliant)

Applications

- White Goods
- Audiovisual Equipment
- Lighting Equipment
- Industrial Electronic Equipment
(Communication Equipment and Factory Automation)
- Secondary Side Rectifier Diode
(Flyback Converter, LLC Converter, etc.)
- Freewheel Diode
(Offline Buck and Buck-boost Converter)

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}	400	V	
Repetitive Reverse Voltage	V_{RM}	400	V	
Average Forward Current	$I_{F(AV)}$	1.0	A	See Figure 2 and Figure 3
Surge Forward Current	I_{FSM}	20	A	Half cycle sine wave, positive side, 10 ms, 1 shot
I^2t Limiting Value	I^2t	2.0	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	$T_J = 25\text{ }^\circ\text{C}$, $I_F = 1.0\text{ A}$	—	—	1.4	V
		$T_J = 100\text{ }^\circ\text{C}$, $I_F = 1.0\text{ A}$	—	1.0	—	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	10	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$, $T_J = 150\text{ }^\circ\text{C}$	—	—	50	μA
Reverse Recovery Time	t_{rr1}	$I_F = I_{RP} = 100\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^\circ\text{C}$	—	—	50	ns
	t_{rr2}	$I_F = 100\text{ mA}$, $I_{RP} = 200\text{ mA}$, 75% recovery point, $T_J = 25\text{ }^\circ\text{C}$	—	—	35	ns
Thermal Resistance ⁽¹⁾	$R_{th(J-L)}$	See Figure 1	—	—	22	$^\circ\text{C/W}$

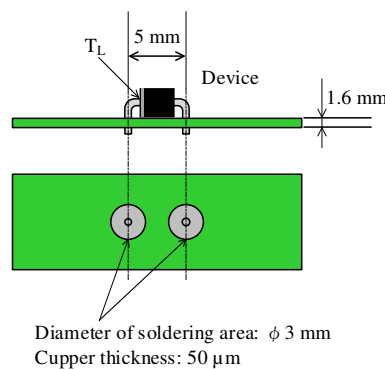


Figure 1 Lead Temperature Measurement Conditions

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

Rating and Characteristic Curves

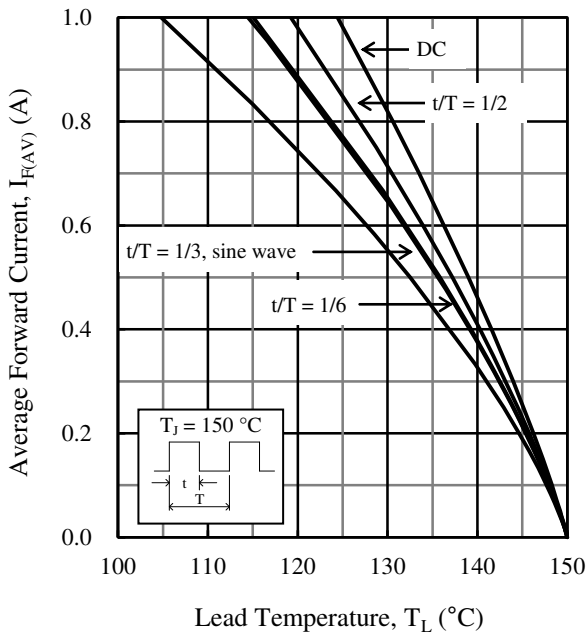


Figure 2. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 0$ V)

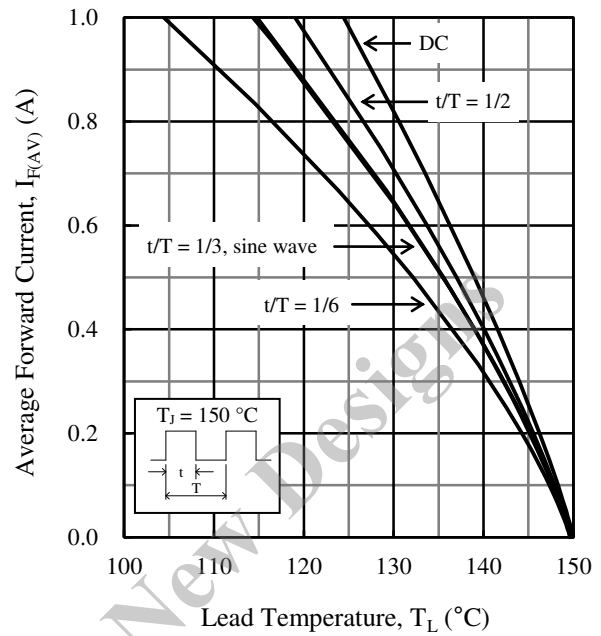


Figure 3. $I_{F(AV)}$ vs. T_L Typical Characteristics⁽²⁾
($V_R = 400$ V)

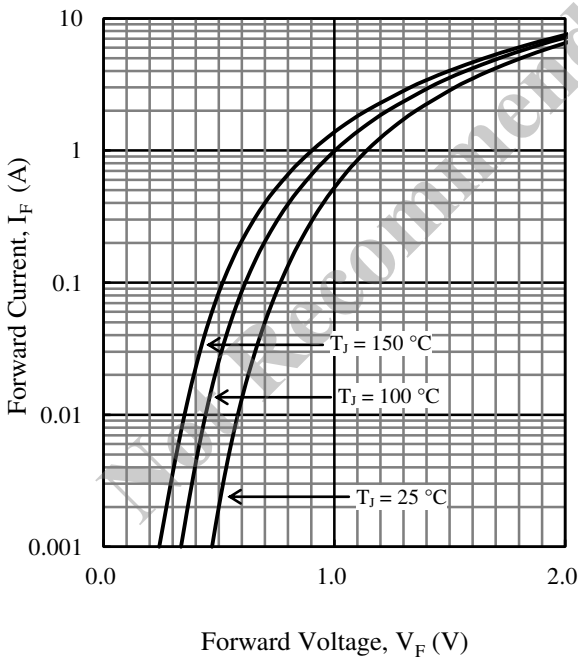


Figure 4. V_F vs. I_F Typical Characteristics

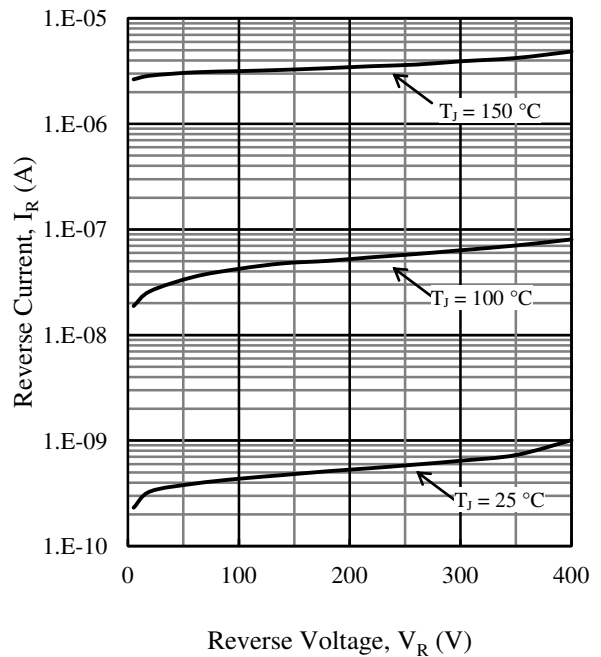


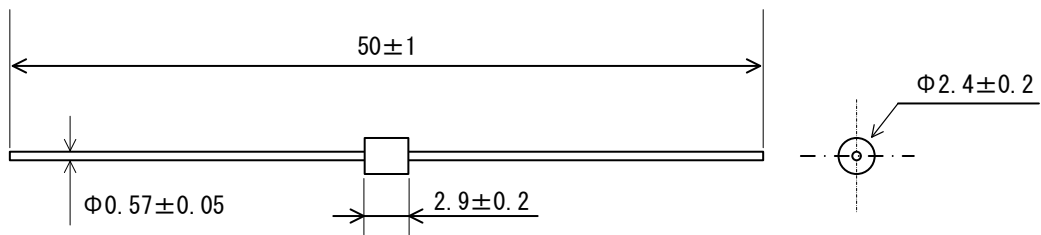
Figure 5. V_R vs. I_R Typical Characteristics

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

AL01

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

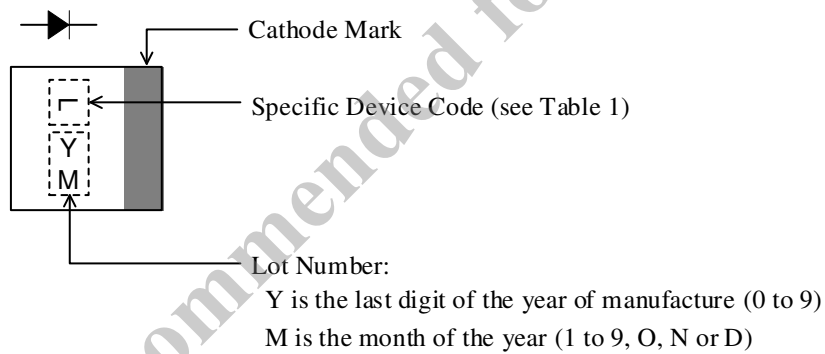


Table 1. Specific Device Code

Specific Device Code	Part Number
L	AL01

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