

RL201 THRU RL207  
GENERAL PURPOSE RECTIFIERS



VOLTAGE: 50~1000 Volts

CURRENT: 2 Amperes

Package: DO-15

Marking And Polarity

### FEATURES

- Glass Passivated Chip Junction
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Forward Surge Capability For High Reliability

### MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94 V-0 Flammability Rating, RoHS-Compliant
- **Polarity:** As Marked On Case
- **Mounting Position:** Any
- **Weight:App. 0.306 Grams (0.010791 Ounce)**

### TYPICAL APPLICATIONS

- General Purpose Use In AC/DC BridgeFull Waverectification For PD,Adapter, Power Supply, Monitor,LED Driver,Printer,Audio Equipment, TV And Homeappliances Etc. Applications.



Remark:

- ①. NH=niuhan trademark
- ②. FF=niuhan trademark  
YWW=Internal code,According to actual changes
- ③. RL20X=Mode,x=1,2,3,4,5,6,7
- ④. White band denotes cathode

Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

### Maximum Ratings (Ta=25°C Unless otherwise specified)

| Parameter                                 | Test Conditions                                       | Symbol      | RL 201 | RL 202 | RL 203 | RL 204 | RL 205 | RL 206 | RL 207 | Unit |
|-------------------------------------------|-------------------------------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|------|
| Maximum Repetitive Peak Reverse Voltage   |                                                       | $V_{RRM}$   | 50     | 100    | 200    | 400    | 600    | 800    | 1000   | V    |
| Maximum RMS Voltag                        |                                                       | $V_{RMS}$   | 35     | 70     | 140    | 280    | 420    | 560    | 700    | V    |
| Maximum DC Blocking Voltage               |                                                       | $V_{DC}$    | 50     | 100    | 200    | 400    | 600    | 800    | 1000   | V    |
| Maximum Average Forward Rectified Current | @TC= 100 °C                                           | $I_{F(AV)}$ | 2      |        |        |        |        |        |        | A    |
| Peak Forward Surge Current                | 8.3ms Single Half Sine-wave Superimposed On Rate Load | $I_{FSM}$   | 50     |        |        |        |        |        |        | A    |
| Current Squared Time Per Diode            | t<8.3ms                                               | $I^2t$      | 10.4   |        |        |        |        |        |        | A    |

### Electrical Characteristics (Ta=25°C Unless otherwise specified )

| Parameter                                                        | Test Conditions                                  | Symbol           | RL<br>201 | RL<br>202 | RL<br>203 | RL<br>204 | RL<br>205 | RL<br>206 | RL<br>207 | Unit |
|------------------------------------------------------------------|--------------------------------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| Maximum Instaneous forward voltage per diode (note1)             | Ta=25℃<br>I <sub>F</sub> = 2.0 A                 | V <sub>F</sub>   | 1.00      |           |           |           |           |           |           | V    |
|                                                                  | Ta=125℃                                          |                  | 0.92      |           |           |           |           |           |           |      |
| Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1) | Ta=25℃<br>V <sub>R</sub> = V <sub>RRM</sub>      | I <sub>RRM</sub> | 5         |           |           |           |           |           |           | uA   |
|                                                                  | Ta=125℃<br>V <sub>R</sub> = 80%*V <sub>RRM</sub> |                  | 500       |           |           |           |           |           |           |      |
| Typical Junction Capacitance Per Diode                           | 4.0 V,1MHz                                       | C <sub>J</sub>   | 53        |           |           |           |           |           |           | pF   |

### Thermal Characteristics (Ta=25°C Unless otherwise specified )

| Parameter                            | Symbol          | Ratings    | Unit |
|--------------------------------------|-----------------|------------|------|
| Operating Junction Temperature Range | $T_J$           | -55 to 150 | °C   |
| Storage Temperature Range            | $T_{STD}$       | -55 to 150 |      |
| Typical thermal resistance (Note 2)  | $R_{\theta JA}$ | 35.0       | °C/W |
|                                      | $R_{\theta JC}$ | 8          |      |

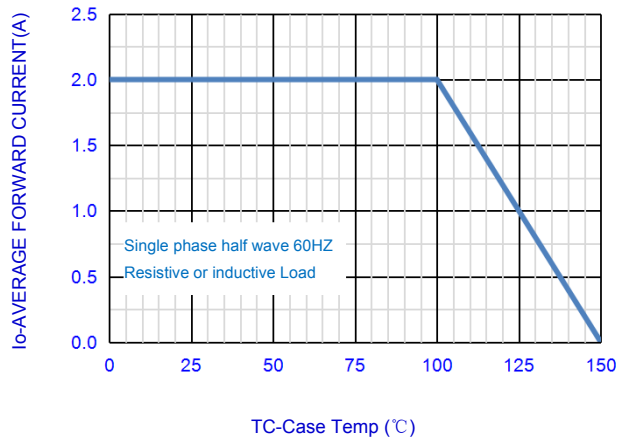
Notes: 1.Pulse Test: 300 Us Pulse Width,2% Duty Cycle

2.P. C. B mounted with 0.1\*\*0.1"(2.54 x 2.54 mm) copper Pad Areas

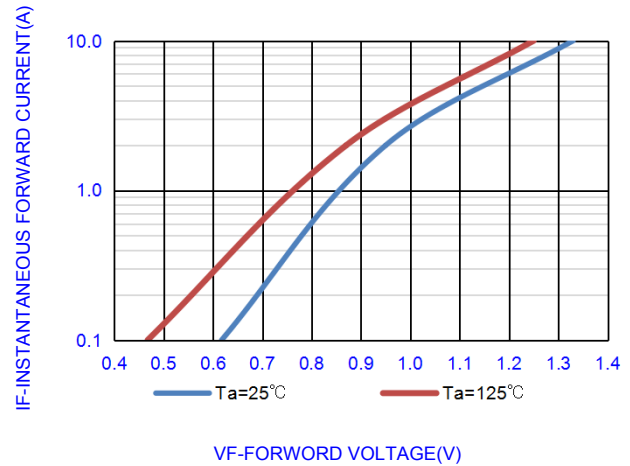
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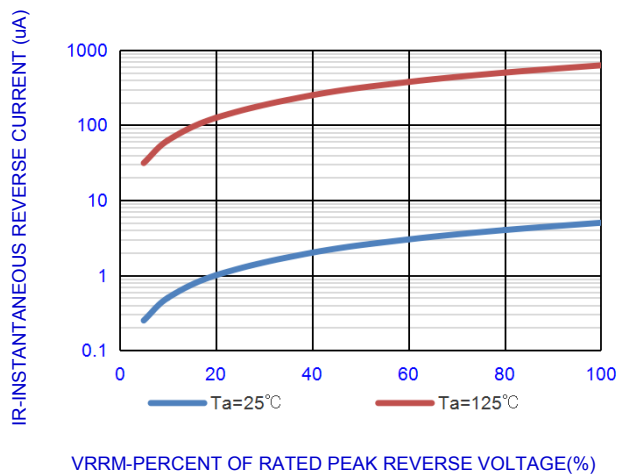
**Typical Characteristics Curves**



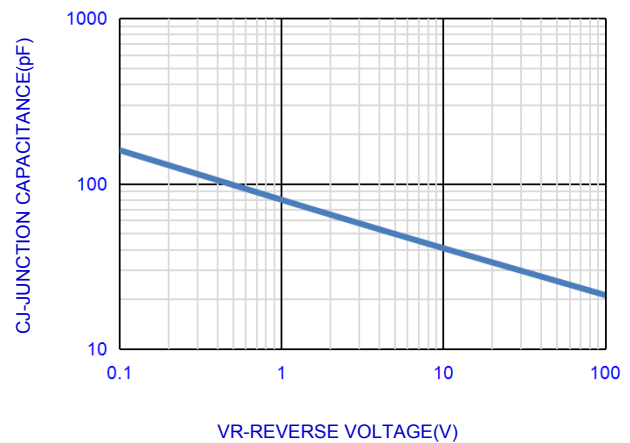
**Fig.1-FORWARD CURRENT DERATING CURVE**



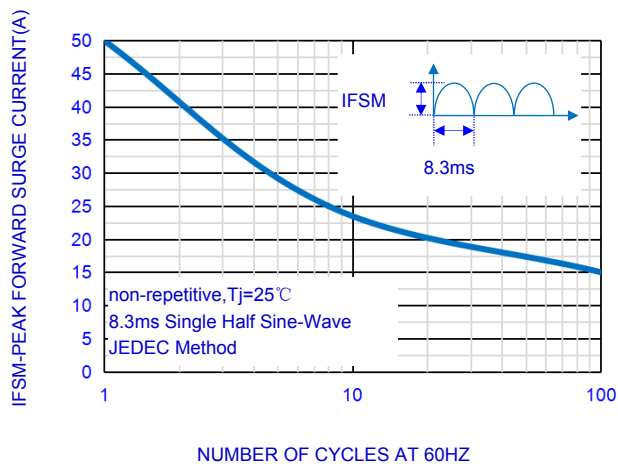
**Fig.2- TYPICAL INSTANTANEOUS FORWARD**



**Fig.3- TYPICAL REVERSE CHARACTERISTICS**



**Fig.4- TYPICAL JUNCTION CAPACITANCE**



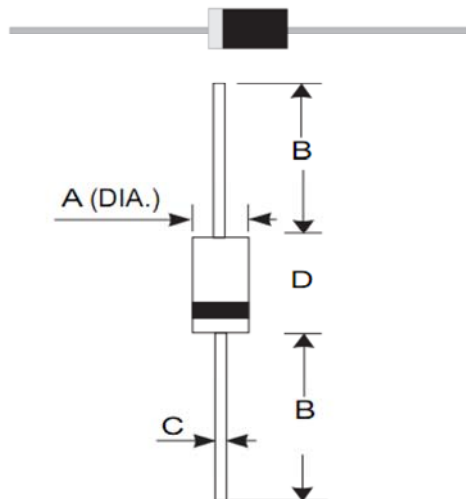
**Fig.5-MAX. NON-REPETITIVE SURGE CURRENT**

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**OUTLINE DRAWINGS**

**DO-15**



**OUTLINE DIMENSIONS**

| Dim. | Millimeters |      |      | Inches |      |       |
|------|-------------|------|------|--------|------|-------|
|      | Min.        | Typ. | Max. | Min.   | Typ. | Max.  |
| A    | 2.6         | -    | 3.6  | 0.104  | -    | 0.140 |
| B    | 24.0        | -    | 27.0 | 0.945  | -    | 1.063 |
| C    | 0.7         | -    | 0.9  | 0.028  | -    | 0.035 |
| D    | 5.8         | -    | 7.6  | 0.230  | -    | 0.300 |

**PACKING INFORMATION**

| Package | Pack          | Inner Box Size<br>L×W×H(mm) | Quantity<br>(pcs/Inner Box) | Outer Carton Size<br>L×W×H(mm) | Quantity<br>(pcs/carton) |
|---------|---------------|-----------------------------|-----------------------------|--------------------------------|--------------------------|
| DO-15   | Braided/boxed | 250x75x140                  | 3000                        | 420x280x310                    | 30000                    |

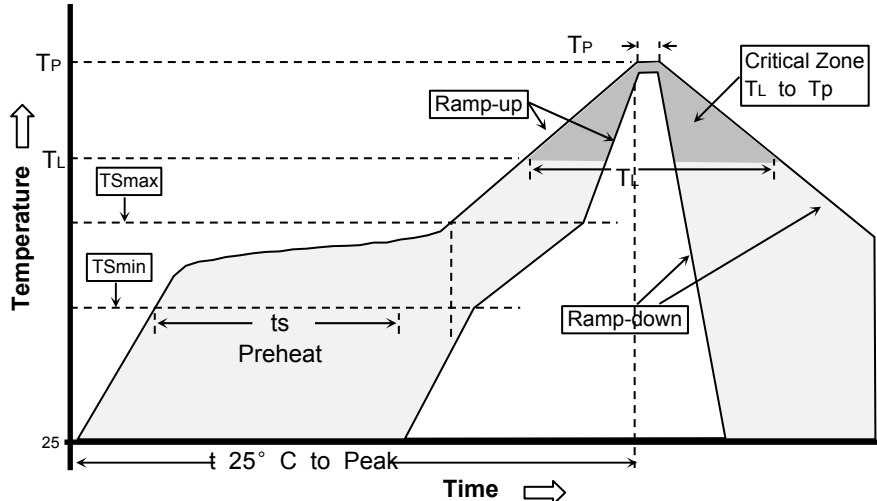
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**Recommended wave soldering condition**

| Product         | Peak Temperature | Soldering Time  |
|-----------------|------------------|-----------------|
| Pb-free devices | 260 +0/-5 °C     | 5 +1/-1 seconds |

**Recommended temperature profile for IR reflow**



| Profile feature                                                                            | Sn-Pb eutectic Assembly          | Pb-free Assembly                 |
|--------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|
| Average ramp-up rate<br>(TSmax to TP)                                                      | 3°C/second max.                  | 3°C/second max.                  |
| Preheat<br>-Temperature Min(TS min)<br>-Temperature Max(TS max)<br>-Time(ts min to ts max) | 100°C<br>150°C<br>60-120 seconds | 150°C<br>200°C<br>60-180 seconds |
| Time maintained above:<br>-Temperature (TL)<br>- Time (tL)                                 | 183°C<br>60-150 seconds          | 217°C<br>60-150 seconds          |
| Peak Temperature(TP)                                                                       | 240 +0/-5 °C                     | 260 +0/-5 °C                     |
| Time within 5°C of actual peak<br>temperature(tp)                                          | 10-30 seconds                    | 20-40 seconds                    |
| Ramp down rate                                                                             | 6°C/second max.                  | 6°C/second max.                  |
| Time 25 °C to peak temperature                                                             | 6 minutes max.                   | 8 minutes max.                   |

Note : All temperatures refer to topside of the package, measured on the package body surface.

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