

**SR580SL**

Low Vf Schottky Barrier Rectifiers



|                 |    |       |                 |   |   |                 |       |
|-----------------|----|-------|-----------------|---|---|-----------------|-------|
| <b>Voltage:</b> | 80 | Volts | <b>Current:</b> | 5 | A | <b>Package:</b> | DO-27 |
|-----------------|----|-------|-----------------|---|---|-----------------|-------|

**Features**

- NH'S Low Vf Schottky Barrier Chip Technology
- Super Low Forward Voltage Drop For High Efficiency
- Low Power Loss For High Reliability
- High Frequency Switching Speed

**Mechanical Data**

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

**Typical Applications**

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

**Diagram:**



**Polarity:**



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      | Ratings | Unit               |
|-------------------------------------------|----------------------------------------------------------|-------------|---------|--------------------|
| Maximum Repetitive Peak Reverse Voltage   |                                                          | $V_{RRM}$   | 80      | V                  |
| Maximum RMS Voltag                        |                                                          | $V_{RMS}$   | 56      | V                  |
| Maximum DC Blocking Voltage               |                                                          | $V_{DC}$    | 80      | V                  |
| Maximum Average Forward Rectified Current |                                                          | $I_{F(AV)}$ | 5       | A                  |
| Peak Forward Surge Current                | 8.3ms Single Half Sine-wave<br>Superimposed On Rate Load | $I_{FSM}$   | 120     | A                  |
| Current Squared Time                      | $t < 8.3ms$                                              | $I^2t$      | 59.8    | A <sup>2</sup> sec |

**Electrical Characteristics (Ta=25°C Unless Otherwise Specified )**

| Parameter                                               | Test Conditions                                               | Symbol    | Ratings  |              |              | Unit     |
|---------------------------------------------------------|---------------------------------------------------------------|-----------|----------|--------------|--------------|----------|
|                                                         |                                                               |           | Min.     | Typ.         | Max.         |          |
| Instaneous Forward Voltage Per Diode                    | Ta=25°C<br>Ta=100°C $I_F = 5.0 A$                             | $V_F$     | --<br>-- | 0.51<br>0.47 | 0.56<br>0.52 | V        |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | Ta=25°C , $V_R = V_{RRM}$<br>Ta=90°C , $V_R = V_{RRM} * 80\%$ | $I_{RRM}$ | --<br>-- | 5<br>1       | 100<br>10    | uA<br>mA |
| Typical Junction Capacitance                            | 4 V,1MHz                                                      | $C_J$     | --       | 680          | --           | pF       |

**Thermal Characteristics (Ta=25°C Unless Otherwise Specified )**

| Parameter                                                   | Test Conditions                                                | Symbol          | Ratings    | Unit |
|-------------------------------------------------------------|----------------------------------------------------------------|-----------------|------------|------|
| Operating Junction Temperature Range                        |                                                                | $T_J$           | -55 to 150 | °C   |
| Storage Temperature Range                                   |                                                                | $T_{STD}$       | -55 to 150 |      |
| Thermal Resistance Junction To Ambient<br>With Steady-State | Still Air Environment<br>With Ta=25°C                          | $R_{\theta JA}$ | 45.0       | °C/W |
| Thermal Resistance Junction-Case<br>With Steady-State       | At 0.375"(9.5mm) lead length<br>Mounted On vertical P.C. Board | $R_{\theta JC}$ | 12.0       |      |

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

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Typical Characteristics Curves

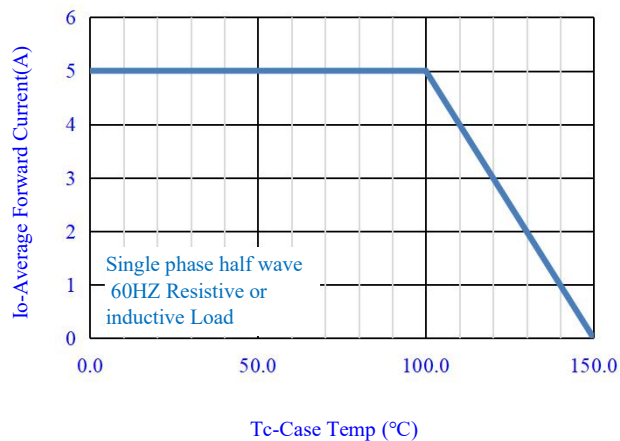


Fig.1-Forward Current Derating Curve

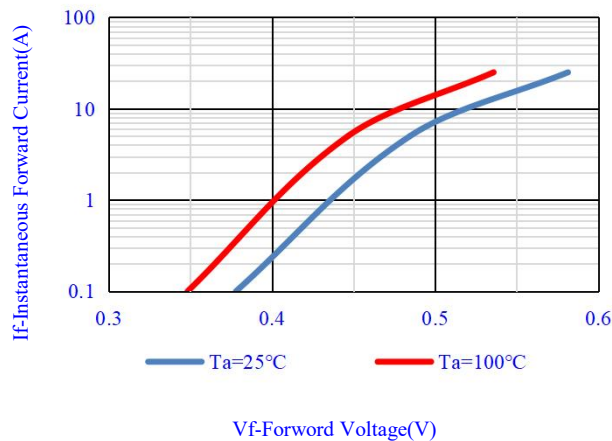


Fig.2-Typical Instantaneous Forward

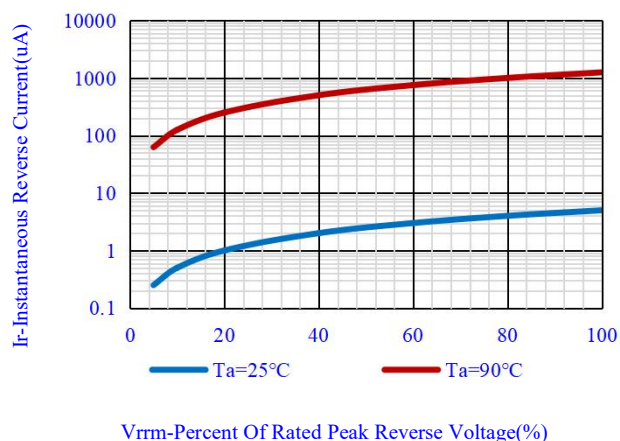


Fig.3-Typical Reverse Characteristics

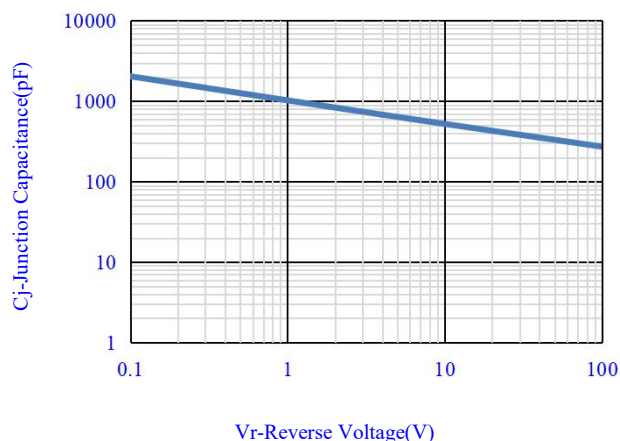


Fig.4-Typical Junction Capacitance

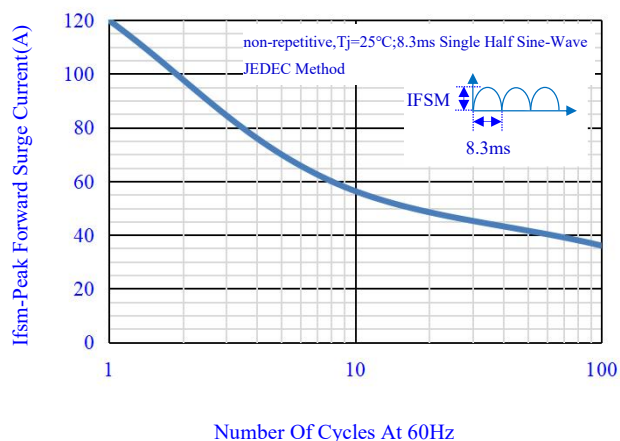


Fig.5-Max. Non-Repetitive Surge Current

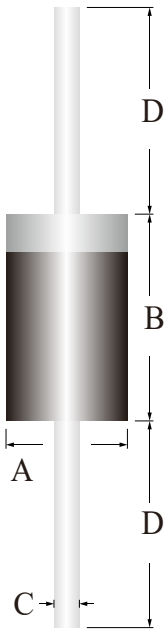
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OUTLINE DRAWINGS

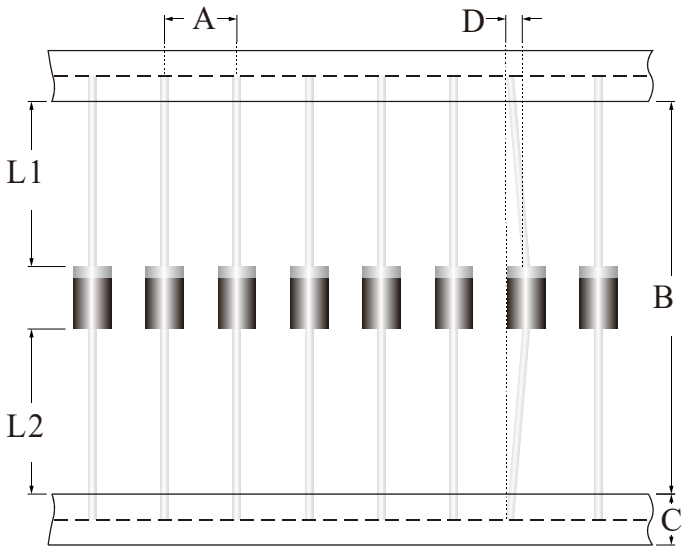
DO-27



| OUTLINE DIMENSIONS |            |      |       |        |      |        |
|--------------------|------------|------|-------|--------|------|--------|
| Dim.               | Milimeters |      |       | Inches |      |        |
|                    | Min.       | Typ. | Max.  | Min.   | Typ. | Max.   |
| A                  | 4.90       | -    | 5.60  | 0.1929 | -    | 0.2205 |
| B                  | 8.00       | -    | 10.00 | 0.3150 | -    | 0.3937 |
| C                  | 1.00       | -    | 1.40  | 0.0394 | -    | 0.0551 |
| D                  | 24.50      | -    | 26.50 | 0.9646 | -    | 1.0433 |

COMPONENT PITCH DIMENSION DIAGRAM

DO-27



| OUTLINE DIMENSIONS |            |      |       |        |      |        |
|--------------------|------------|------|-------|--------|------|--------|
| Dim.               | Milimeters |      |       | Inches |      |        |
|                    | Min.       | Typ. | Max.  | Min.   | Typ. | Max.   |
| A                  | 9.50       | -    | 10.50 | 0.3740 | -    | 0.4134 |
| B                  | 51.00      | -    | 53.00 | 2.0079 | -    | 2.0866 |
| C                  | 5.50       | -    | 6.50  | 0.2165 | -    | 0.2559 |
| D                  | -          | -    | 1.20  | -      | -    | 0.0472 |
| [L2-L1]            | -          | -    | 1.00  | -      | -    | 0.0394 |

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MARKING



MARKING INSTRUCTION

NH=Niuhang Trademark  
FF=Product Line Code,According To Actual Changes  
DDK=Inernal Code,According To Actual Changes  
SR580SL=Model  
White band denotes cathode

PACKING INFORMATION

| Package Type | Package Code | Product Weight<br>Approx(g/Pcs) | Package Method | Quantity<br>(Pcs/Min. Pack.) | Quantity<br>(Pcs/Inner Box) | Quantity<br>(Pcs/Carton) |
|--------------|--------------|---------------------------------|----------------|------------------------------|-----------------------------|--------------------------|
| DO-27        | P1           | 1                               | Tape           | 1250                         | 1250                        | 12500                    |

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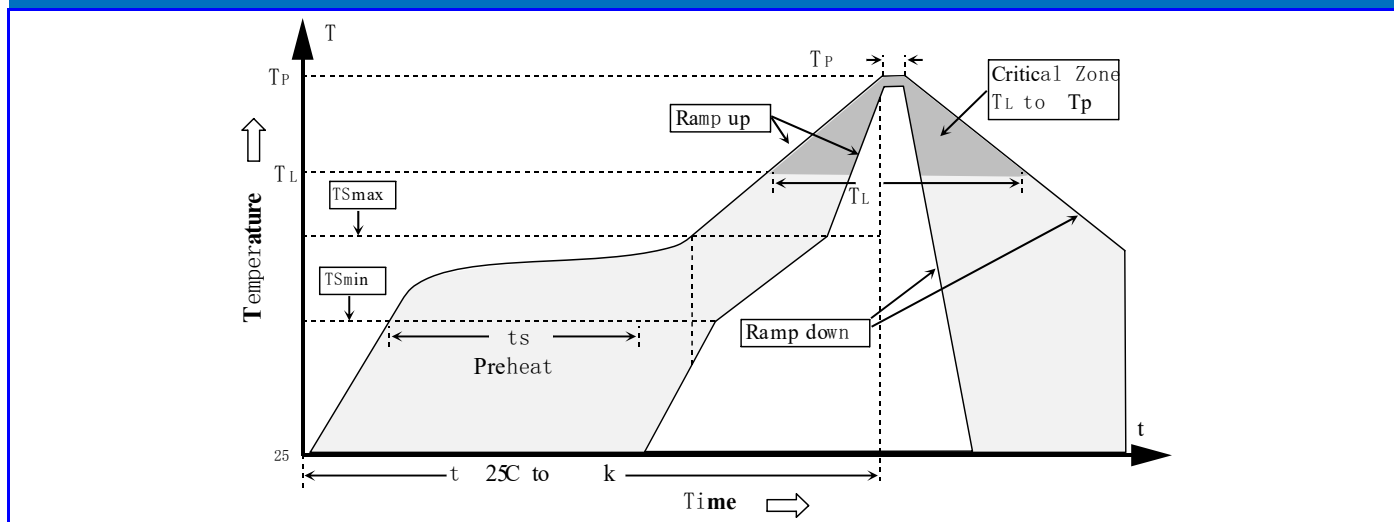
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**Recommended wave soldering condition**

| 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>(T <sub>smax</sub> to T <sub>p</sub> )                             | 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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