$V_{RM} = 200 \text{ V}, \quad I_{F(AV)} = 3.0 \text{ A}, \quad t_{rr} = 50 \text{ ns}$

Fast Recovery Diode

**SJPL-L2**

### Description

The SJPL-L2 is a fast recovery diode of 200 V / 3.0 A. The maximum $t_{rr}$ of 50 ns is realized by optimizing a life-time control.

### Features

- $V_{RM}$: 200 V
- $I_{F(AV)}$: 3.0 A
- $V_F$: 0.98 V
- $t_{rr}$: 50 ns
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Suitable for High Reliability and Automotive Requirement.

### 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

SJPL

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http://www.sanken-ele.co.jp/en
### Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25 \, ^\circ\text{C}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Repetitive Reverse Voltage</td>
<td>$V_{RSM}$</td>
<td>200</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Repetitive Reverse Voltage</td>
<td>$V_{RM}$</td>
<td>200</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Average Forward Current</td>
<td>$I_{F(AV)}$</td>
<td>3.0</td>
<td>A</td>
<td>See Figure 1 and Figure 2</td>
</tr>
<tr>
<td>Surge Forward Current</td>
<td>$I_{FSM}$</td>
<td>60</td>
<td>A</td>
<td>Half cycle sine wave, positive side, 10 ms, 1 shot</td>
</tr>
<tr>
<td>$I^t$ Limiting Value</td>
<td>$I^t$</td>
<td>18</td>
<td>A$^2$s</td>
<td>$1 , \text{ms} \leq t \leq 10 , \text{ms}$</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>-40 to 150</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>-40 to 150</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical Characteristics

Unless otherwise specified, $T_A = 25 \, ^\circ\text{C}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Voltage Drop</td>
<td>$V_F$</td>
<td>$T_J = 25 , ^\circ\text{C}, I_F = 3.0 , \text{A}$</td>
<td>—</td>
<td>—</td>
<td>0.98</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$T_J = 100 , ^\circ\text{C}, I_F = 3.0 , \text{A}$</td>
<td>—</td>
<td>0.74</td>
<td>—</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Leakage Current</td>
<td>$I_R$</td>
<td>$V_R = V_{RM}$</td>
<td>—</td>
<td>—</td>
<td>50</td>
<td>µA</td>
</tr>
<tr>
<td>Reverse Leakage Current Under High Temperature</td>
<td>$I_{HR}$</td>
<td>$V_R = V_{RM}, T_J = 150 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>300</td>
<td>µA</td>
</tr>
<tr>
<td>Reverse Recovery Time</td>
<td>$i_{tr1}$</td>
<td>$I_F = I_{RP} = 100 , \text{mA}$, 90% recovery point, $T_J = 25 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>50</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$i_{tr2}$</td>
<td>$I_F = 100 , \text{mA}$, $I_{RP} = 200 , \text{mA}$, 75% recovery point, $T_J = 25 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>35</td>
<td>ns</td>
</tr>
<tr>
<td>Thermal Resistance$^{(1)}$</td>
<td>$R_{th(J-L)}$</td>
<td>—</td>
<td>—</td>
<td>20</td>
<td>°C/W</td>
<td></td>
</tr>
</tbody>
</table>

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

Figure 1. $T_C$ vs. $I_{F(AV)}$ Typical Characteristics ($V_R = 0 \text{ V}$)

Figure 2. $T_C$ vs. $I_{F(AV)}$ Typical Characteristics ($V_R = 200 \text{ V}$)

Figure 3. $V_F$ vs. $I_F$ Typical Characteristics

Figure 4. $V_R$ vs. $I_R$ Typical Characteristics
Physical Dimensions

- SJP Package

NOTES:
- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, be sure 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
- MSL: JEDEC LEVEL1

- SJP Land Pattern Example

NOTE:
- Dimensions in millimeters
SJPL-L2

Marking Diagram

- 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)
  - DD is the day of the month (01 to 31)

- Cathode Mark

- Specific Device Code (See Table 1)

Table 1. Specific Device Code

<table>
<thead>
<tr>
<th>Specific Device Code</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL2</td>
<td>SJPL-L2</td>
</tr>
</tbody>
</table>

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