

$V_{RM} = 400\text{ V}$, $I_{F(AV)} = 3.0\text{ A}$, $t_{rr} = 50\text{ ns}$

Fast Recovery Diode

SJPL-L4

Sanken

Data Sheet

Description

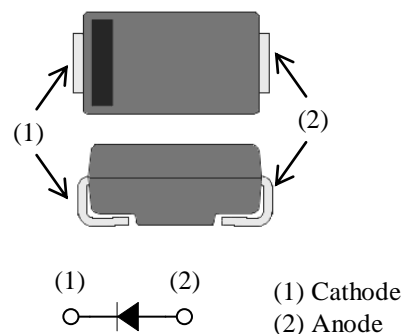
The SJPL-L4 is a fast recovery diode of 400 V / 3.0 A. The maximum t_{rr} of 50 ns is realized by optimizing a life-time control.

Package

SJP

Features

- V_{RM} ----- 400 V
- $I_{F(AV)}$ ----- 3.0 A
- V_F ----- 1.3 V
- t_{rr1} ----- 50 ns
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Suitable for High Reliability and Automotive Requirement.



Not to scale

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)

SJPL-L4

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	$I_{\text{F(AV)}}$	3.0	A	See Figure 1 and Figure 2
Surge Forward Current	I_{FSM}	30	A	Half cycle sine wave, positive side, 10 ms, 1 shot
I^2t Limiting Value	I^2t	4.5	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	$T_J = 25\text{ }^{\circ}\text{C}$, $I_F = 3.0\text{ A}$	—	—	1.3	V
		$T_J = 100\text{ }^{\circ}\text{C}$, $I_F = 3.0\text{ A}$	—	0.98	—	V
Reverse Leakage Current	I_R	$V_R = V_{\text{RM}}$	—	—	50	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{\text{RM}}$, $T_J = 150\text{ }^{\circ}\text{C}$	—	—	100	μA
Reverse Recovery Time	t_{rr1}	$I_F = I_{\text{RP}} = 100\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	50	ns
	t_{rr2}	$I_F = 100\text{ mA}$, $I_{\text{RP}} = 200\text{ mA}$, 75% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	35	ns
Thermal Resistance ⁽¹⁾	$R_{\text{th(J-L)}}$		—	—	20	$^{\circ}\text{C/W}$

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

Rating and Characteristic Curves

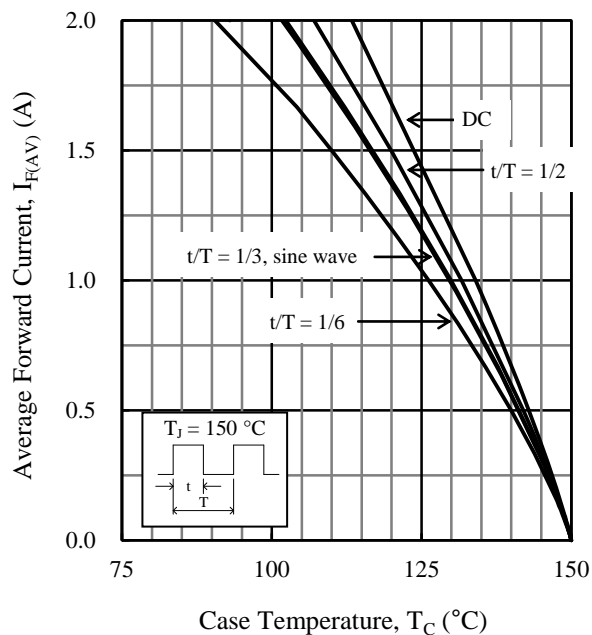


Figure 1. T_C vs. $I_{F(AV)}$ Typical Characteristics
($V_R = 0$ V)

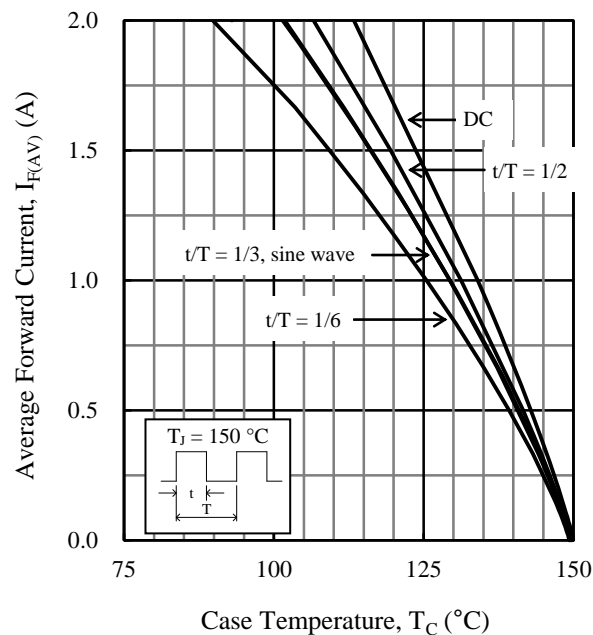


Figure 2. T_C vs. $I_{F(AV)}$ Typical Characteristics
($V_R = 400$ V)

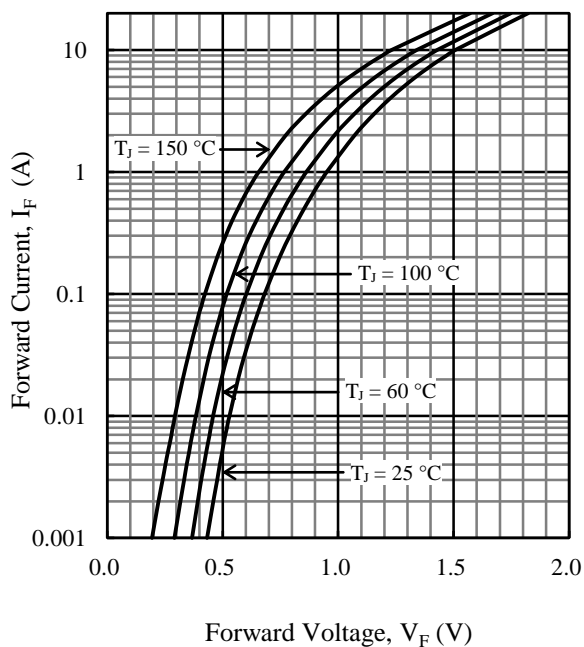


Figure 3. V_F vs. I_F Typical Characteristics

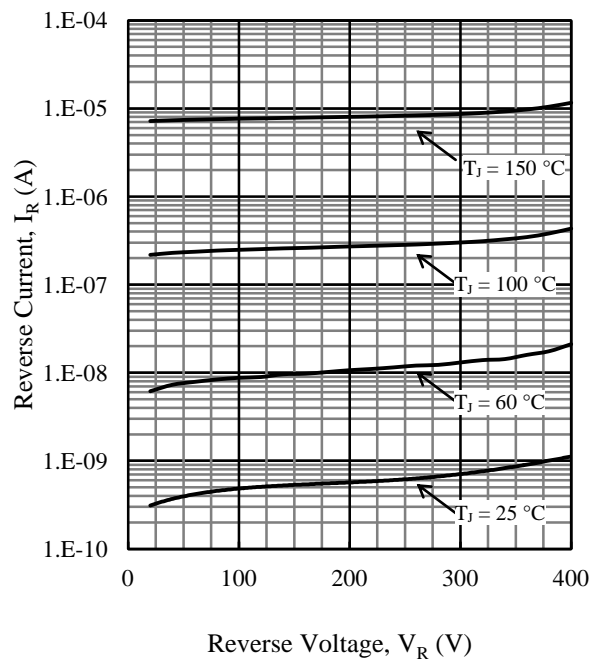
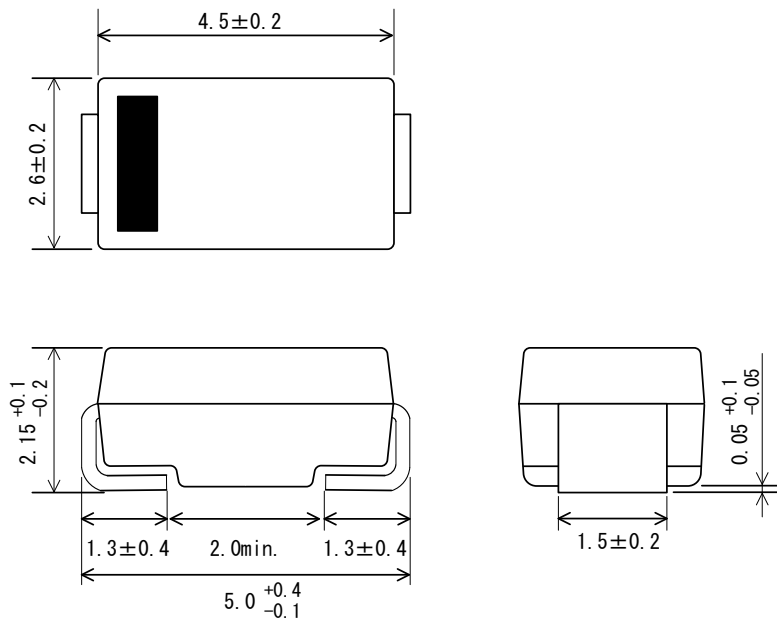


Figure 4. V_R vs. I_R Typical Characteristics

SJPL-L4

Physical Dimensions

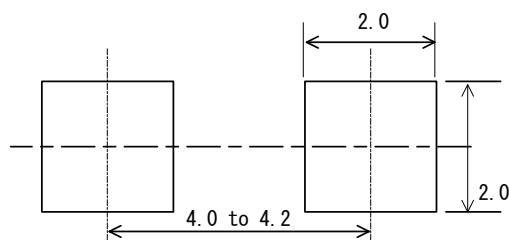
• SJP Package



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

Marking Diagram

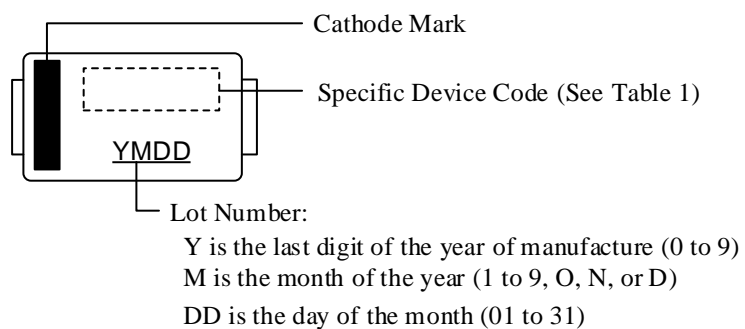


Table 1. Specific Device Code

Specific Device Code	Part Number
LL4	SJPL-L4

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