

$V_{RM} = 400\text{ V}$, $I_{F(AV)} = 1.5\text{ A}$, $t_{rr} = 50\text{ ns}$
Fast Recovery Diode
SJPL-F4

Description

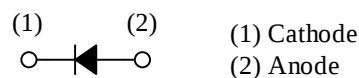
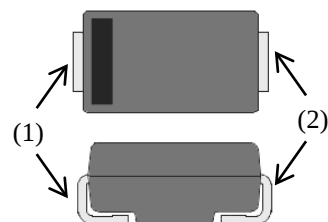
The SJPL-F4 is a fast recovery diode of 400 V / 1.5 A. The maximum t_{rr} of 50 ns is realized by optimizing a life-time control.

Features

- V_{RM} ----- 400 V
- $I_{F(AV)}$ ----- 1.5 A
- V_F ----- 1.3 V
- t_{rr1} ----- 50 ns
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0
- Suitable for High Reliability and Automotive Requirement.

Package

SJP



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 Converter, Offline Buck-boost Converter, etc.)

Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit
Nonrepetitive Peak Reverse Voltage	V_{RSM}		400	V
Repetitive Peak Reverse Voltage	V_{RM}		400	V
Average Forward Current	$I_{F(AV)}$	See Figure 1 and Figure 2	1.5	A
Surge Forward Current	I_{FSM}	Half cycle sine wave, positive side, 10 ms, 1 shot	25	A
I^2t Limiting Value	I^2t	$1\text{ ms} \leq t \leq 10\text{ ms}$	3.125	A^2s
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	$T_J = 25\text{ }^{\circ}\text{C}$, $I_F = 1.5\text{ A}$	—	—	1.3	V
		$T_J = 100\text{ }^{\circ}\text{C}$, $I_F = 1.5\text{ A}$	—	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⁾	$R_{th(J-C)}$		—	—	20	$^{\circ}\text{C/W}$

⁽¹⁾ $R_{th(J-C)}$ is thermal resistance between junction and case. Case temperature (T_C) is measured near the root of pin.

Rating and Characteristic Curves

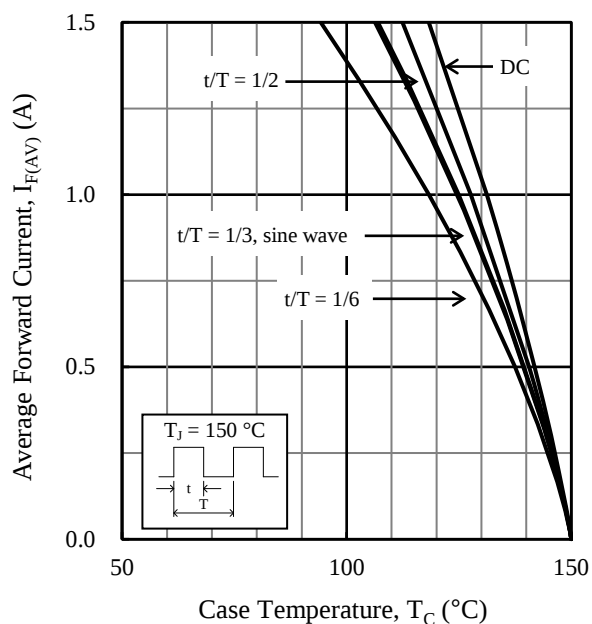


Figure 1. Typical Characteristics: $I_{F(AV)}$ vs. T_C
($V_R = 0$ V)

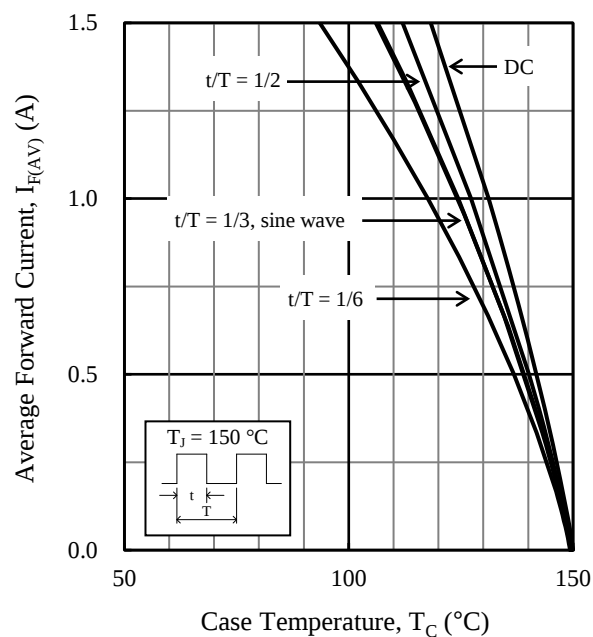


Figure 2. Typical Characteristics: $I_{F(AV)}$ vs. T_C
($V_R = 400$ V)

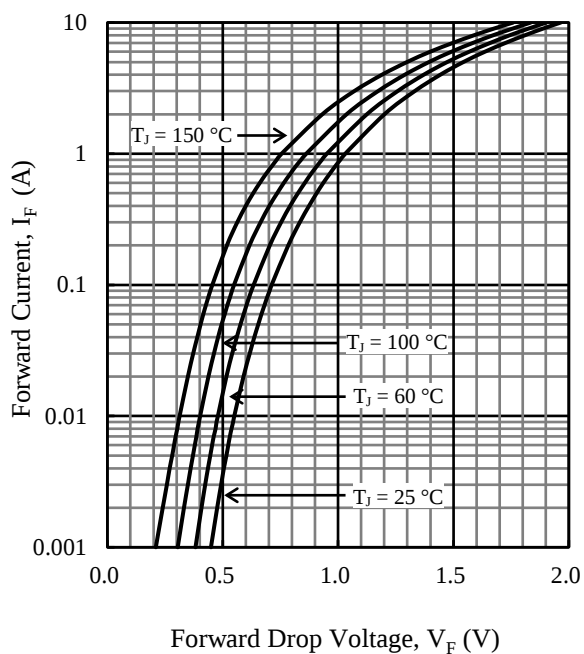


Figure 3. Typical Characteristics: I_F vs. V_F

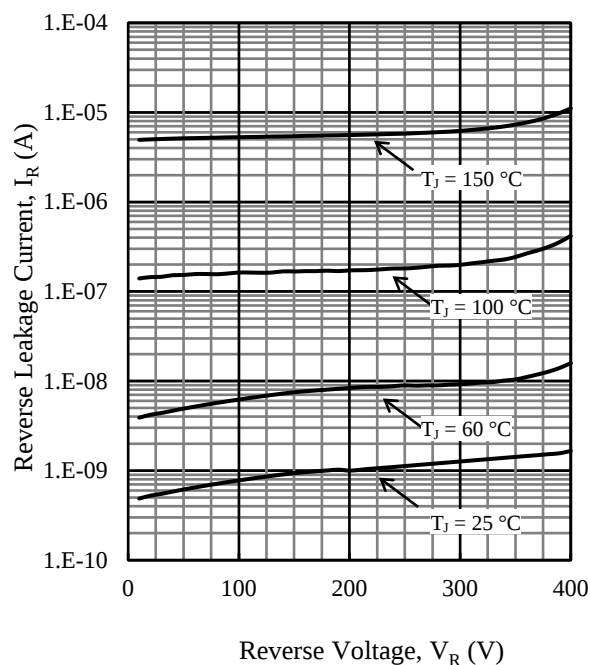
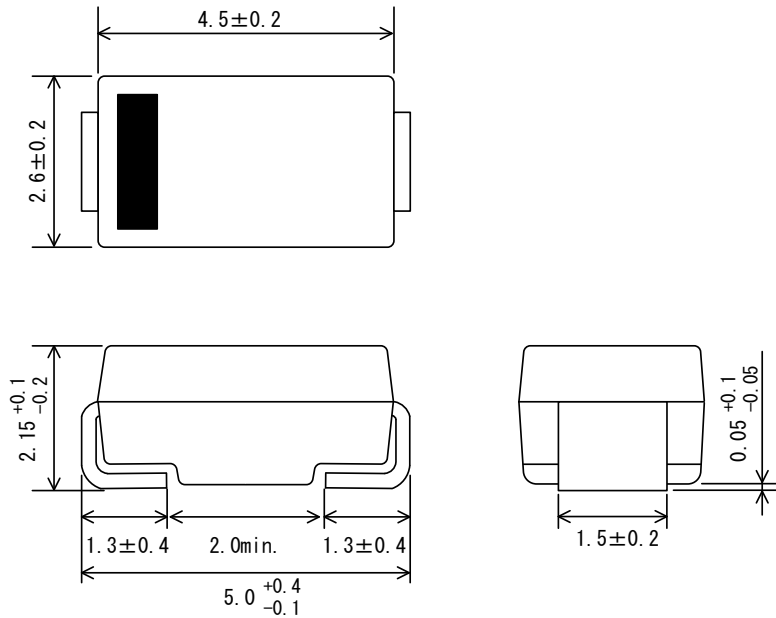


Figure 4. Typical Characteristics: I_R vs. V_R

Physical Dimensions

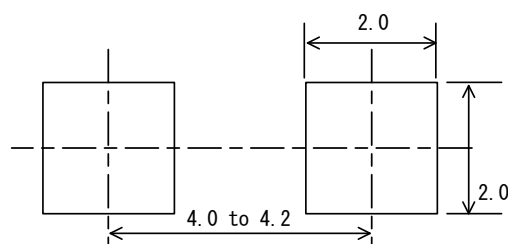
• SJP Package



NOTES:

- Dimensions in millimeters
- Bare lead frame: 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
- MSL: JEDEC LEVEL1

• SJP Land Pattern Example



NOTE:

- Dimensions in millimeters

Marking Diagram

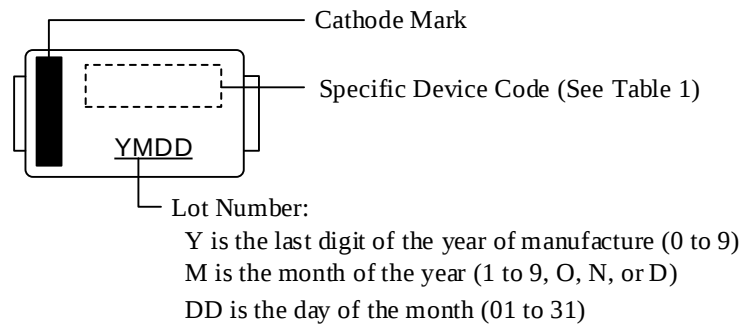


Table 1. Specific Device Code

Specific Device Code	Part Number
LF4	SJPL-F4

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