

**$V_{RM} = 600\text{ V}$ ,  $I_{F(AV)} = 2.0\text{ A}$ ,  $t_{rr} = 50\text{ ns}$**   
**Fast Recovery Diode**  
**SJPL-H6**

**Description**

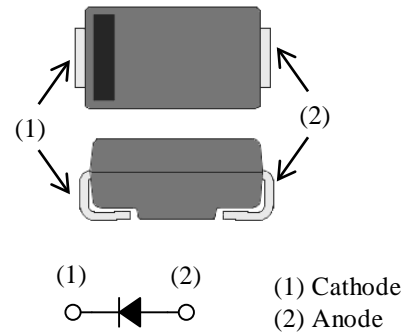
The SJPL-H6 is a fast recovery diode of 600 V / 2.0 A. The maximum  $t_{rr}$  of 50 ns is realized by optimizing a life-time control.

**Features**

- $V_{RM}$ ----- 600 V
- $I_{F(AV)}$ ----- 2.0 A
- $V_F$ ----- 1.5 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**

- 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	$V_{RSM}$		600	V
Repetitive Peak Reverse Voltage	$V_{RM}$		600	V
Average Forward Current	$I_{F(AV)}$	See Figure 1 and Figure 2	2.0	A
Surge Forward Current	$I_{FSM}$	Half cycle sine wave, positive side, 10 ms, 1 shot	30	A
$I^2t$ Limiting Value	$I^2t$	$1\text{ ms} \leq t \leq 10\text{ ms}$	4.5	$\text{A}^2\text{s}$
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	$V_F$	$T_J = 25\text{ }^{\circ}\text{C}$ , $I_F = 2.0\text{ A}$	—	—	1.5	V
		$T_J = 100\text{ }^{\circ}\text{C}$ , $I_F = 2.0\text{ A}$	—	1.1	—	V
Reverse Leakage Current	$I_R$	$V_R = V_{RM}$	—	—	50	$\mu\text{A}$
Reverse Leakage Current under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$ , $T_J = 150\text{ }^{\circ}\text{C}$	—	—	100	$\mu\text{A}$
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 <sup>(1)</sup>	$R_{th(J-C)}$		—	—	20	$^{\circ}\text{C/W}$

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

## Rating and Characteristic Curves

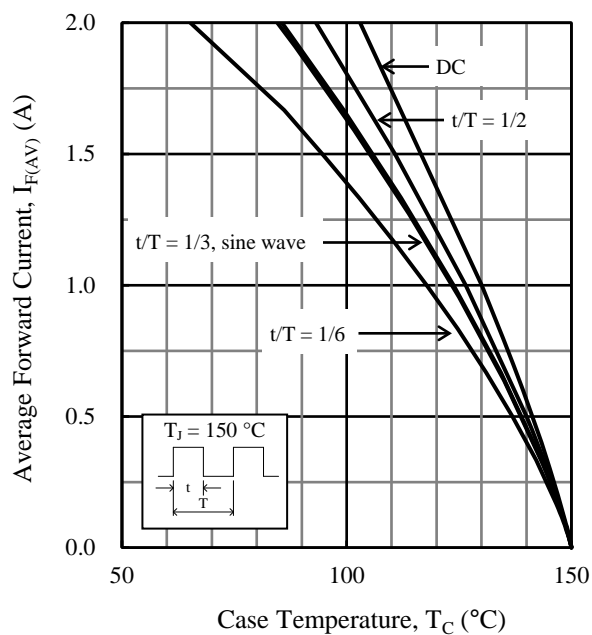


Figure 1. Typical Characteristics:  $I_{F(AV)}$  vs.  $T_C$   
( $V_R = 0$  V)

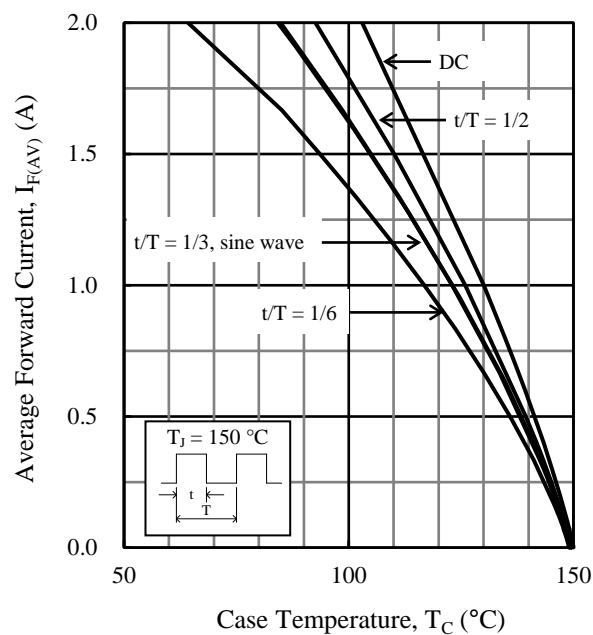


Figure 2. Typical Characteristics:  $I_{F(AV)}$  vs.  $T_C$   
( $V_R = 600$  V)

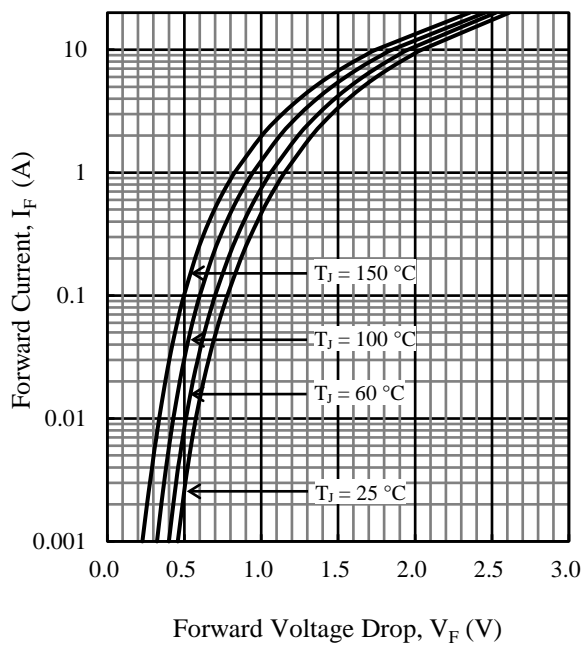


Figure 3. Typical Characteristics:  $I_F$  vs.  $V_F$

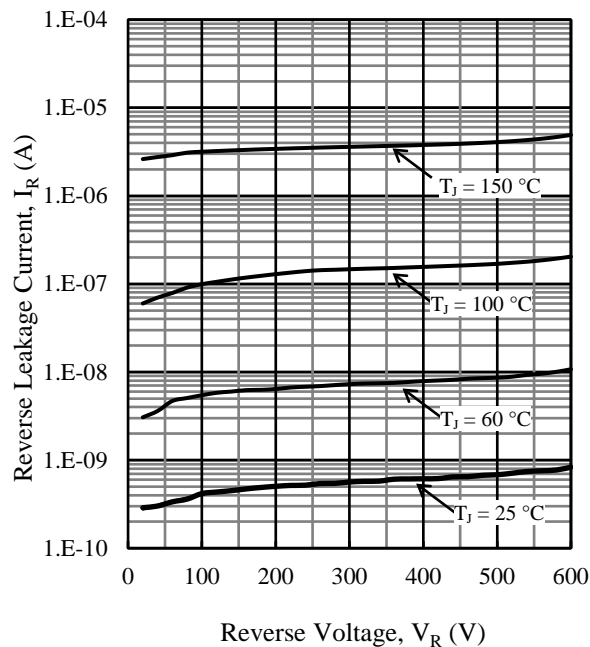
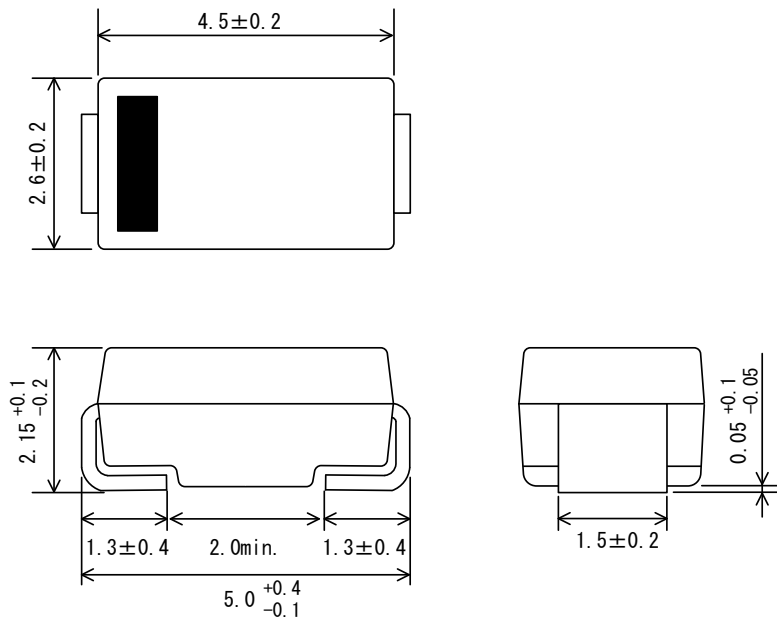


Figure 4. Typical Characteristics:  $I_R$  vs.  $V_R$

## Physical Dimensions

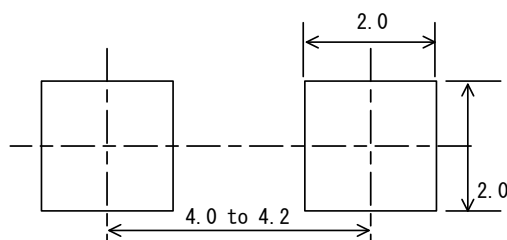
### • SJP Package



### 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

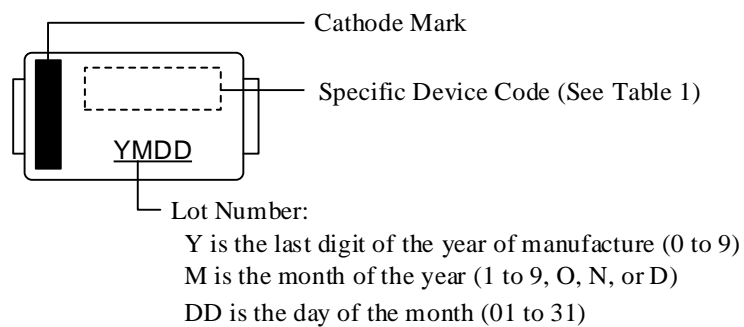
**Marking Diagram**

Table 1. Specific Device Code

Specific Device Code	Part Number
LH6	SJPL-H6

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