

**$V_{RM} = 200\text{ V}$ ,  $I_{F(AV)} = 1.0\text{ A}$ ,  $t_{rr} = 50\text{ ns}$**   
**Fast Recovery Diode**  
**SJPL-D2**

**Description**

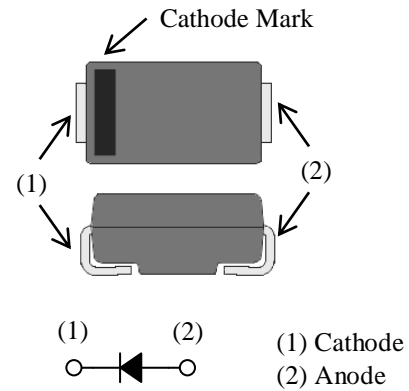
The SJPL-D2 is a fast recovery diode of 200 V / 1.0 A. The maximum  $t_{rr}$  of 50 ns is realized by optimizing a life-time control.

**Features**

- $V_{RM}$ ----- 200 V
- $I_{F(AV)}$ ----- 1.0 A
- $V_F$ -----0.98 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	$V_{RSM}$		200	V
Repetitive Peak Reverse Voltage	$V_{RM}$		200	V
Average Forward Current	$I_{F(AV)}$	See Figure 2 and Figure 3	1.0	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	$\text{A}^2\text{s}$
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	$V_F$	$T_J = 25\text{ }^\circ\text{C}$ , $I_F = 1.0\text{ A}$	—	—	0.98	V
		$T_J = 100\text{ }^\circ\text{C}$ , $I_F = 1.0\text{ A}$	—	0.75	—	V
Reverse Leakage Current	$I_R$	$V_R = V_{RM}$	—	—	25	$\mu\text{A}$
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>	$R_{th(J-L)}$		—	—	20	$^\circ\text{C/W}$

**Mechanical Characteristics**

Parameter	Conditions	Min.	Typ.	Max.	Unit
Package Weight		—	0.072	—	g

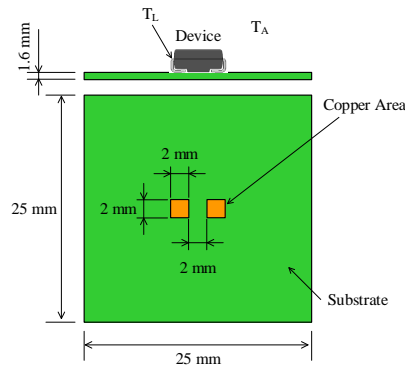


Figure 1. Lead Temperature Measurement Conditions

<sup>(1)</sup>  $R_{th(J-L)}$  is thermal resistance between junction and lead. Lead temperature ( $T_L$ ) is measured near the root of pin (see Figure 1).

Derating Curves

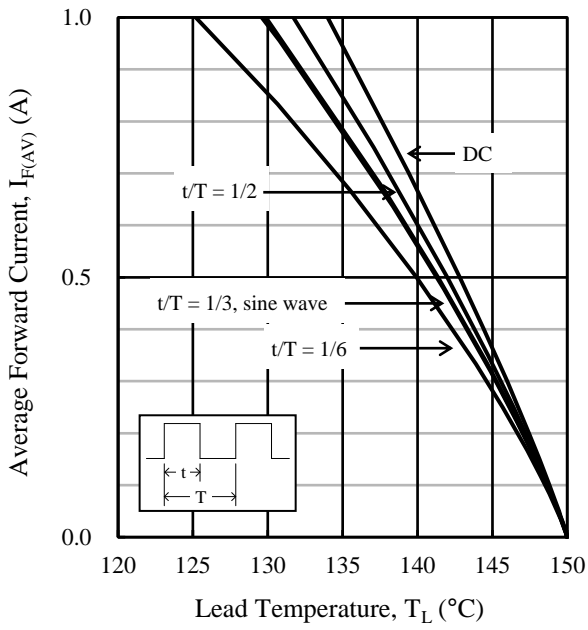


Figure 2.  $I_{F(AV)}$  vs.  $T_L$  ( $T_J = 150$  °C,  $V_R = 0$  V)

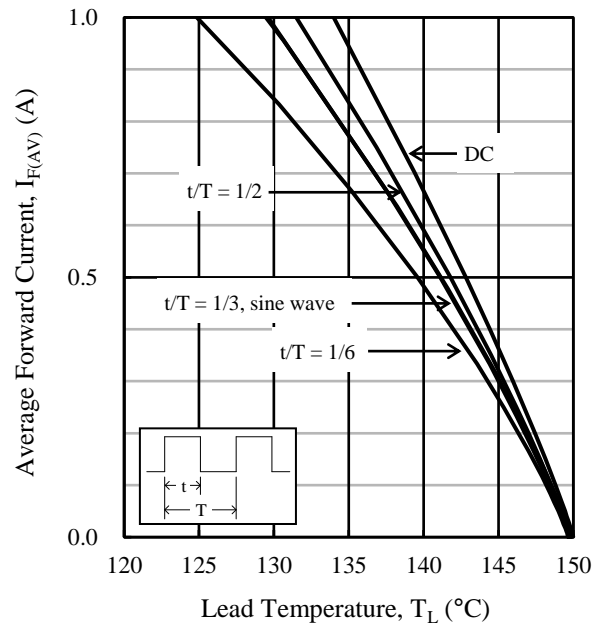


Figure 3.  $I_{F(AV)}$  vs.  $T_L$  ( $T_J = 150$  °C,  $V_R = 200$  V)

Characteristic Curves

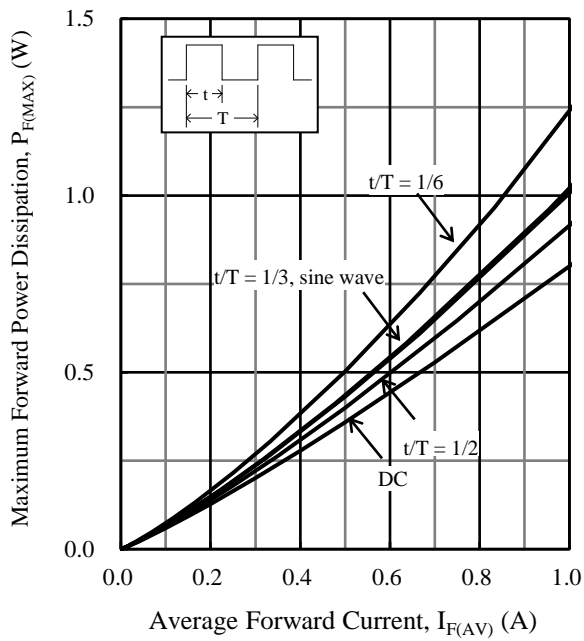


Figure 4.  $P_{F(MAX)}$  vs.  $I_{F(AV)}$  ( $T_J = 150\text{ }^\circ\text{C}$ )

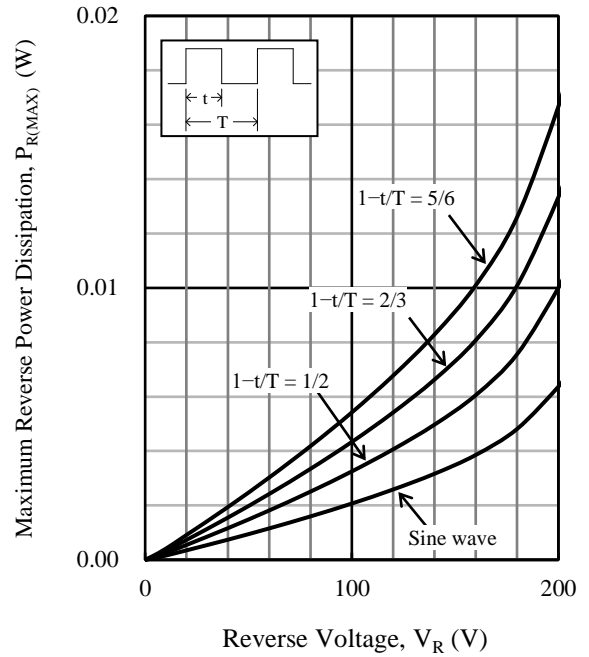


Figure 5.  $P_{R(MAX)}$  vs.  $V_R$  ( $T_J = 150\text{ }^\circ\text{C}$ )

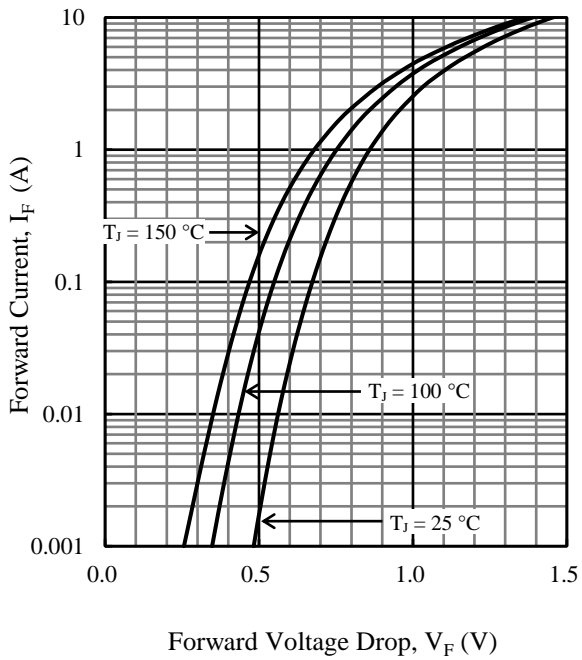


Figure 6. Typical Characteristics:  $I_F$  vs.  $V_F$

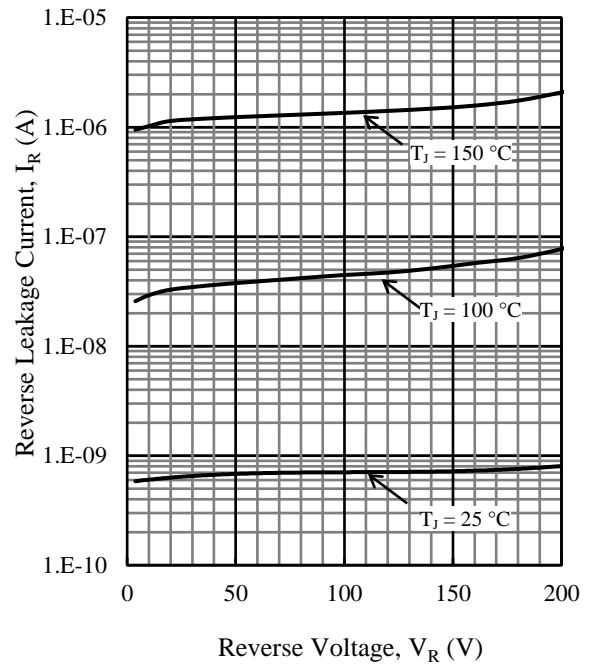


Figure 7. Typical Characteristics:  $I_R$  vs.  $V_R$

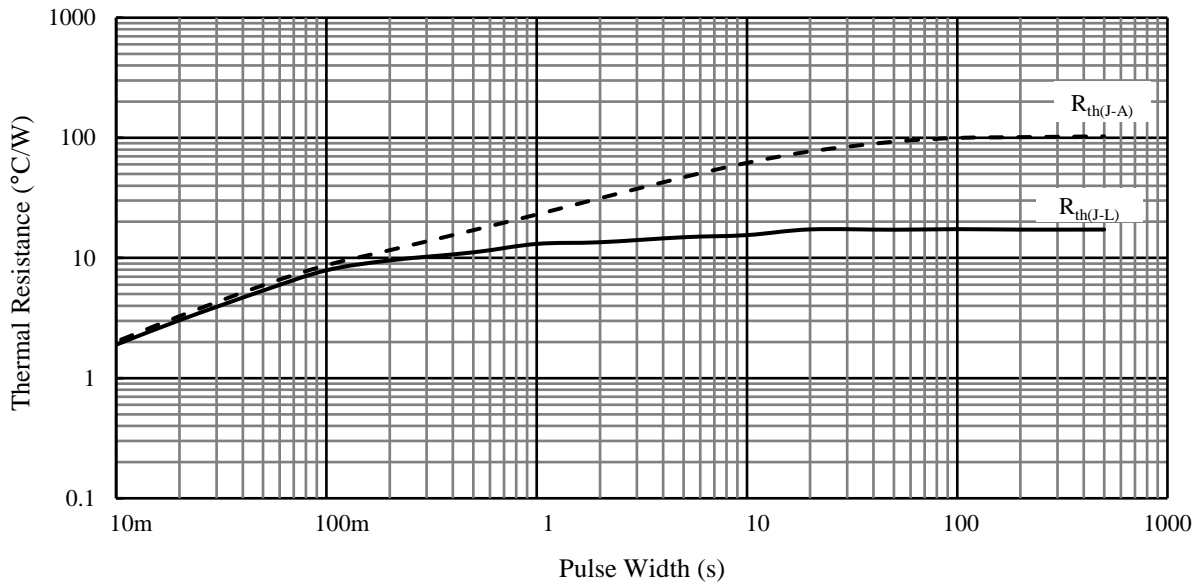
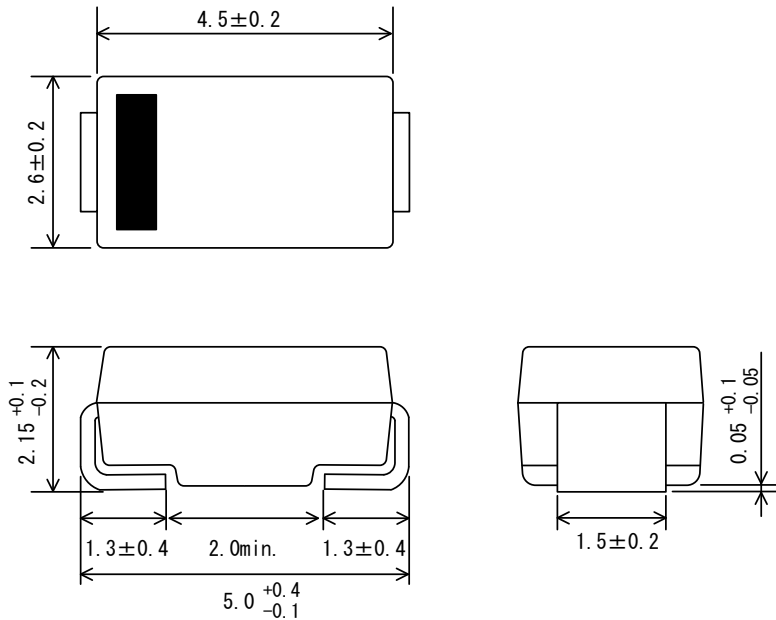


Figure 8. Typical Transient Thermal Resistance Characteristics

## SJPL-D2

### Physical Dimensions

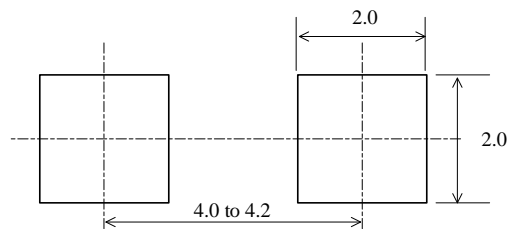
#### • SJP Package



#### NOTES:

- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- Moisture Sensitivity Level 1 (MSL 1)
- When soldering the products, it is required to minimize the working time within the following limits:
  - Flow:  $260\text{ }^{\circ}\text{C}$  / 10 s, 1 time
  - Reflow:
    - Preheat:  $150\text{ }^{\circ}\text{C}$  to  $200\text{ }^{\circ}\text{C}$  / 60 s to 120 s
    - Solder heating:  $255\text{ }^{\circ}\text{C}$  / 30s, 3 times ( $260\text{ }^{\circ}\text{C}$  peak)
    - Soldering Iron:  $350\text{ }^{\circ}\text{C}$  / 3.5 s, 1 time

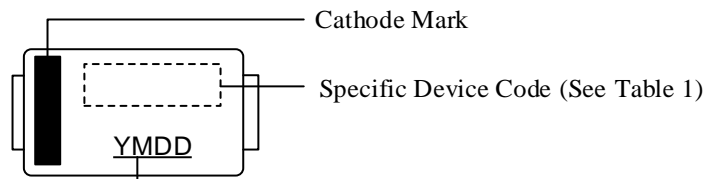
#### • SJP Land Pattern Example



#### NOTE:

- Dimensions in millimeters

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)

Table 1. Specific Device Code

Specific Device Code	Part Number
LD2	SJPL-D2

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DSGN-AEZ-16003