

$V_{RSM} = 40\text{ V}$, $I_{F(AV)} = 1.0\text{ A}$
Schottky Diode
SJPB-D4

Description

The SJPB-D4 is a 40 V, 1.0 A Schottky diode with allowing improvements in V_F and I_R characteristics. These characteristic features contribute to improving power supply efficiency and to enabling high-frequency systems.

Features

- V_{RSM} ----- 40 V
- $I_{F(AV)}$ ----- 1.0 A
- V_F ($I_F = 1.0\text{ A}$) ----- 0.50 V typ.
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0
- Suitable for High Reliability and Automotive Requirement.

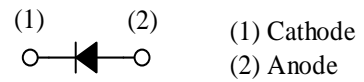
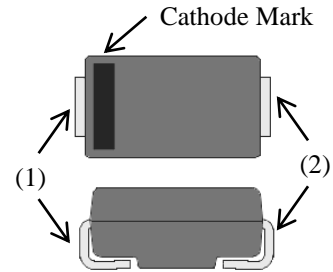
Applications

High speed switching applications as follows:

- DC-DC Converter
- Adapter

Package

SJP



Not to scale

Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit
Nonrepetitive Peak Reverse Voltage	V_{RSM}		40	V
Repetitive Peak Reverse Voltage	V_{RM}		40	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	30	A
I^2t Limiting Value	I^2t	$1\text{ ms} \leq t \leq 10\text{ms}$	4.5	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	$I_F = 1.0\text{ A}$	—	0.50	0.55	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	100	μA
Reverse Leakage Current under High Temperature	$H \cdot I_R$	$V_R = V_{RM}, T_J = 150\text{ }^\circ\text{C}$	—	—	35	mA
Thermal Resistance ⁽¹⁾	$R_{th(J-L)}$		—	—	20	$^\circ\text{C/W}$

Mechanical Characteristics

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

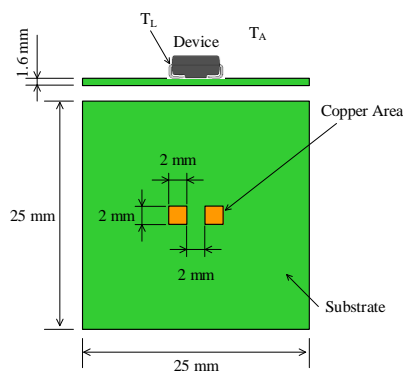


Figure 1. Lead Temperature Measurement Conditions

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

Derating Curves

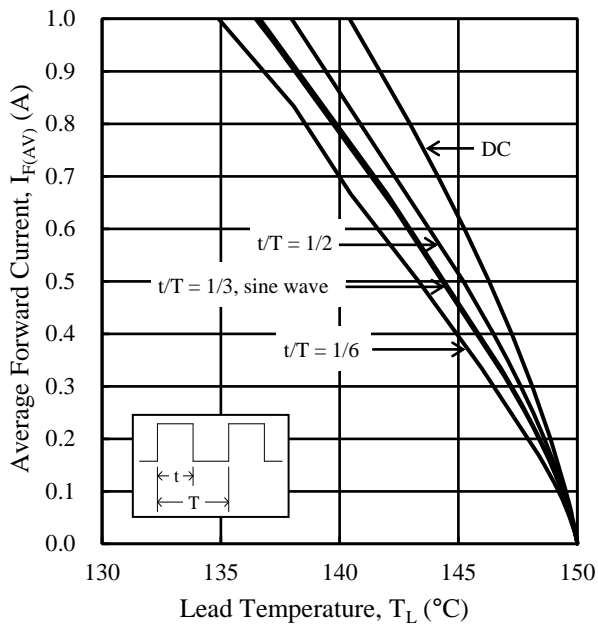


Figure 2. $I_{F(AV)}$ vs. T_L ($T_J = 150$ °C, $V_R = 0$ V)

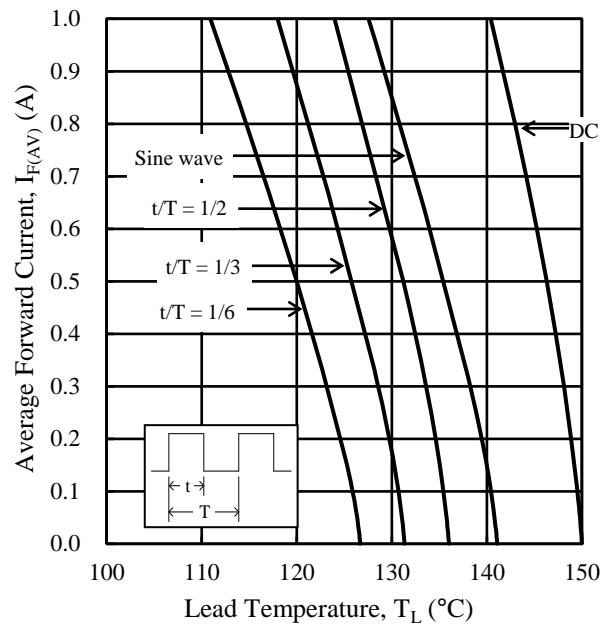


Figure 3. $I_{F(AV)}$ vs. T_L ($T_J = 150$ °C, $V_R = 40$ V)

Characteristic Curves

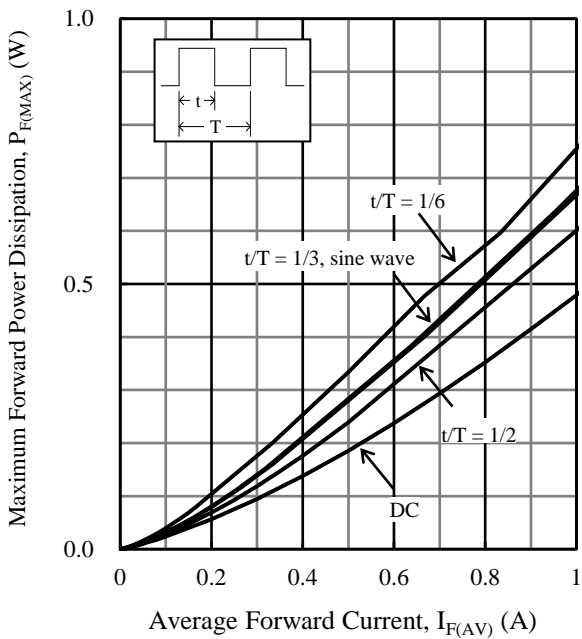


Figure 4. $P_{F(MAX)}$ vs. $I_{F(AV)}$ ($T_J = 150\text{ }^\circ\text{C}$)

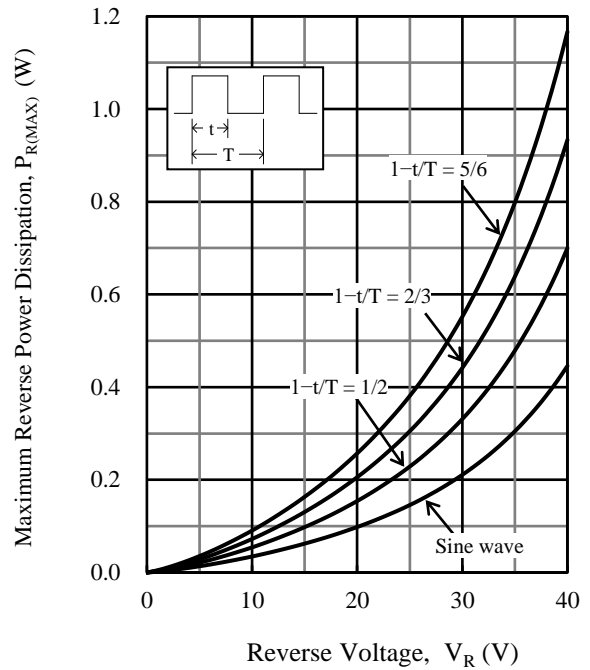


Figure 5. $P_{R(MAX)}$ vs. V_R ($T_J = 150\text{ }^\circ\text{C}$)

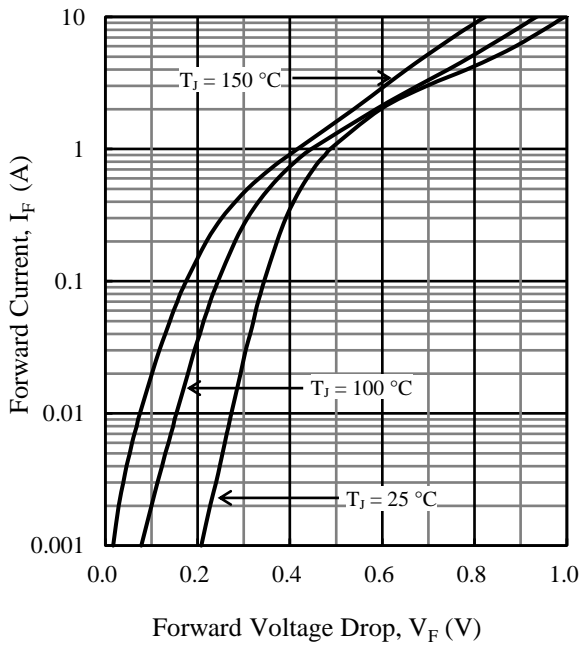


Figure 6. Typical Characteristics: I_F vs. V_F

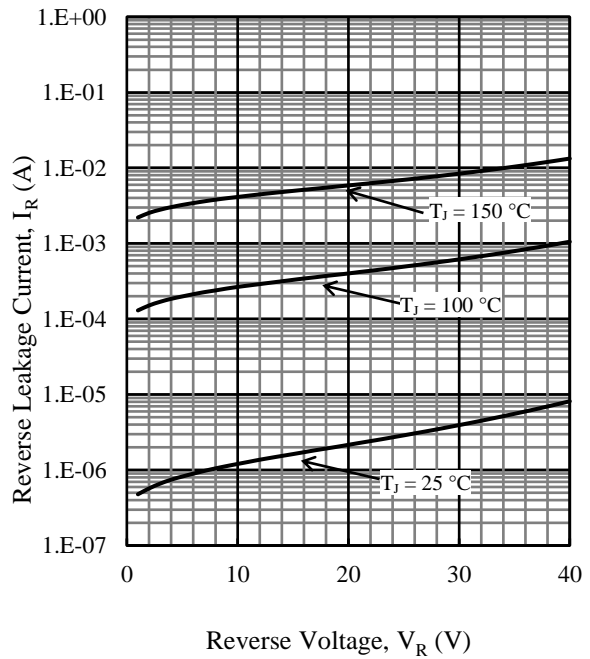


Figure 7. Typical Characteristics: I_R vs. V_R

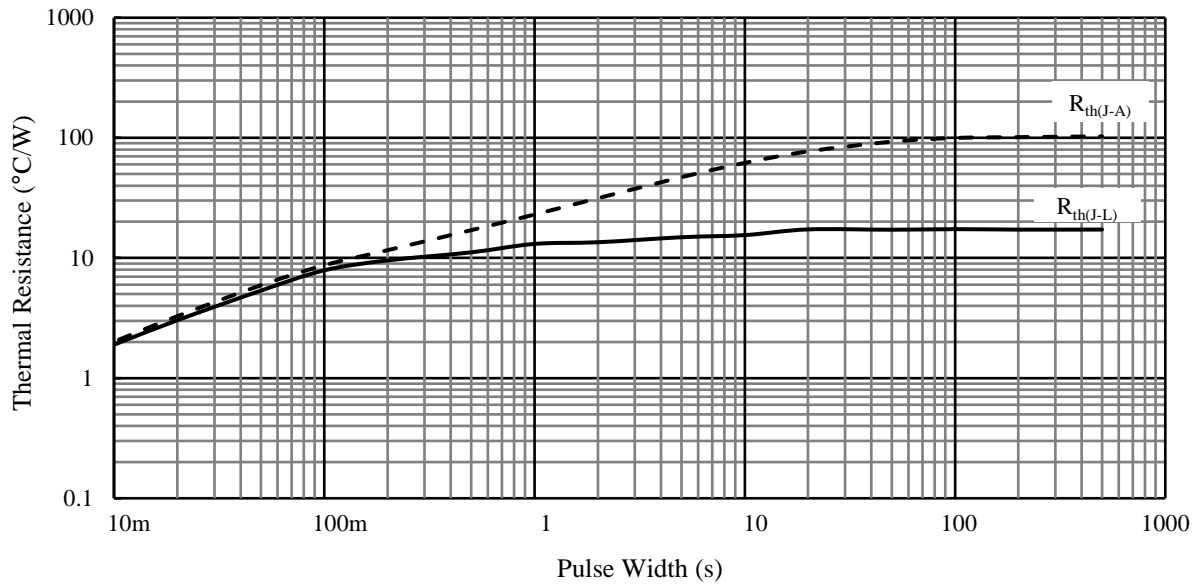
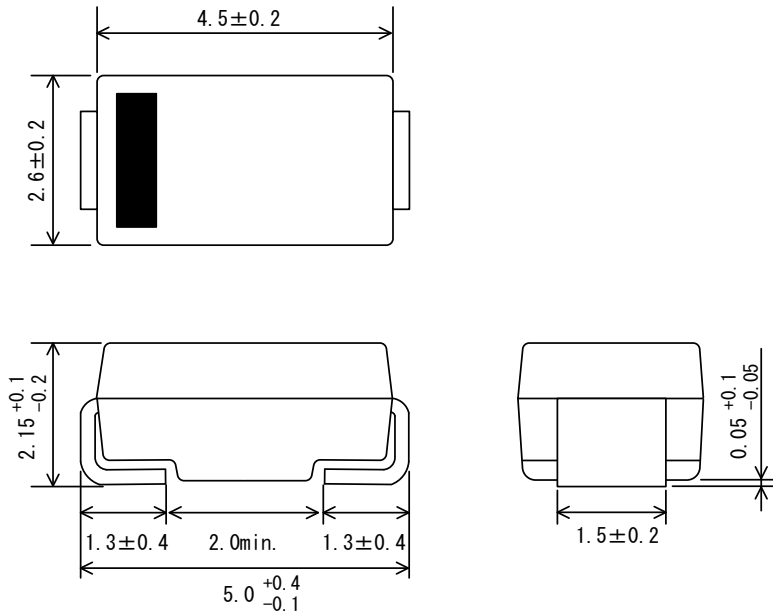


Figure 8. Typical Transient Thermal Resistance Characteristics

SJPB-D4

Physical Dimensions

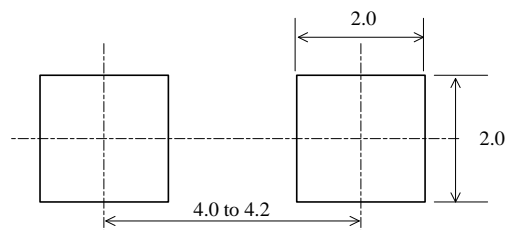
• SJP Package



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: $260\text{ }^{\circ}\text{C} / 10\text{ s}$, 1 time
 - Reflow:
 - Preheat: $150\text{ }^{\circ}\text{C}$ to $200\text{ }^{\circ}\text{C} / 60\text{ s}$ to 120 s
 - Solder heating: $255\text{ }^{\circ}\text{C} / 30\text{ s}$, 3 times ($260\text{ }^{\circ}\text{C}$ peak)
 - Soldering Iron: $350\text{ }^{\circ}\text{C} / 3.5\text{ s}$, 1 time

• SJP Land Pattern Example



NOTE:

- Dimensions in millimeters

Marking Diagram

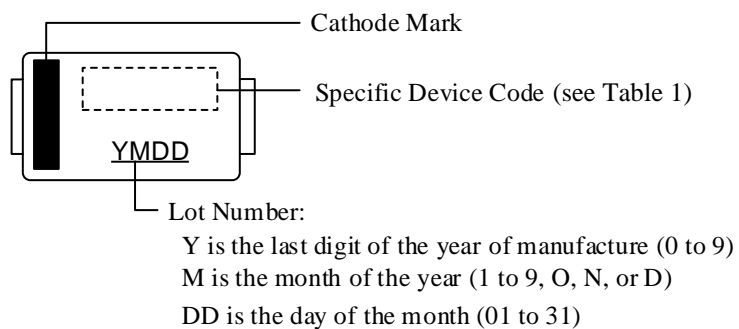


Table 1. Specific Device Code

Specific Device Code	Part Number
BD4	SJPB-D4

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