

$V_{RM} = 1\text{ kV to }4\text{ kV}$
High Voltage Rectifier Diode
SHV-02JN, SHV-05J, SHV-06JN

Description

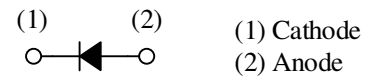
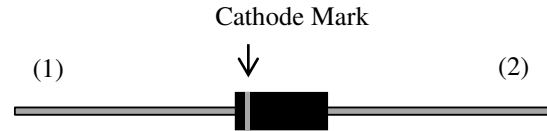
The SHV-02JN, SHV-05J, and SHV-06JN are high voltage rectifier diodes for the ignition coil of automotive electronics unit, and have high surge capability.

Features

- $T_J = 175\text{ }^\circ\text{C}$ Capability
- Suitable for High Reliability and Automotive Requirement
- High Surge Capability
- Flammability: Equivalent to UL94V-0
- Bare Leads: Pb-free (RoHS Compliant)

Package

Axial

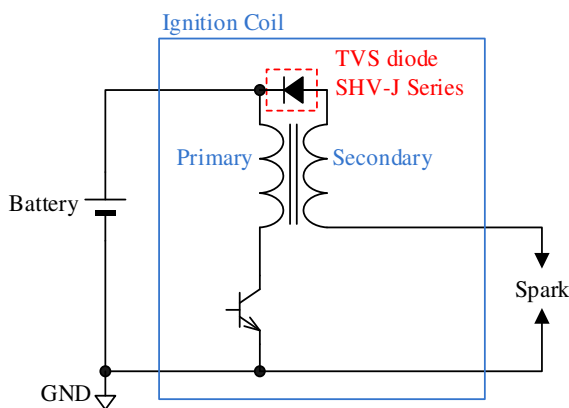


(1) Cathode
 (2) Anode

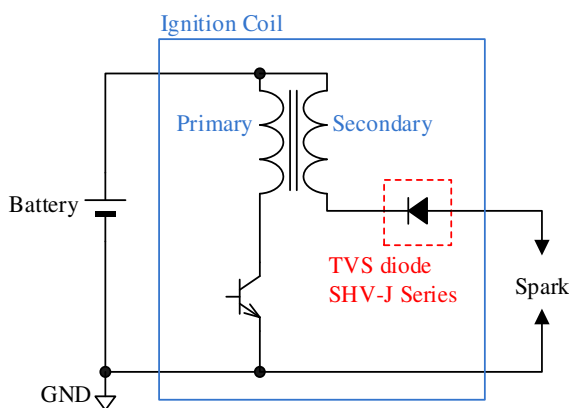
Not to scale

Typical Application

- Typical Application 1



- Typical Application 2



Selection Guide

- Characteristics

Product	$V_{RM} \text{ (max.)}$	I_{RSM}	Typical Application
SHV-02JN	1 kV	30 mA	1
SHV-05J	2.5 kV		1 and 2
SHV-06JN	3 kV		2

- Package

Product	Body Diameter (mm)	Body Length (mm)	Lead Width (mm)
SHV-05J	$\phi 2.5$	5.0	$\phi 0.5$
SHV-02JN	$\phi 2.5$	6.5	$\phi 0.5$
SHV-06JN			

Application

- Ignition coil of automotive electronics unit

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SHV-02JN, SHV-05J, SHV-06JN

Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit	Remarks
Repetitive Peak Reverse Voltage	V_{RM}	—	1	kV	SHV-02JN
			2.5		SHV-05J
			3		SHV-06JN
Peak Pulse Reverse Current	I_{RSM}	See Figure 1, single pulse	30	mA	
Average Forward Current	$I_{F(AV)}$	—	30	mA	
Surge Forward Current	I_{FSM}	Half cycle sine wave, positive side, 10 ms, 1 shot	3	A	
Junction Temperature	T_J	—	-40 to 175	$^\circ\text{C}$	
Storage Temperature	T_{STG}	—	-40 to 175	$^\circ\text{C}$	

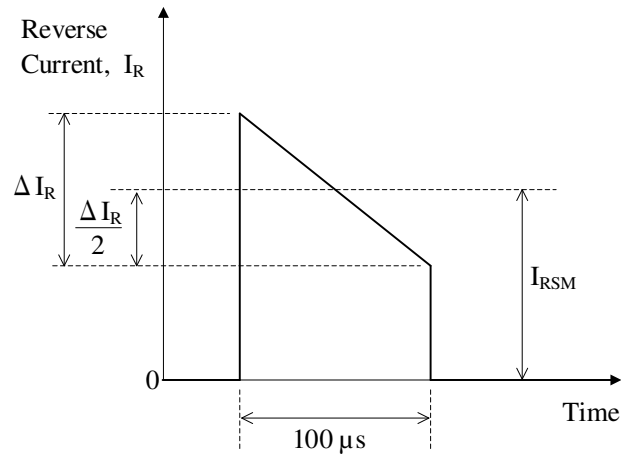


Figure 1. Definition of Peak Pulse Reverse Current, I_{RSM}

SHV-02JN, SHV-05J, SHV-06JN

Electrical Characteristics

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	Remarks
Forward Voltage Drop	V_F	$I_F = 10\text{ mA}$	—	—	2	V	SHV-02JN
			—	—	5		SHV-05J
			—	—	6		SHV-06JN
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	10	μA	
Breakdown Voltage	V_Z	$I_Z = 100\text{ }\mu\text{A}$	1.1	—	2	V	SHV-02JN
			2.6	—	5		SHV-05J
			3.2	—	6		SHV-06JN

Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit	Remarks
Package Weight	—	—	0.16	—	g	SHV-05J
		—	0.17	—	g	SHV-02JN SHV-06JN

SHV-02JN Characteristic Curves

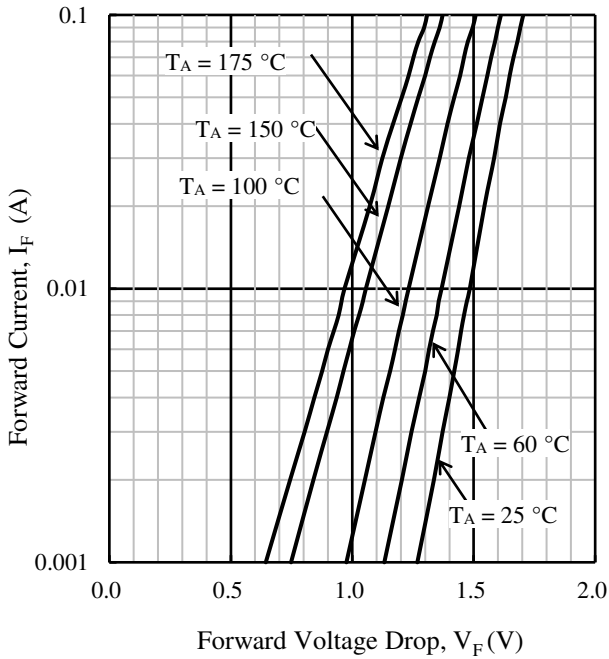


Figure 2. I_F vs. V_F Typical Characteristics

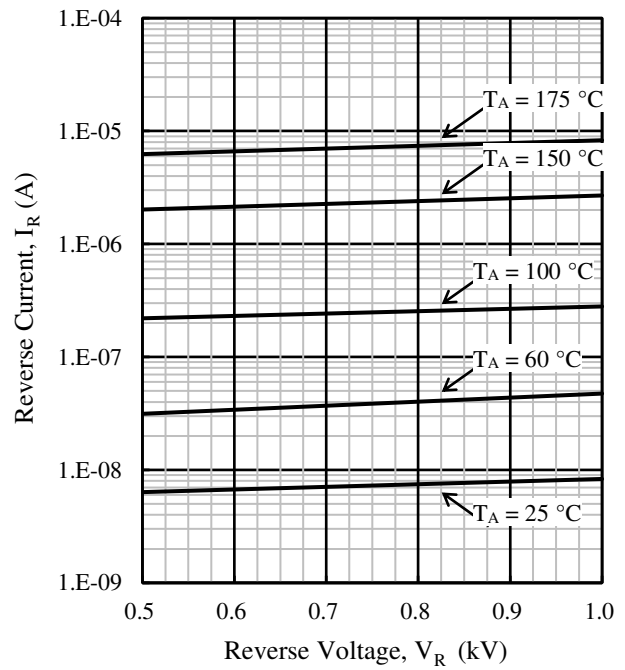


Figure 3. I_R vs. V_R Typical Characteristics

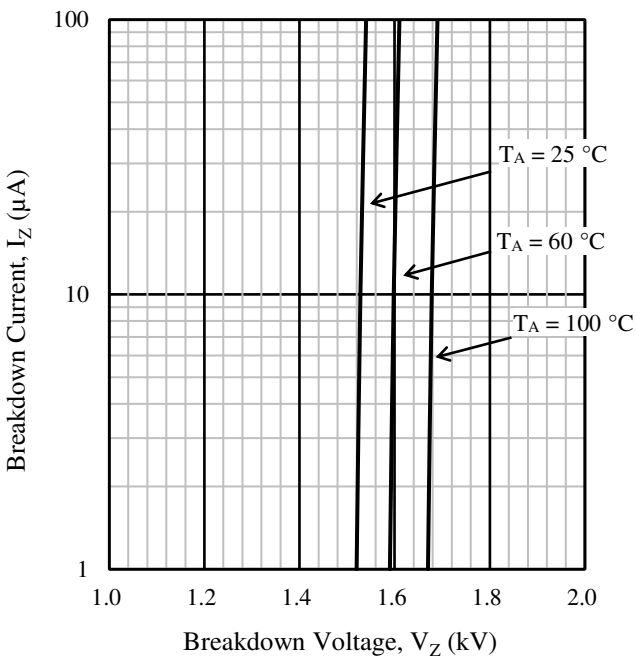


Figure 4. I_Z vs. V_Z ($t = 5$ s)

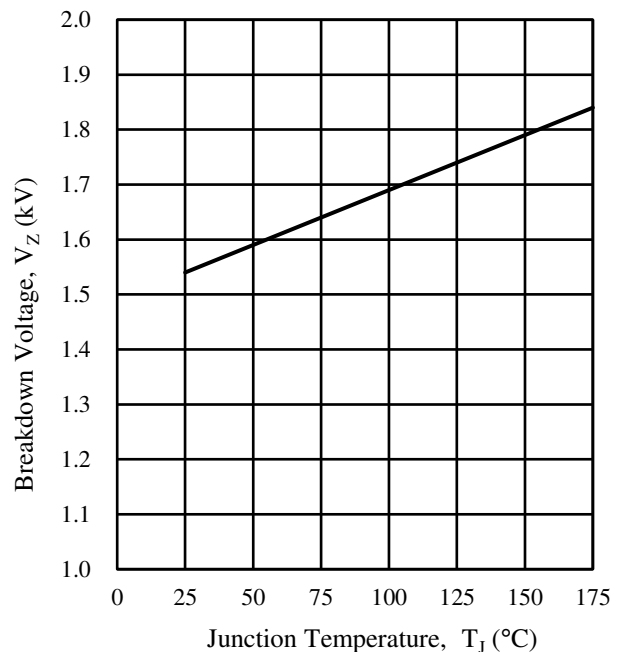


Figure 5. V_Z vs. T_J ($I_Z = 100 \mu A$)

SHV-05J Characteristic Curves

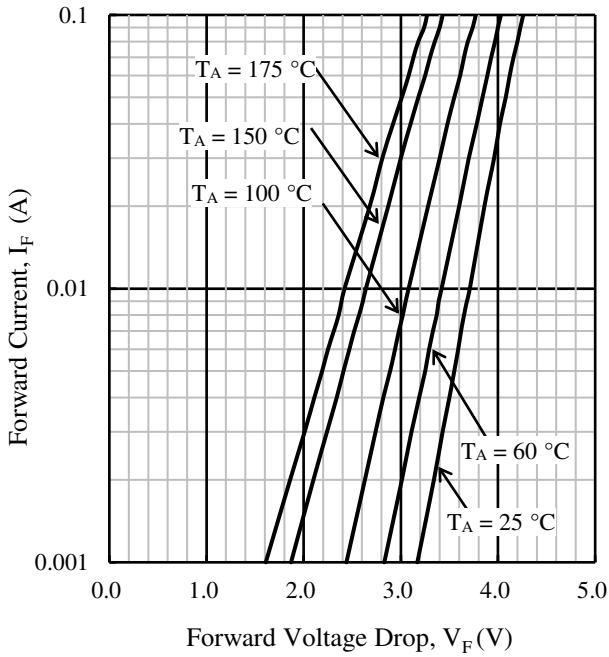


Figure 6. I_F vs. V_F Typical Characteristics

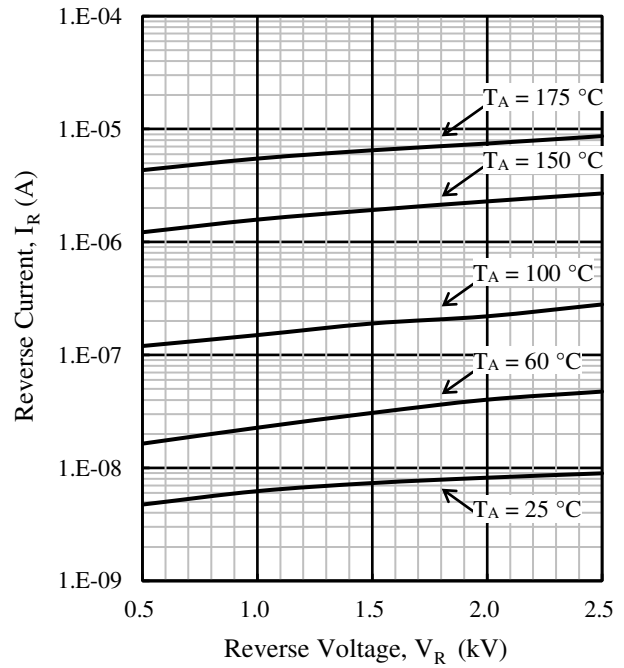


Figure 7. I_R vs. V_R Typical Characteristics

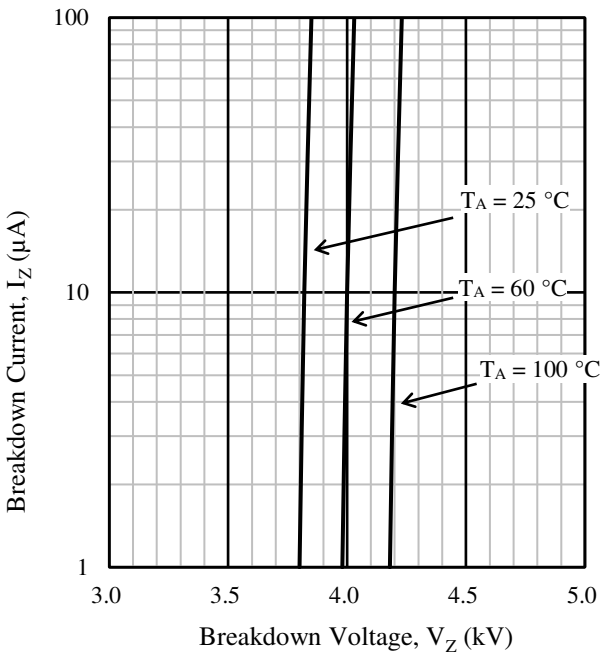


Figure 8. I_Z vs. V_Z ($t = 5$ s)

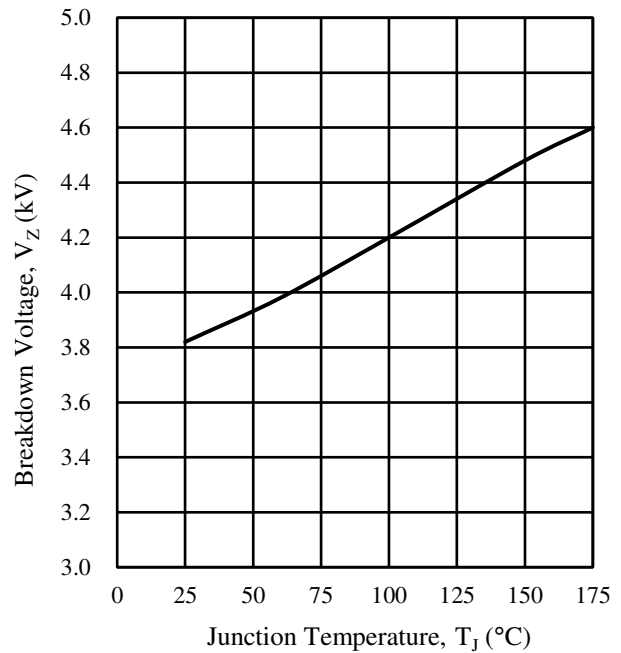


Figure 9. V_Z vs. T_J ($I_Z = 100 \mu A$)

SHV-06JN Characteristic Curves

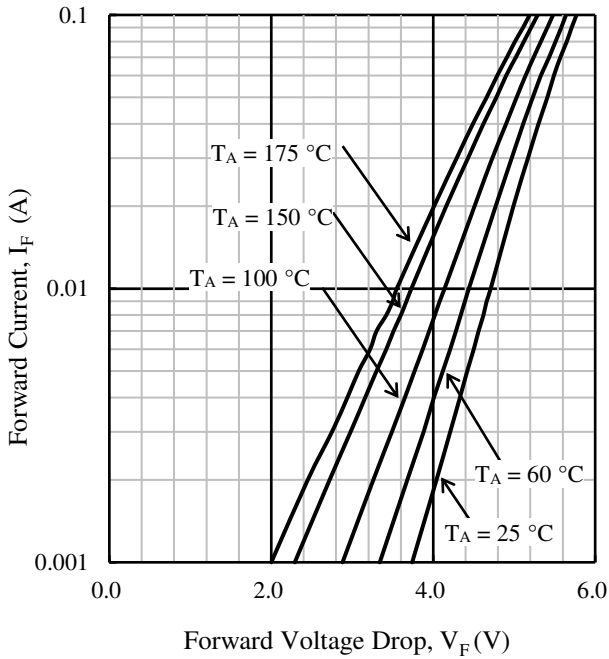


Figure 10. I_F vs. V_F Typical Characteristics

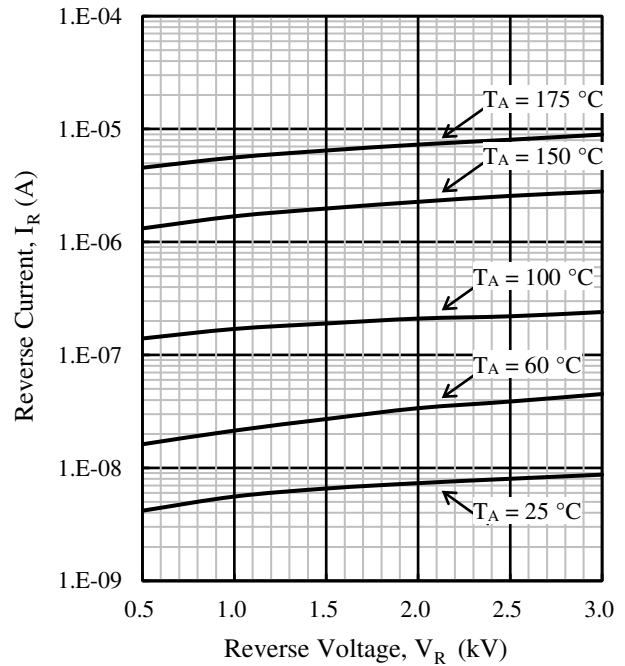


Figure 11. I_R vs. V_R Typical Characteristics

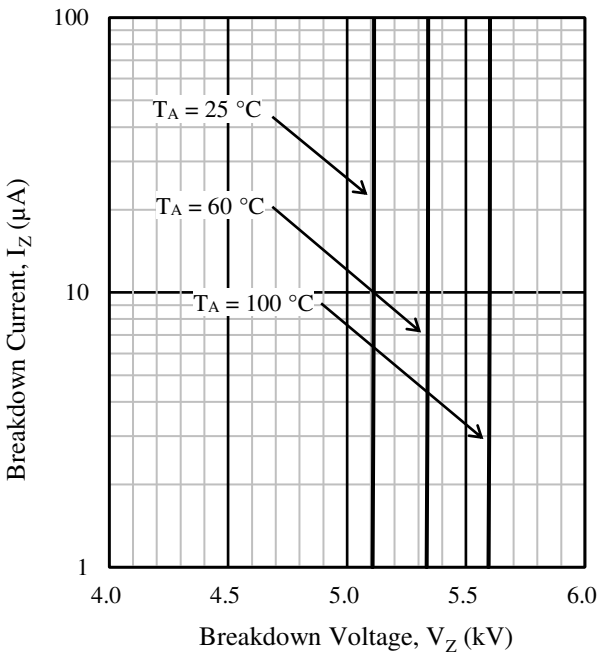


Figure 12. I_Z vs. V_Z ($t = 5$ s)

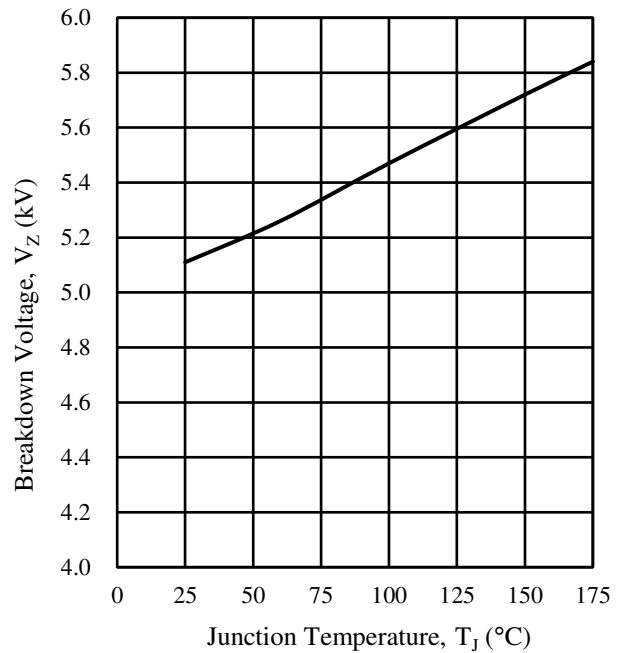


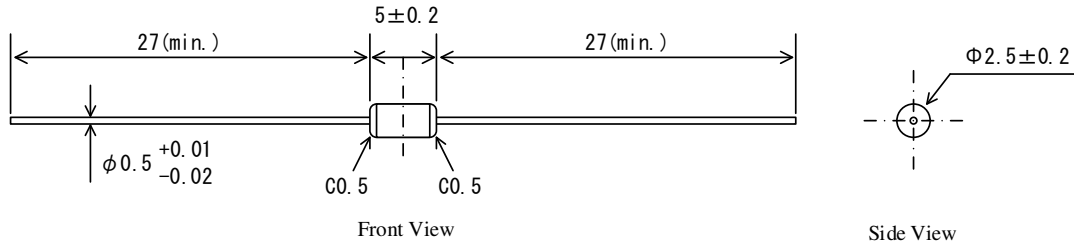
Figure 13. V_Z vs. T_J ($I_Z = 100$ μ A)

SHV-02JN, SHV-05J, SHV-06JN

Physical Dimensions

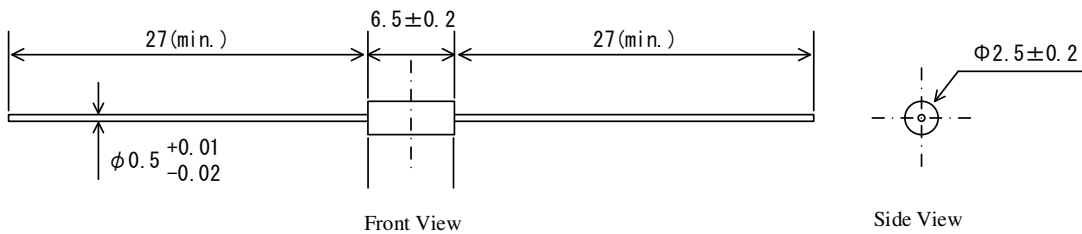
- SHV-05J

Axial ($\phi 2.5 \times 5L / \phi 0.5$)



- SHV-02JN, SHV-06JN

Axial ($\phi 2.5 \times 6.5L / \phi 0.5$)



NOTES:

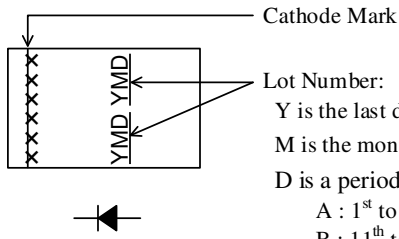
- Dimensions in millimeters
- Bare leads: Pb-free (RoHS compliant)
- Dimensions do not include gate burrs.
- High voltages are applied to the products. To prevent creepage discharge and improve moisture resistance, it is required to coat the product with resin after mounting it on a board (after coating).
- 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
 - Soldering Iron: $350\text{ }^{\circ}\text{C} / 3.5\text{ s}$, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the products.)

SHV-02JN, SHV-05J, SHV-06JN

Marking Diagrams

- SHV-05J

Axial ($\varnothing 2.5 \times 5L / \varnothing 0.5$)



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)

D is a period of days (A, B or C),

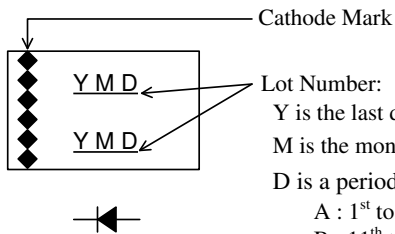
A : 1st to 10th

B : 11th to 20th

C : 21st to 31st

- SHV-02JN

Axial ($\varnothing 2.5 \times 6.5L / \varnothing 0.5$)



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)

D is a period of days, (A, B or C)

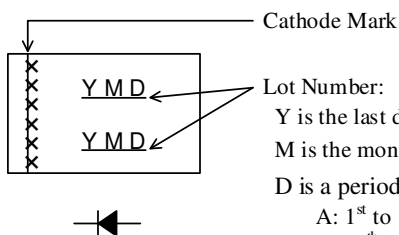
A : 1st to 10th

B : 11th to 20th

C : 21st to 31st

- SHV-06JN

Axial ($\varnothing 2.5 \times 6.5L / \varnothing 0.5$)



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)

D is a period of days (A, B or C):

A : 1st to 10th

B : 11th to 20th

C : 21st to 31st

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DSGN-CEZ-16003