

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

## Description

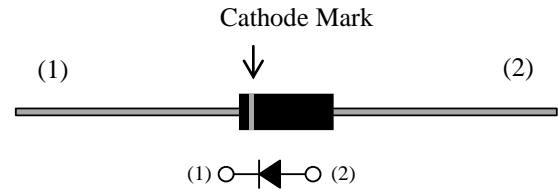
The SHV-02JN, SHV-05J, and SHV-06JN are high voltage rectifier diodes for the ignition coil of automotive electronics unit, and have high surge capability.

## Features

- High Reliability ( $T_J = 175 \text{ }^{\circ}\text{C}$ )
- Meets Automotive Requirement
- High Surge Capability
- Flammability UL94V-0 (Equivalent)
- RoHS Compliant

## Package

Axial

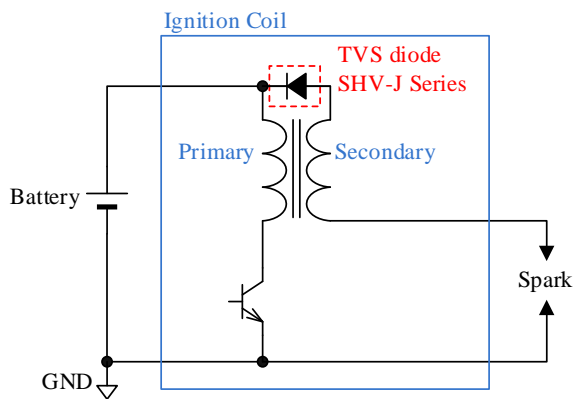


(1) Cathode  
(2) Anode

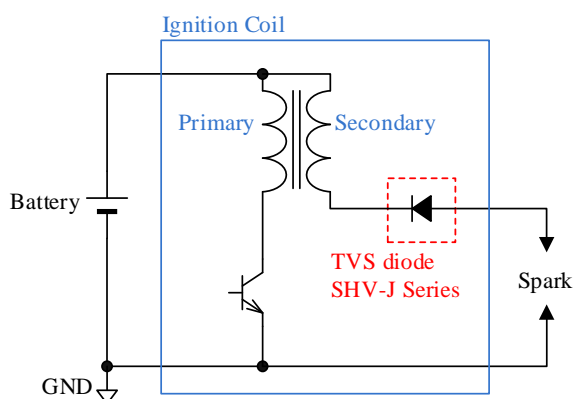
Not to scale

## 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 Series

### Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit	Remarks
Peak Repetitive Reverse Voltage	$V_{RM}$	—	1	kV	SHV-02JN
			2.5		SHV-05J
			3		SHV-06JN
Surge 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, 10ms, 1 shot	3	A	
Junction Temperature	$T_J$	—	-40 to 175	$^{\circ}\text{C}$	
Storage Temperature	$T_{STG}$	—	-40 to 175	$^{\circ}\text{C}$	

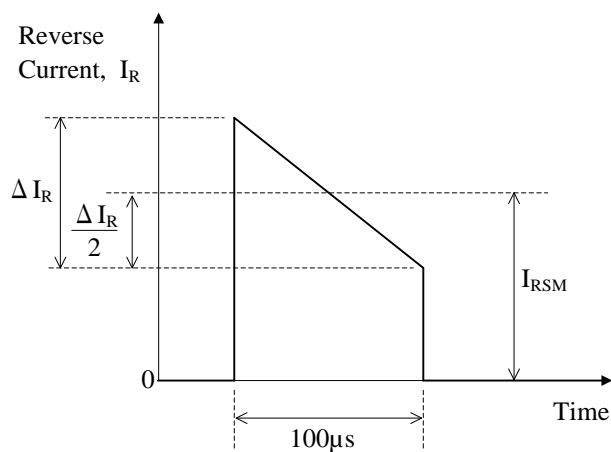


Figure 1. Definition of Surge Reverse Current,  $I_{RSM}$

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

### 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	$\mu\text{A}$	
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

SHV-02JN Rating and Characteristic Curves

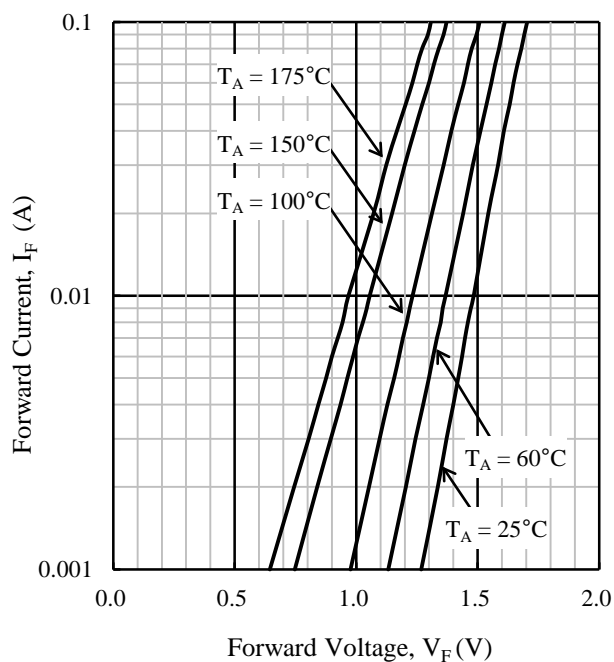


Figure 2.  $I_F - V_F$  Typical Characteristics

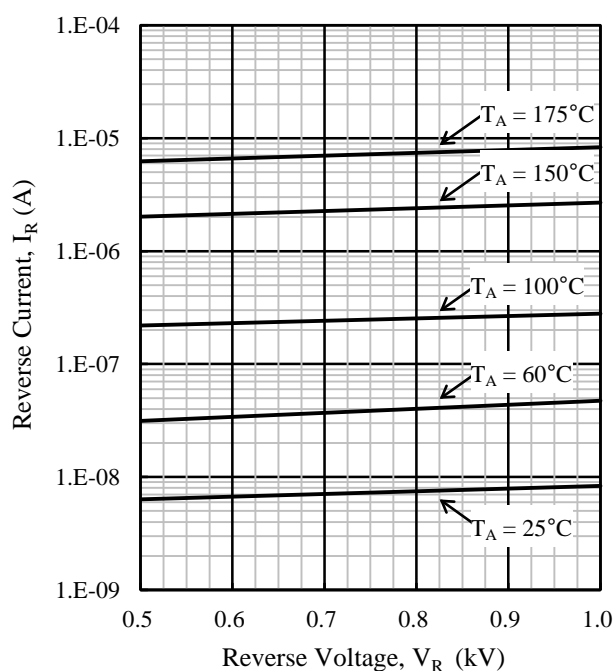


Figure 3.  $I_R - V_R$  Typical Characteristics

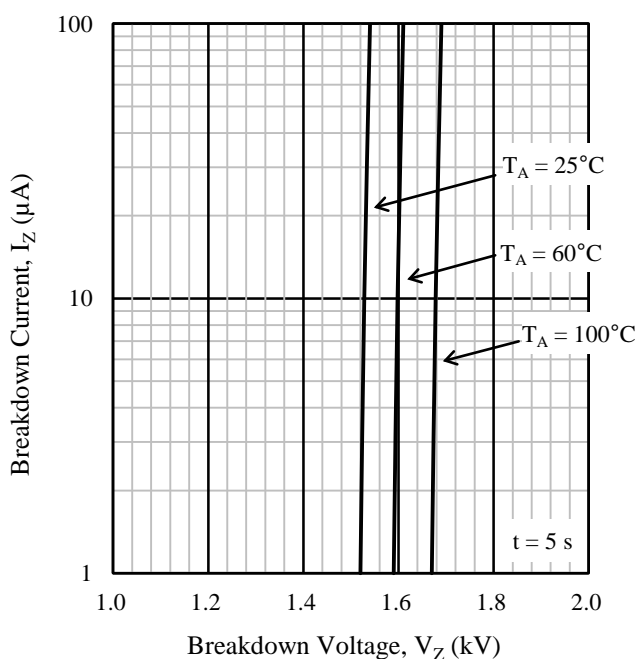


Figure 4.  $I_Z - V_Z$  Typical Characteristics

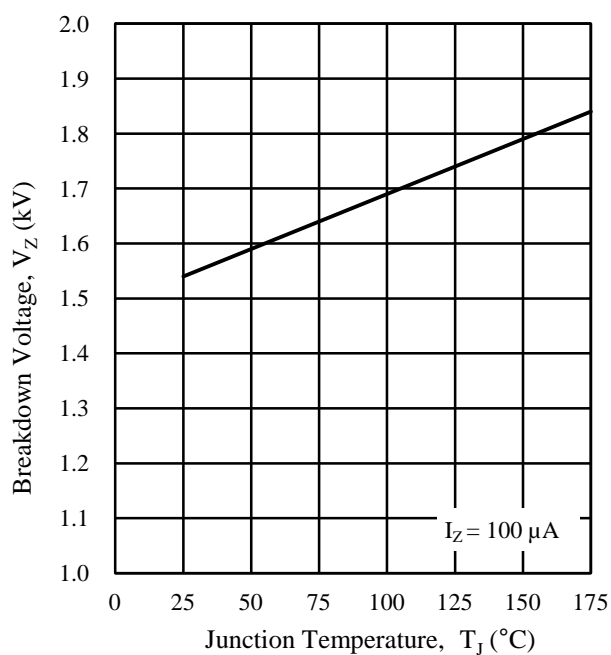


Figure 5.  $V_Z - T_J$  Typical Characteristics

SHV-05J Rating and Characteristic Curves

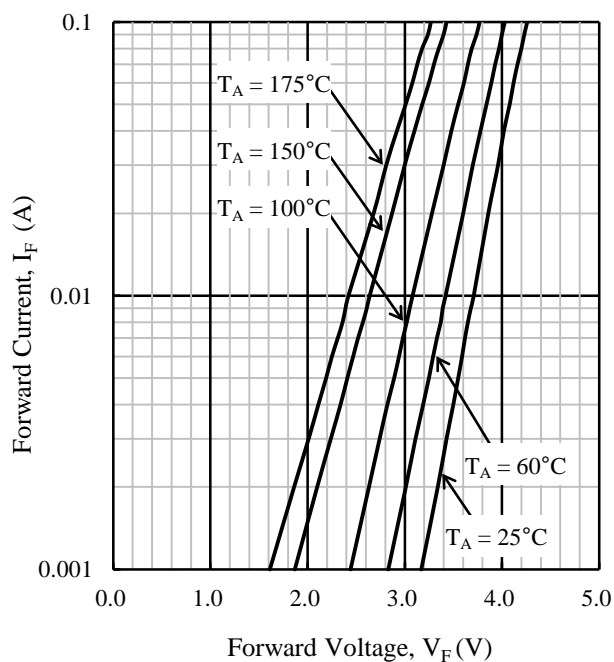


Figure 6.  $I_F - V_F$  Typical Characteristics

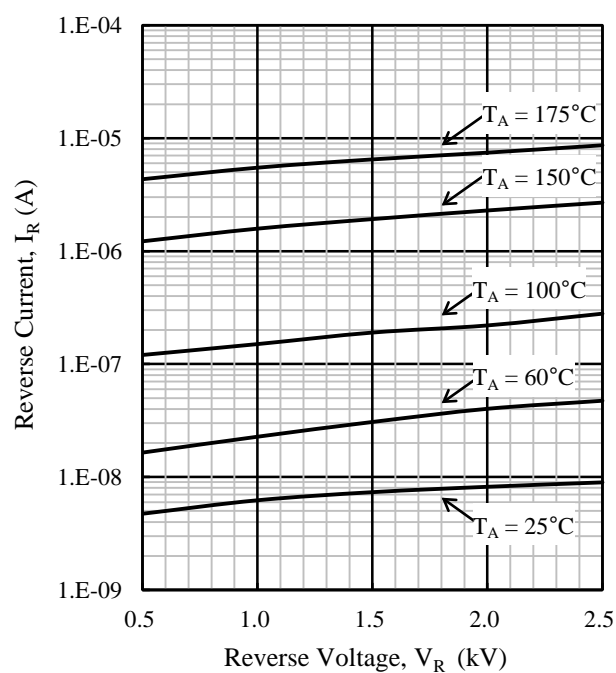


Figure 7.  $I_R - V_R$  Typical Characteristics

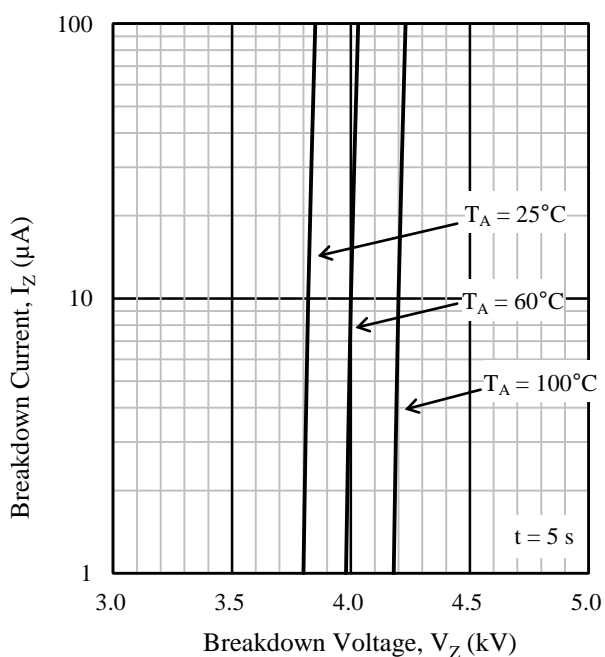


Figure 8.  $I_Z - V_Z$  Typical Characteristics

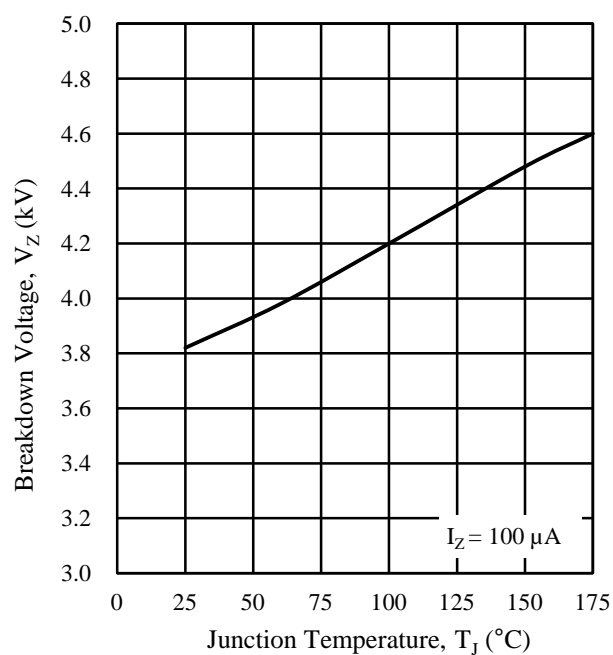


Figure 9.  $V_Z - T_J$  Typical Characteristics

SHV-06JN Rating and Characteristic Curves

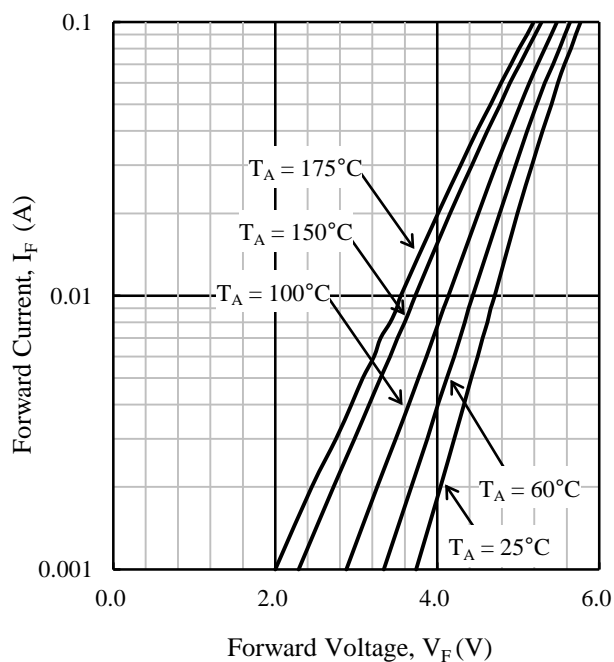


Figure 10.  $I_F - V_F$  Typical Characteristics

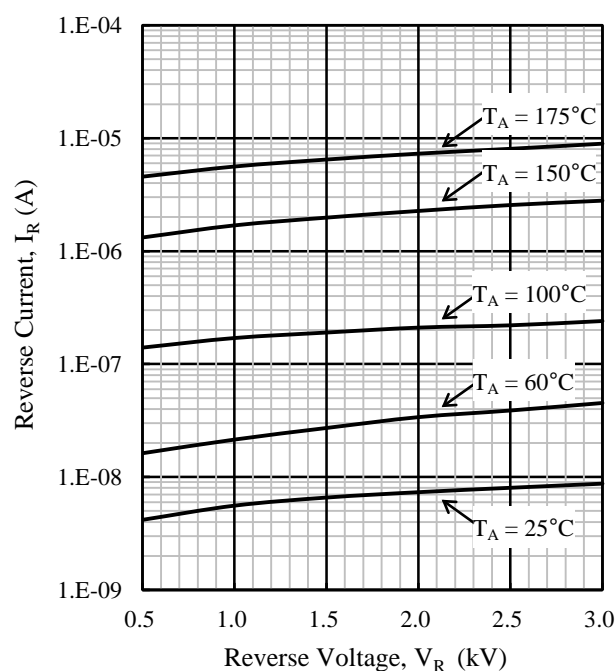


Figure 11.  $I_R - V_R$  Typical Characteristics

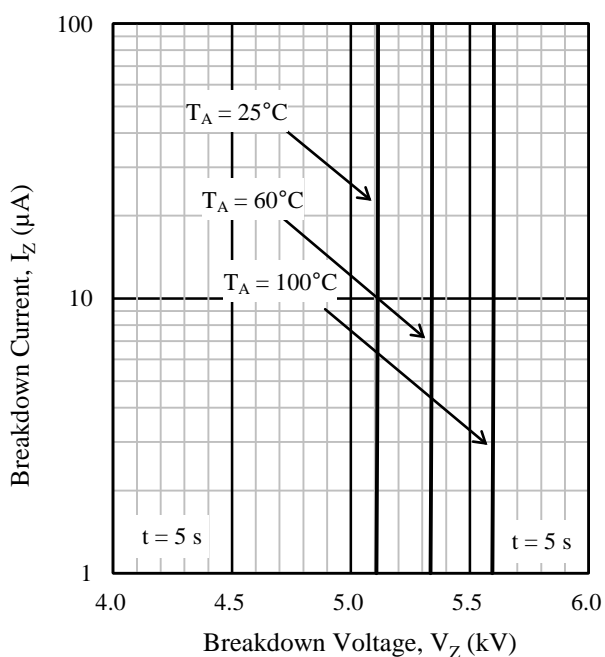


Figure 12.  $I_Z - V_Z$  Typical Characteristics

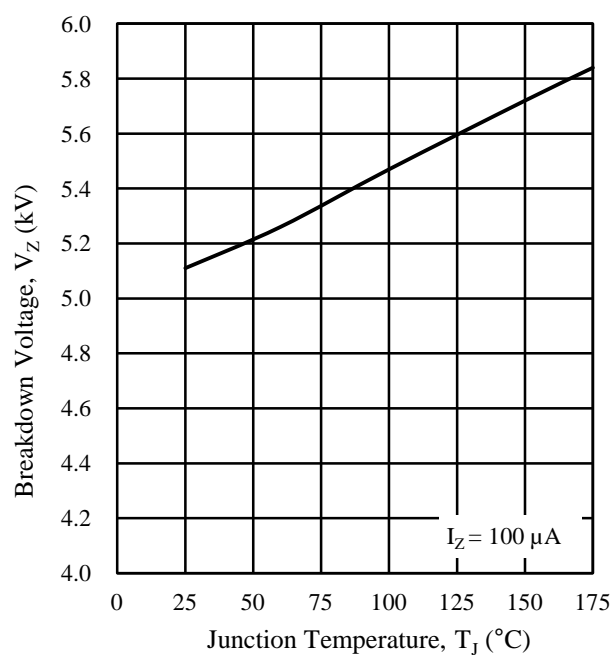


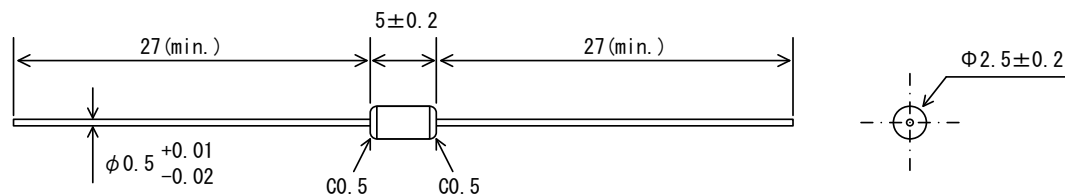
Figure 13.  $V_Z - T_J$  Typical Characteristics

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

### Physical Dimensions

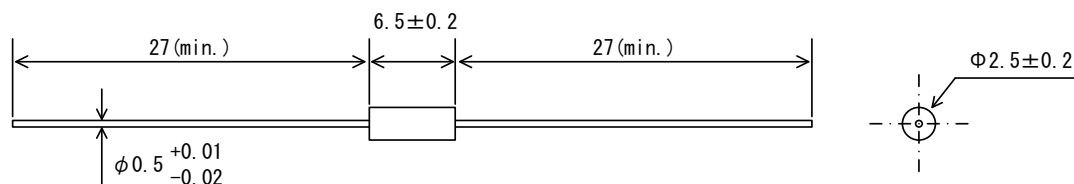
- SHV-05J

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



- SHV-02JN, SHV-06JN

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



#### NOTES for Axial Packages above:

- Dimensions in millimeters
- Bare leads: Pb-free (RoHS compliant)
- When soldering the products, be sure to minimize the working time, within the following limits:
  - Flow:  $260 \pm 5$  °C /  $10 \pm 1$  s, 2 times
  - Soldering Iron:  $380 \pm 10$  °C /  $3.5 \pm 0.5$  s, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the products.)

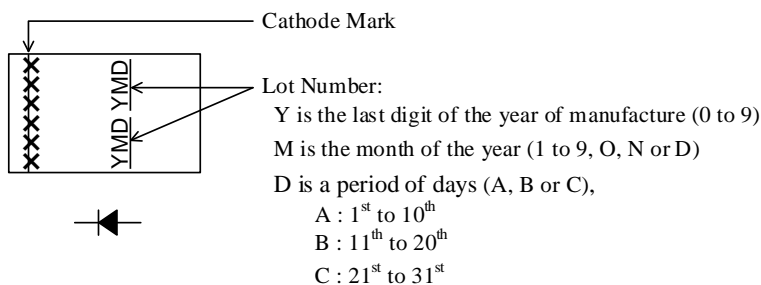


## SHV-02JN, SHV-05J, SHV-06JN Series

### Marking Diagrams

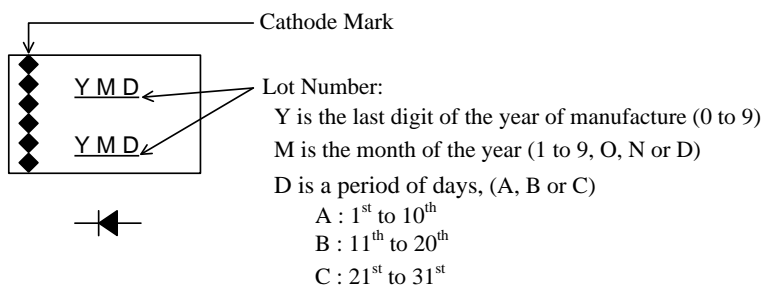
- SHV-05J

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



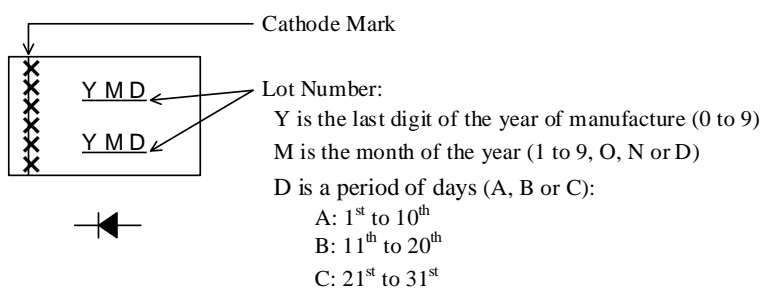
- SHV-02JN

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



- SHV-06JN

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



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