

$V_{RM} = 1 \text{ kV to } 4 \text{ kV}$
High Voltage Rectifier Diode
SHV-02JN, SHV-05J, SHV-06JN, SHV-08J

Description

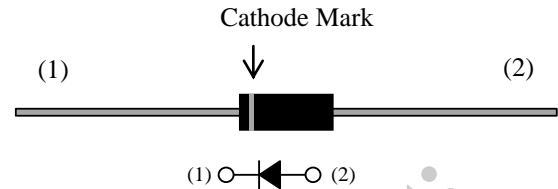
The SHV-02JN, SHV-05J, SHV-06JN, and SHV-08J are high voltage rectifier diodes for the ignition coil of automotive electronics unit, and have high surge capability.

Features

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

Package

Axial

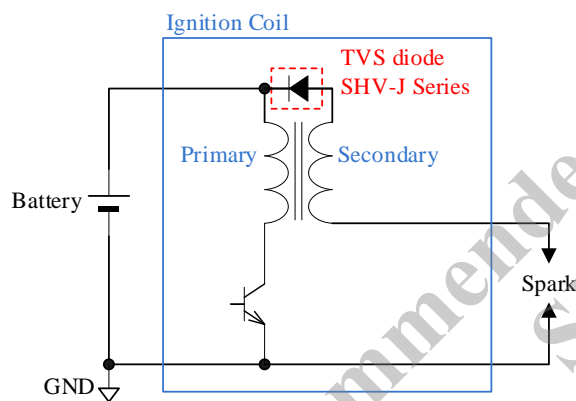


(1) Cathode
(2) Anode

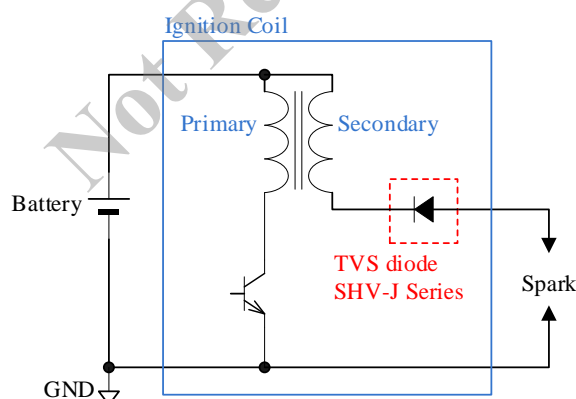
Not to scale

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
SHV-08J	4 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			
SHV-08J	$\phi 3.0$	8.0	$\phi 0.6$

Application

- Ignition coil of automotive electronics unit

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Not Recommended for New Designs:
SHV-08J

SHV-02JN, SHV-05J, SHV-06JN, SHV-08J 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
			4		SHV-08J
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	$^{\circ}\text{C}$	

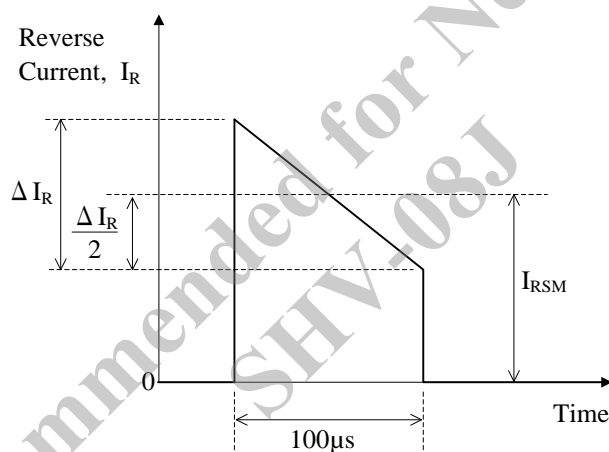


Figure 1. Definition of Surge Reverse Current, I_{RSM}

SHV-02JN, SHV-05J, SHV-06JN, SHV-08J 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
			—	—	8		SHV-08J
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
			4.5	—	8		SHV-08J

SHV-02JN Rating and Characteristic Curves

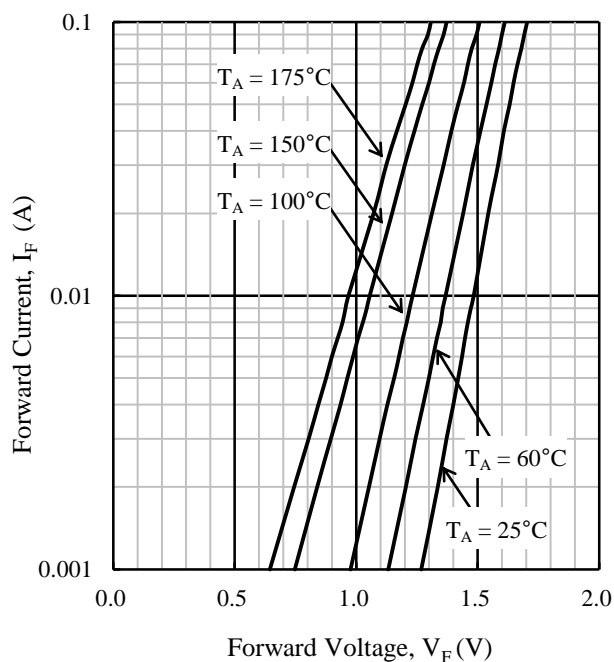


Figure 2. I_F — V_F Typical Characteristics

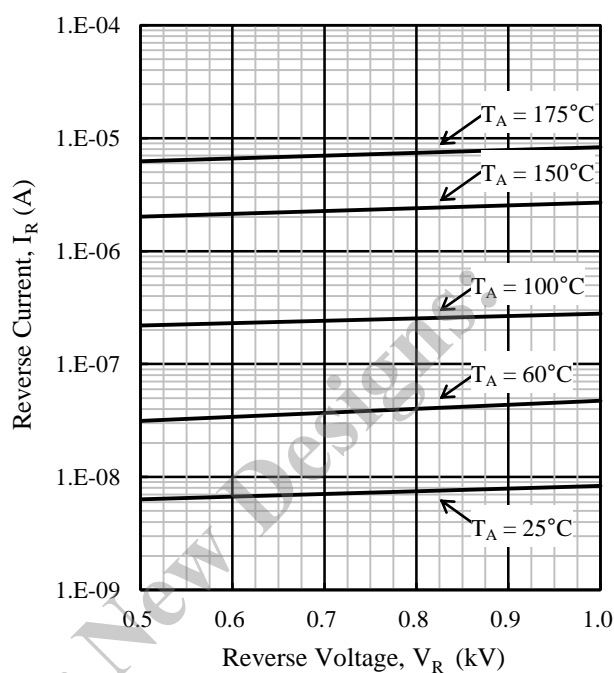


Figure 3. I_R — V_R Typical Characteristics

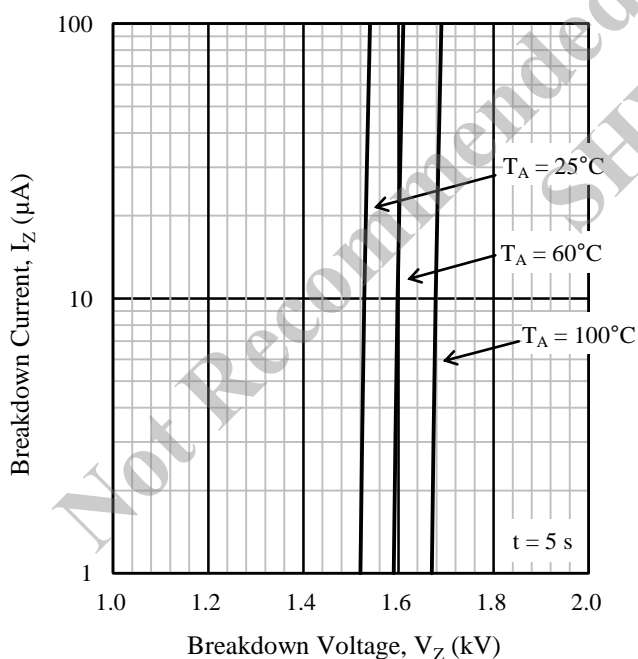


Figure 4. I_Z — V_Z Typical Characteristics

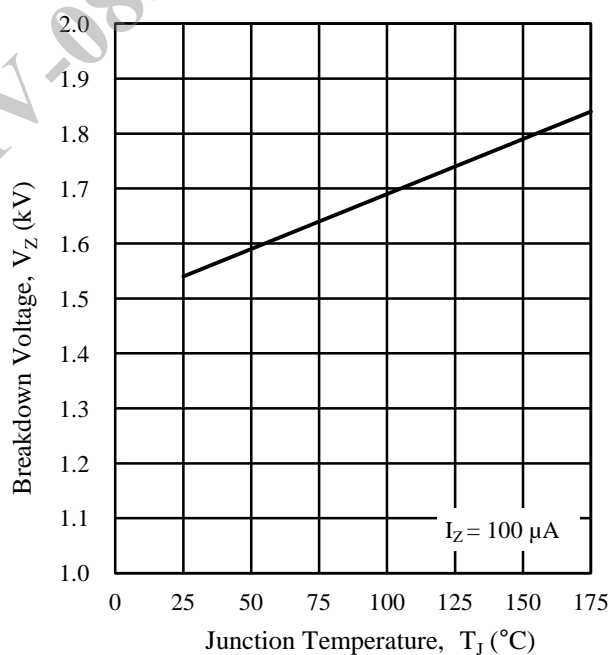


Figure 5. V_Z — T_J Typical Characteristics

SHV-05J Rating and Characteristic Curves

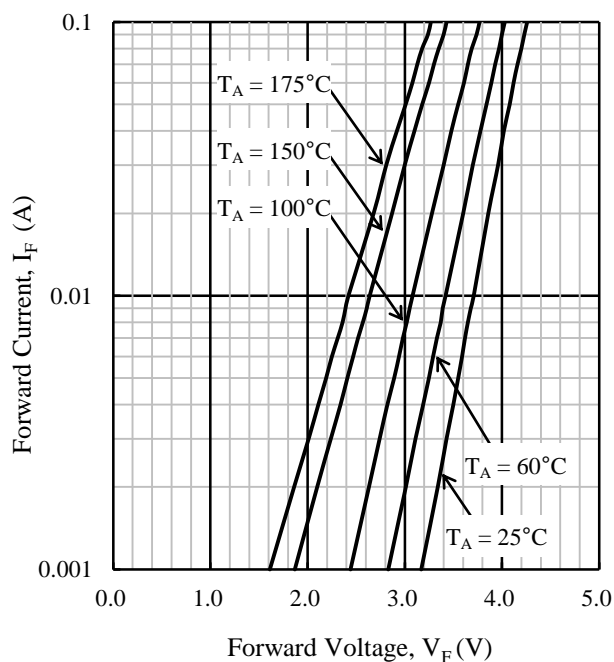


Figure 6. $I_F - V_F$ Typical Characteristics

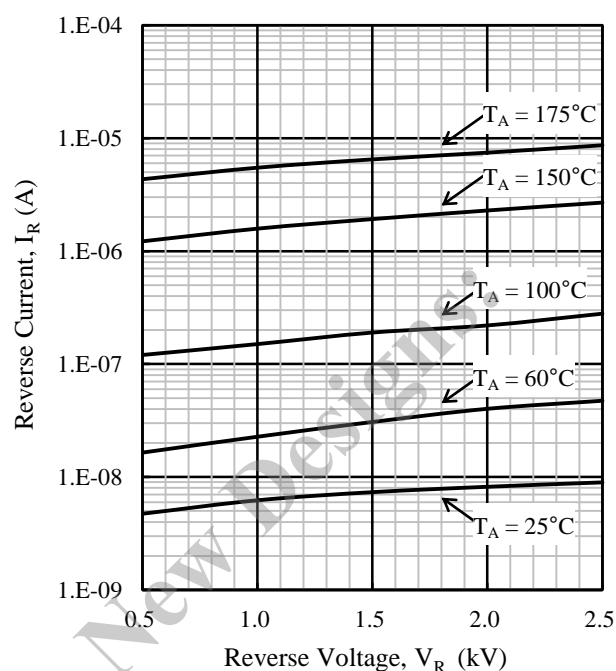


Figure 7. $I_R - V_R$ Typical Characteristics

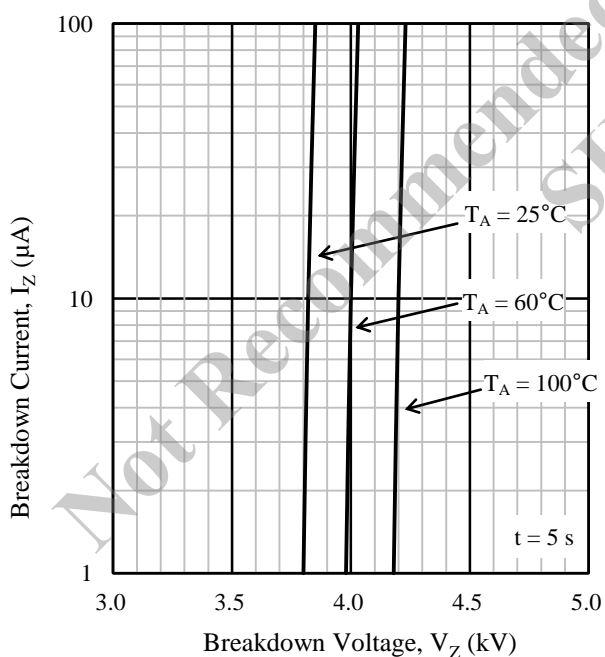


Figure 8. $I_Z - V_Z$ Typical Characteristics

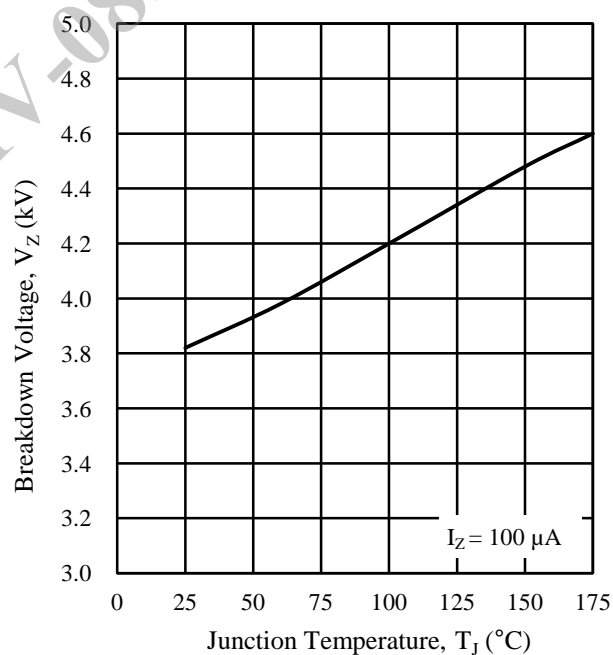


Figure 9. $V_Z - T_J$ Typical Characteristics

SHV-06JN Rating and Characteristic Curves

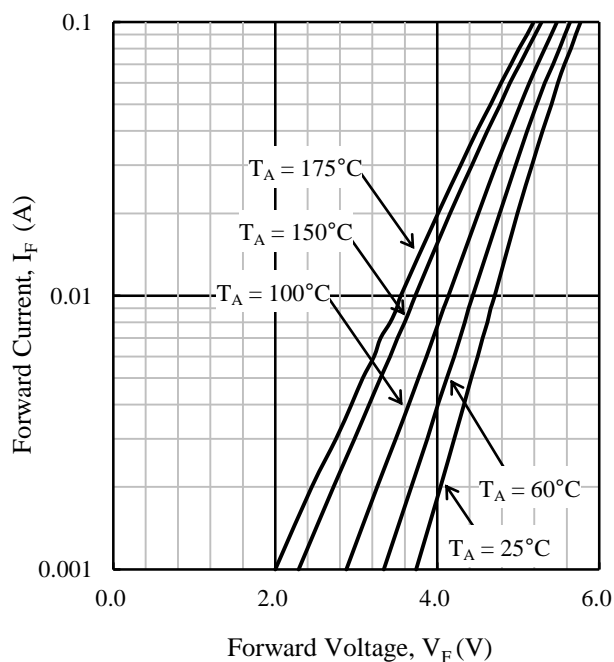


Figure 10. $I_F - V_F$ Typical Characteristics

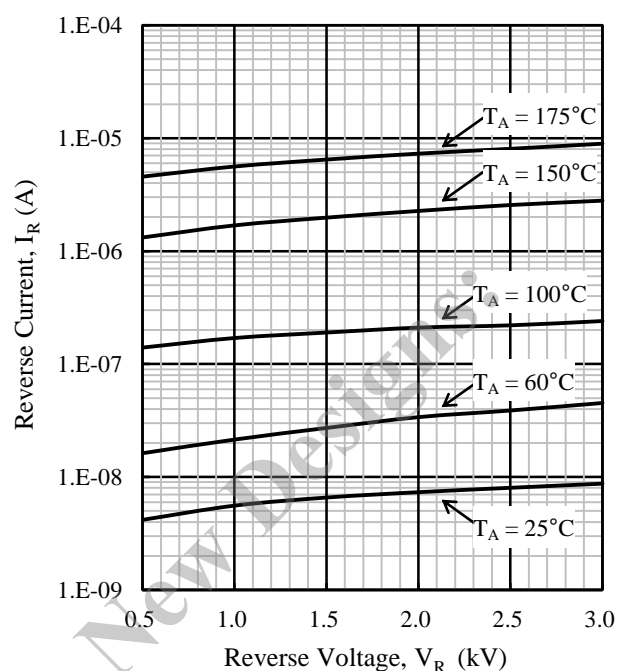


Figure 11. $I_R - V_R$ Typical Characteristics

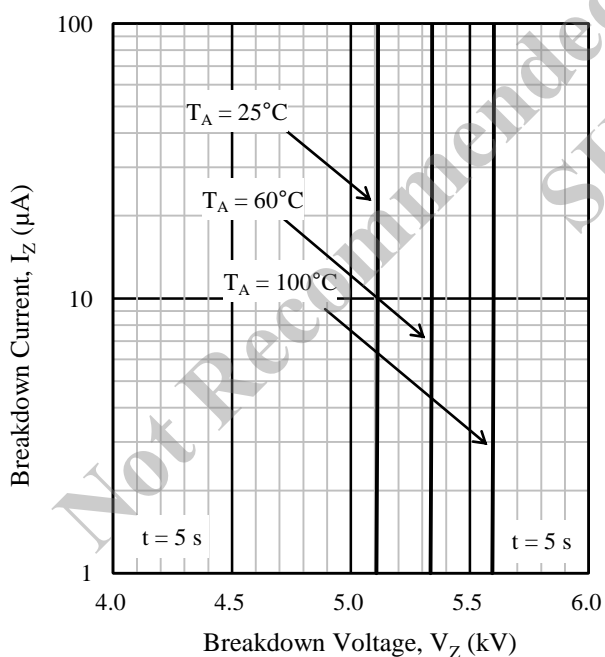


Figure 12. $I_Z - V_Z$ Typical Characteristics

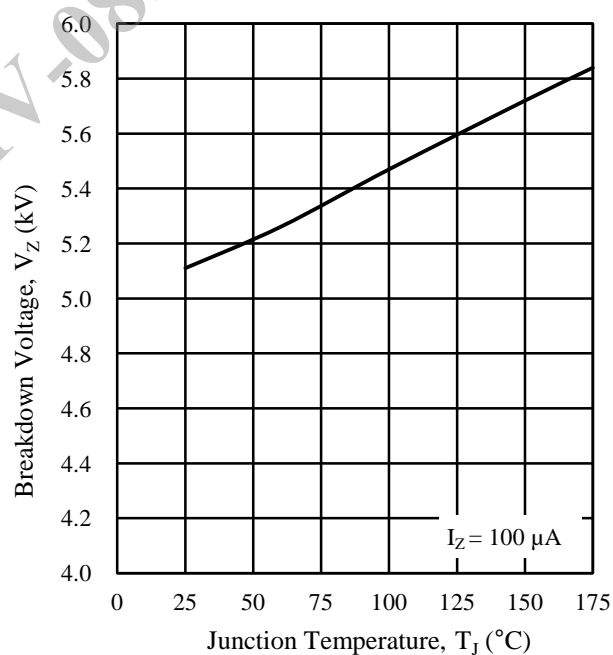


Figure 13. $V_Z - T_J$ Typical Characteristics

SHV-08J Rating and Characteristic Curves

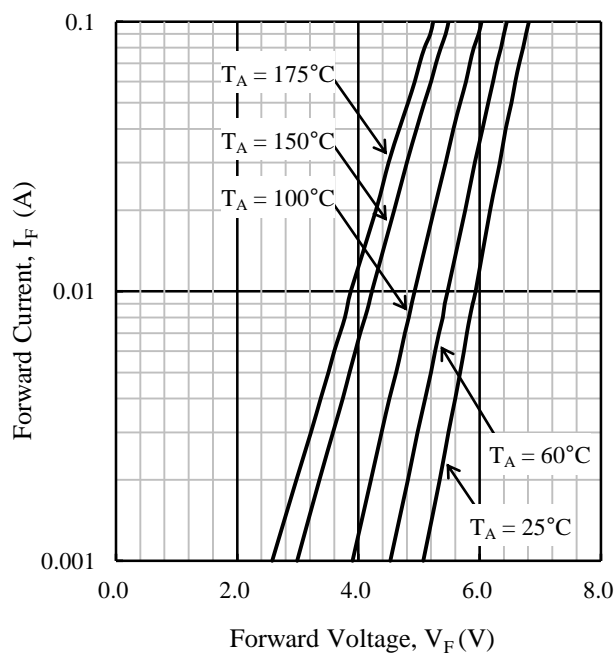


Figure 14. $I_F - V_F$ Typical Characteristics

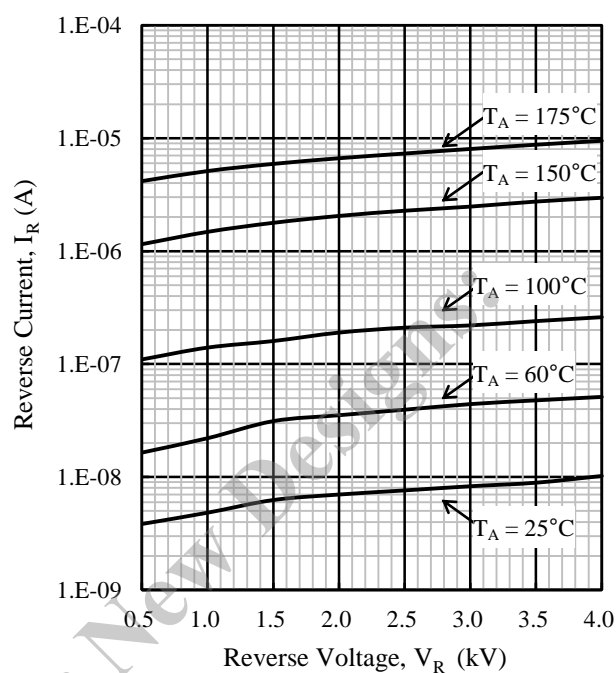


Figure 15. $I_R - V_R$ Typical Characteristics

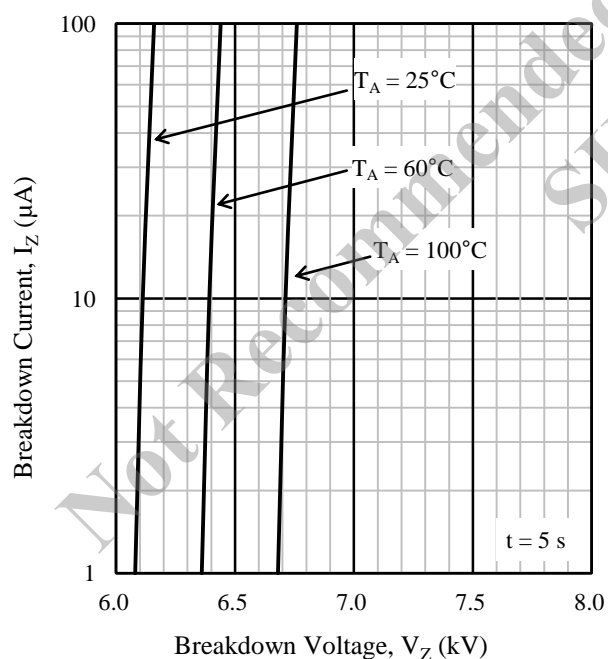


Figure 16. $I_Z - V_Z$ Typical Characteristics

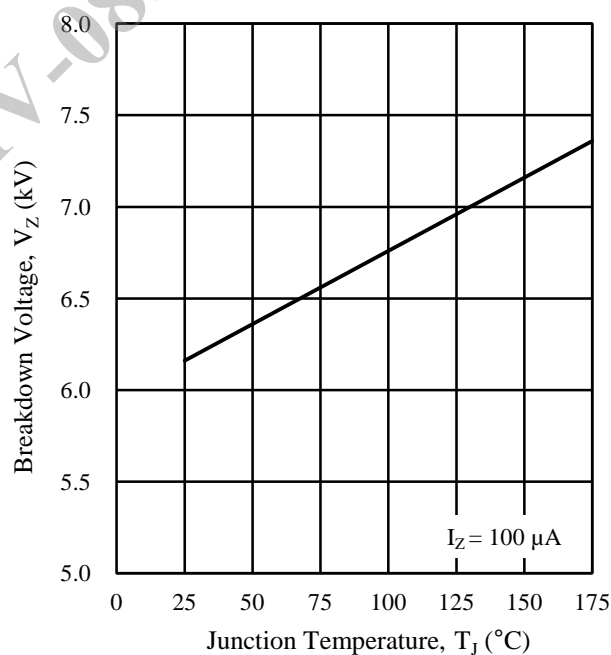


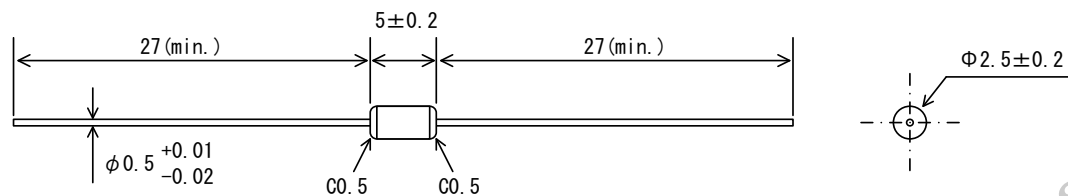
Figure 17. $V_Z - T_J$ Typical Characteristics

SHV-02JN, SHV-05J, SHV-06JN, SHV-08J Series

Physical Dimensions

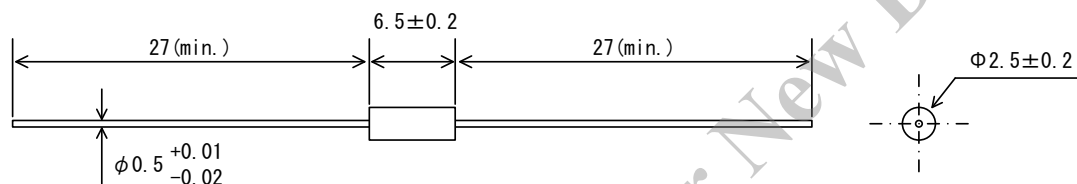
- SHV-05J

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



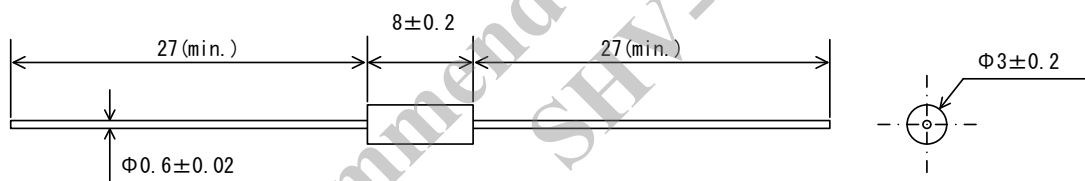
- SHV-02JN, SHV-06JN

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



- SHV-08J

Axial ($\phi 3 \times 8L / \phi 0.6$)



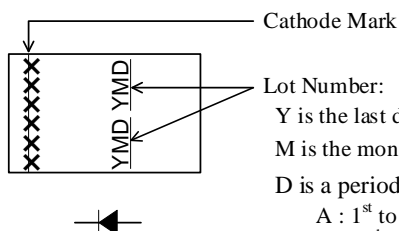
NOTES for Axial Packages above:

- 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 ± 5 °C / 10 ± 1 s, 2 times
 - Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the products.)

Marking Diagrams

- SHV-05J

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



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),

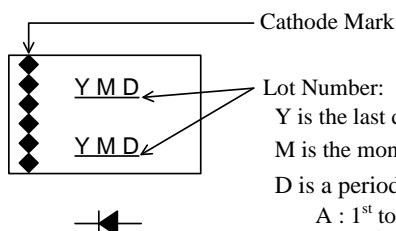
A : 1st to 10th

B : 11th to 20th

C : 21st to 31st

- SHV-02JN

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



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

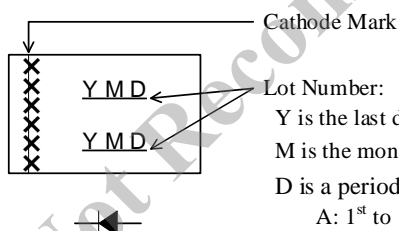
B : 11th to 20th

C : 21st to 31st

- SHV-06JN, SHV-08J

SHV-06JN: Axial ($\phi 2.5 \times 6.5L / \phi 0.5$)

SHV-08J: Axial ($\phi 3 \times 8L / \phi 0.6$)



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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