V_{RM} = 1 kV~4 kV
Transient Voltage Suppressor

SHV-J Series

Data Sheet

Description

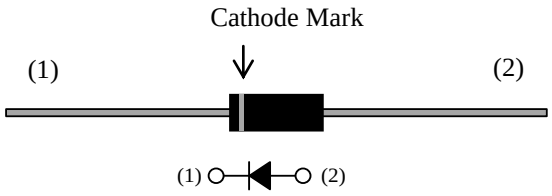
The SHV-J Series are high voltage diode for the ignition coil of automotive electronics unit, and have high surge capability.

Features

- High Reliability (T_J = 175 °C)
- Automotive Requirement
- High Surge Capability
- Flammability UL94V-0 (Equivalent)
- Compliant with RoHS Directive

Package

Axial

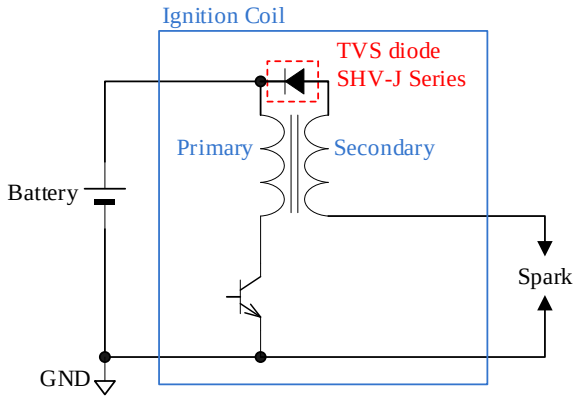


(1) Cathode
(2) Anode

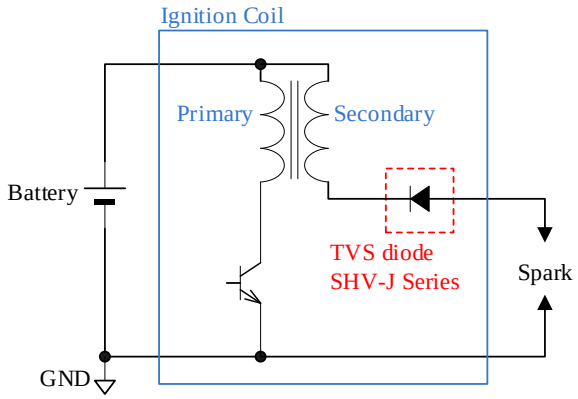
Not to Scale.

Typical Application

- Typical Application 1



- Typical Application 2



SHV-J Series

- Characteristics

Product	$V_{RM\ (max.)}$	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	φ2.5	5.0	φ0.5
SHV-02JN	φ2.5	6.5	φ0.5
SHV-06JN			
SHV-08J	φ3.0	8.0	φ0.6

Application

- Ignition coil of automotive electronics unit

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1. Absolute Maximum Ratings

Unless specifically noted T_A = 25 °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 1-1. Single pulse.	30	mA	
Average Forward Current	$I_{F(AV)}$	−	30	mA	
Surge Forward Current	I_{FSM}	Half cycle sine-wave, positive side, 10ms, one shot.	3	A	
Junction Temperature	T_j	−	−40 to 175	°C	
Storage Temperature	T_{stg}	−	−40 to 175	°C	

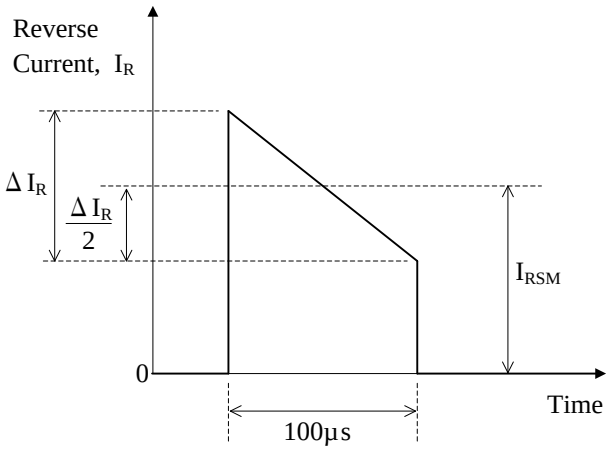


Figure 1-1 Definition of Surge Reverse Current, I_{RSM}

2. Electrical Characteristics

Unless specifically noted, T_A = 25 °C.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	Remarks
Forward Voltage Drop	V_F	I_F = 10 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 μA	1.1	−	2	V	SHV-02JN
			2.6	−	5		SHV-05J
			3.2	−	6		SHV-06JN
			4.5	−	8		SHV-08J

3. Typical Characteristics

3.1. SHV-02JN

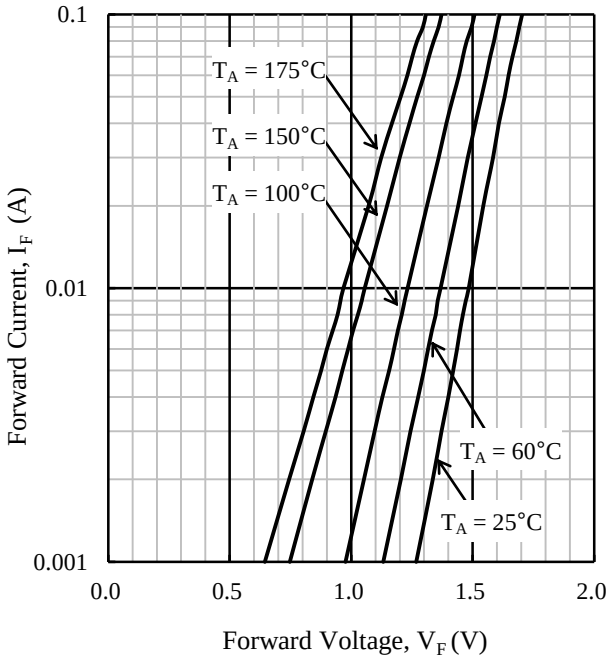


Figure 3-1 $I_F - V_F$ typical characteristics

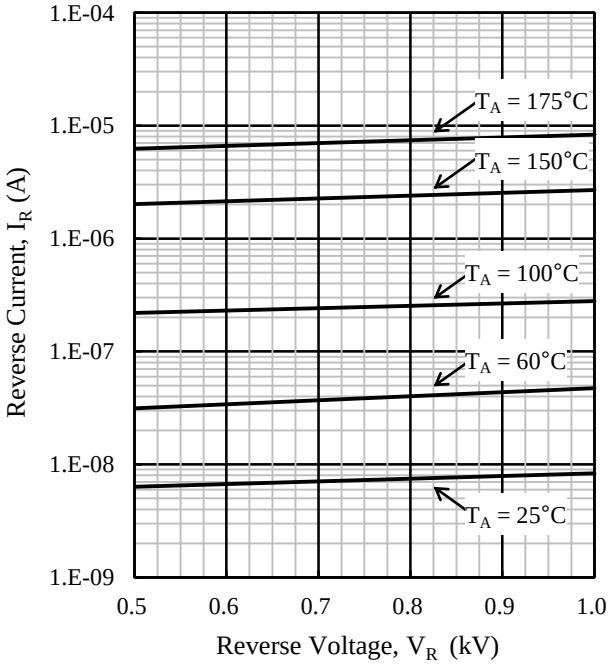


Figure 3-2 $I_R - V_R$ typical characteristics

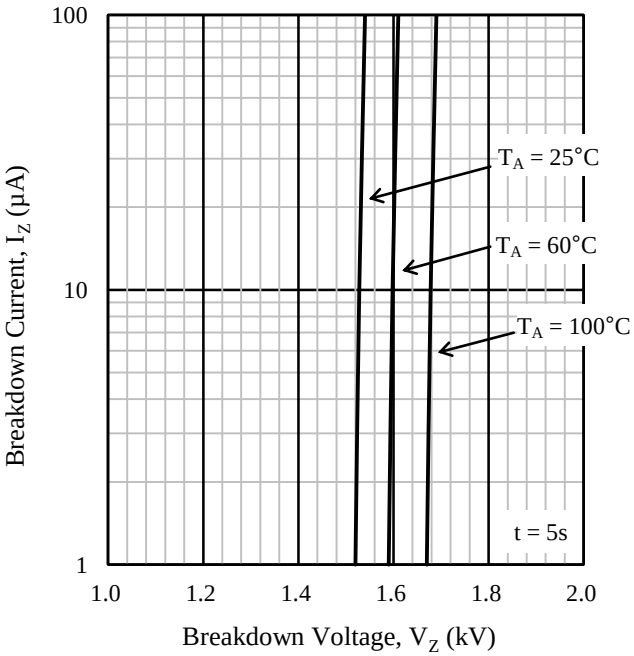


Figure 3-3 $I_Z - V_Z$ typical characteristics

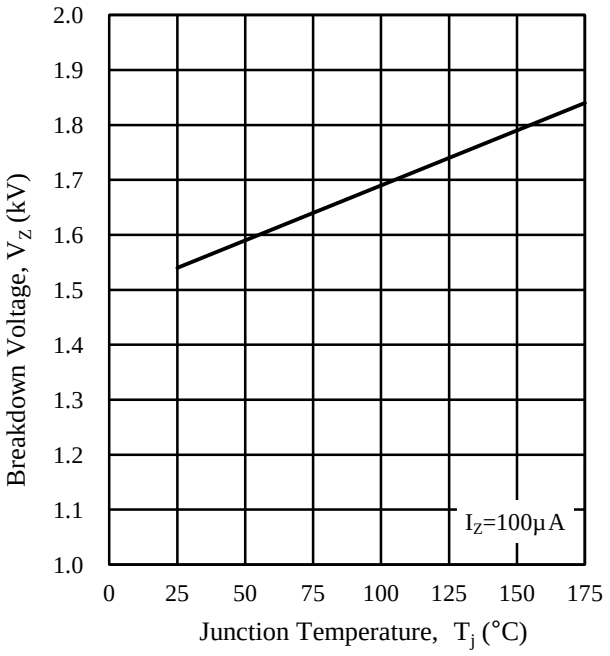


Figure 3-4 $V_Z - T_j$ typical characteristics

3.2. SHV-05J

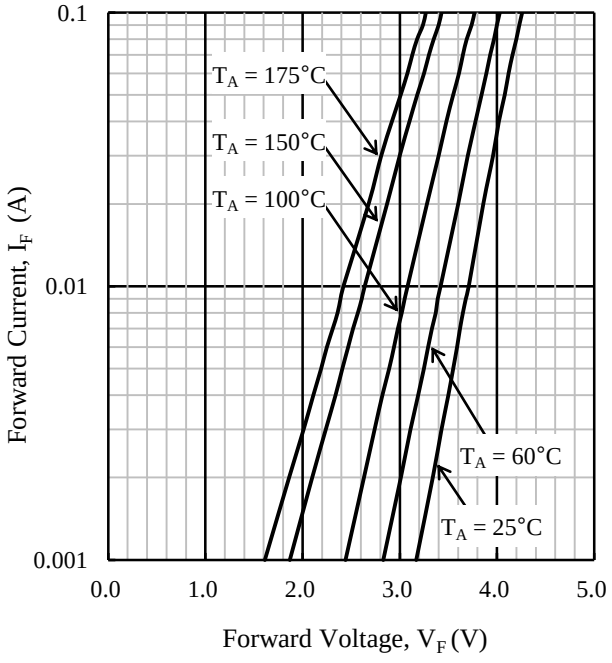


Figure 3-5 $I_F - V_F$ typical characteristics

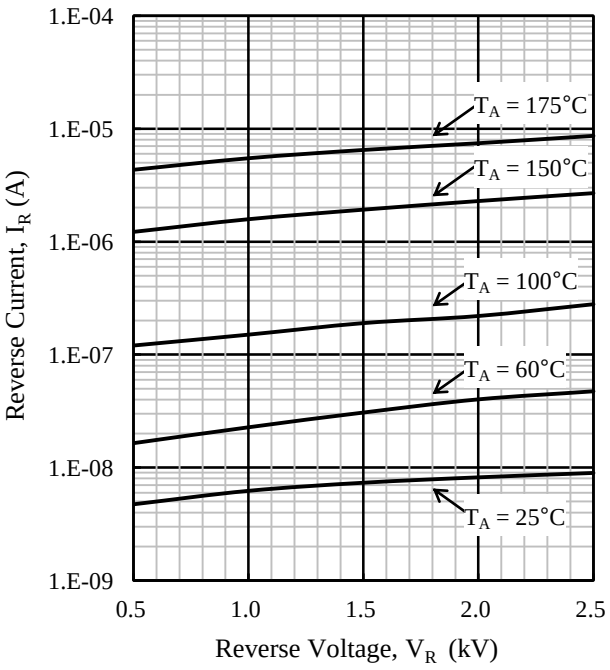


Figure 3-6 $I_R - V_R$ typical characteristics

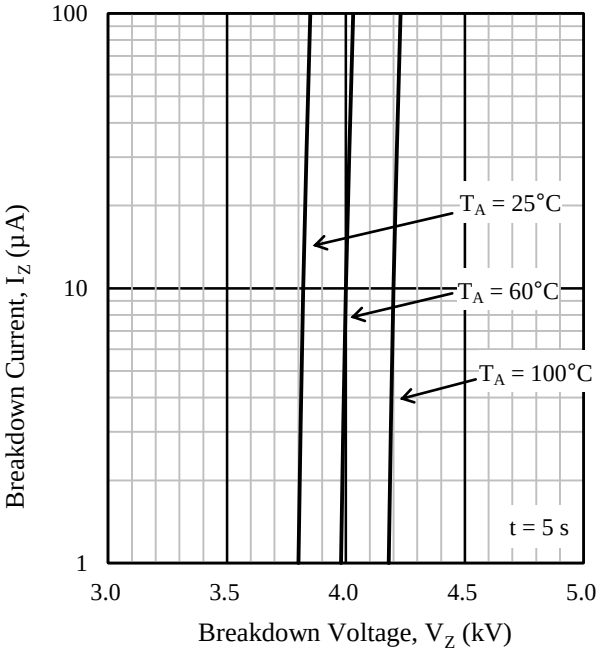


Figure 3-7 $I_Z - V_Z$ typical characteristics

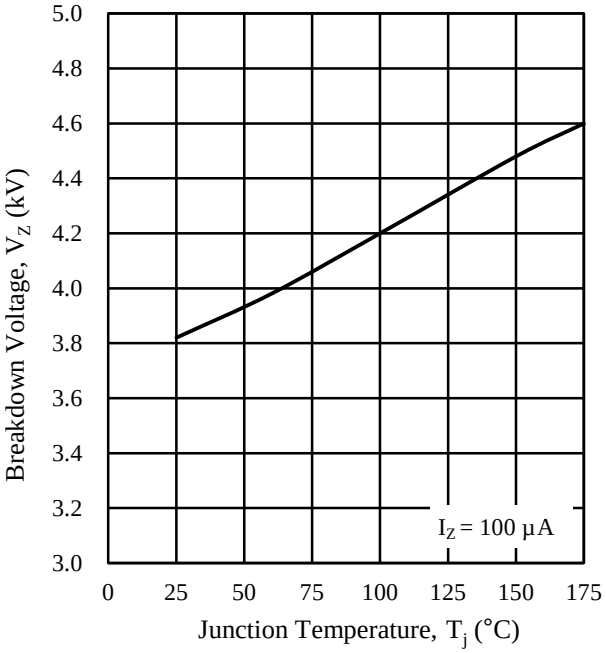


Figure 3-8 $V_Z - T_j$ typical characteristics

3.3. SHV-06JN

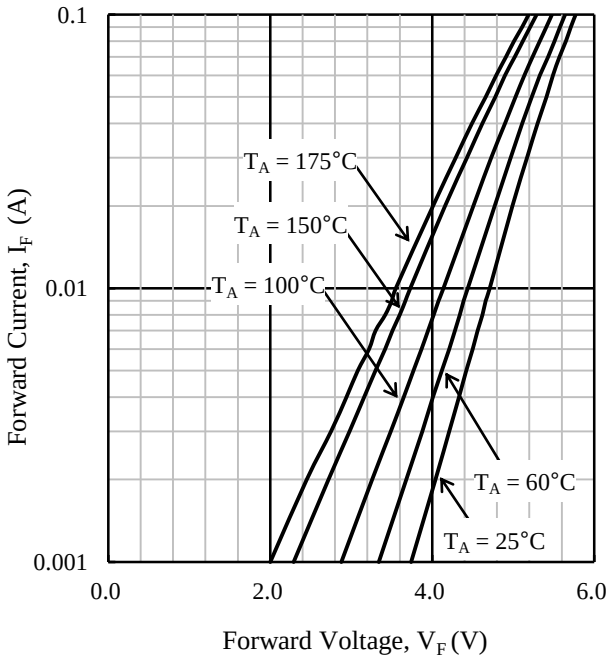


Figure 3-9 $I_F - V_F$ typical characteristics

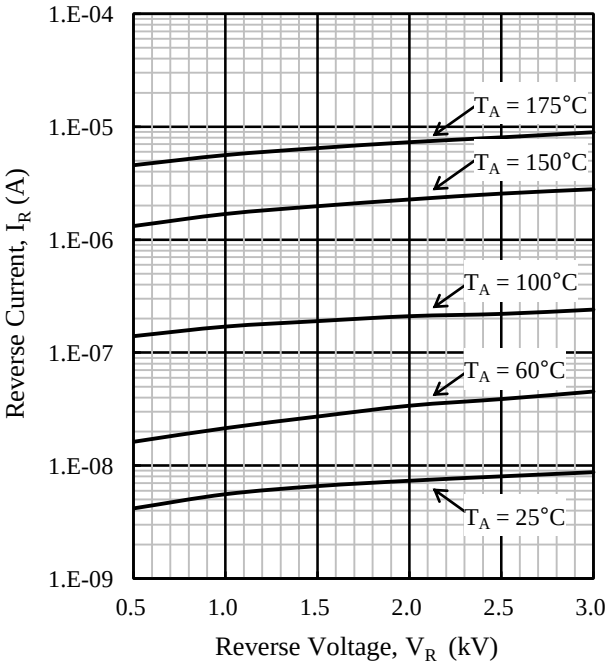


Figure 3-10 $I_R - V_R$ typical characteristics

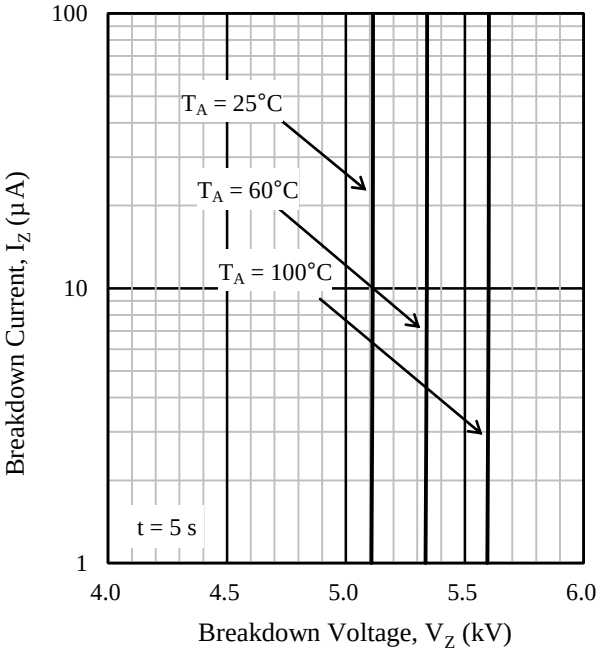


Figure 3-11 $I_Z - V_Z$ typical characteristics

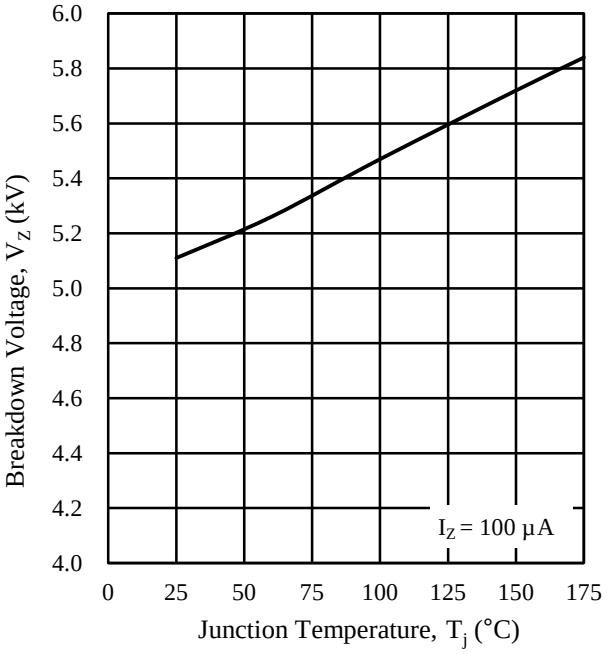


Figure 3-12 $V_Z - T_j$ typical characteristics

3.4. SHV-08J

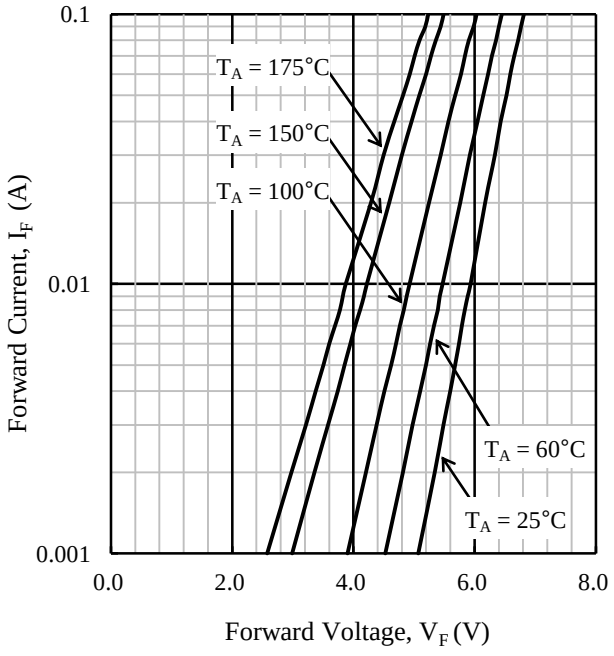


Figure 3-13 $I_F - V_F$ typical characteristics

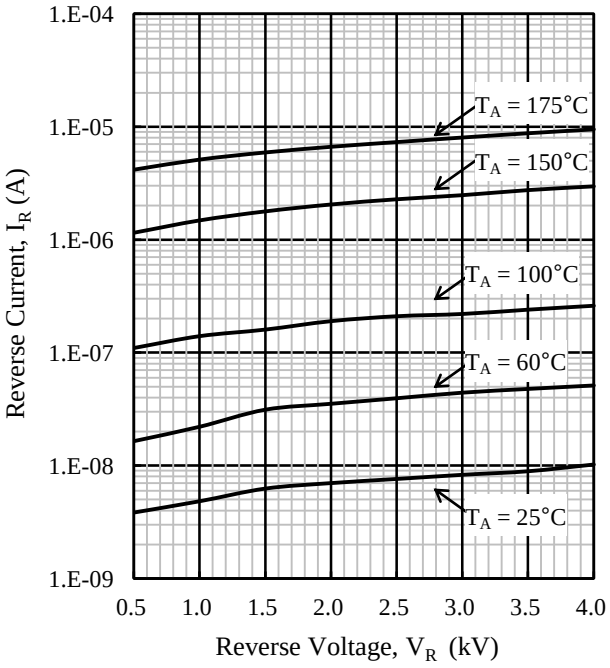


Figure 3-14 $I_R - V_R$ typical characteristics

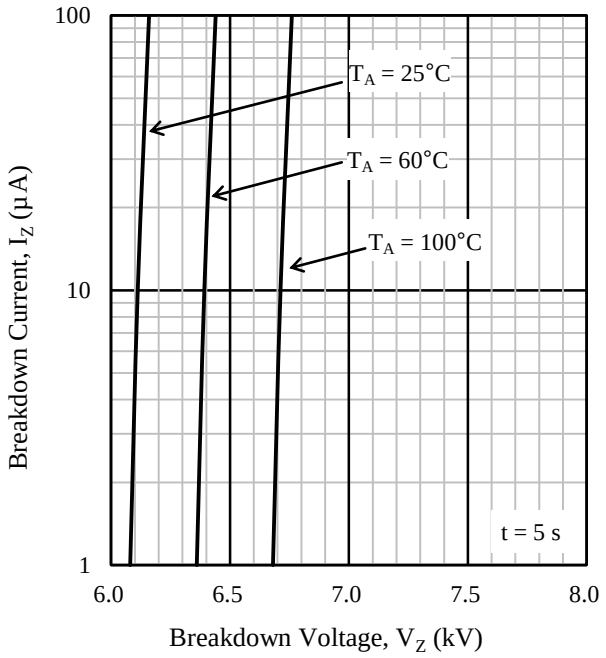


Figure 3-15 $I_Z - V_Z$ typical characteristics

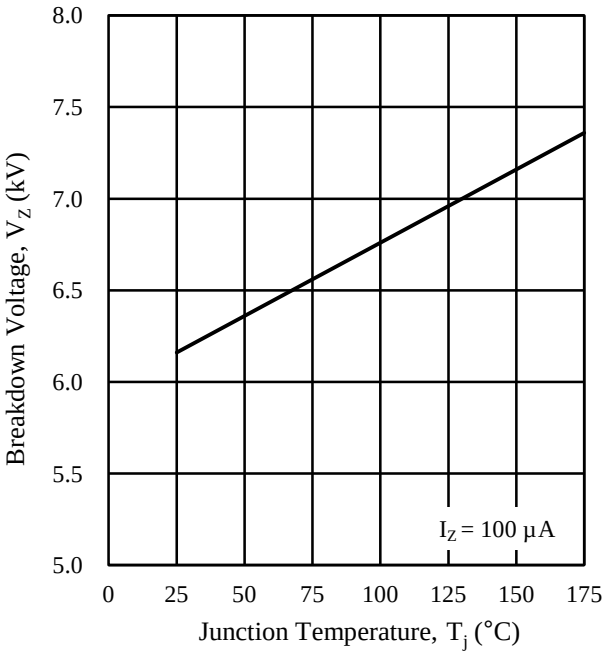


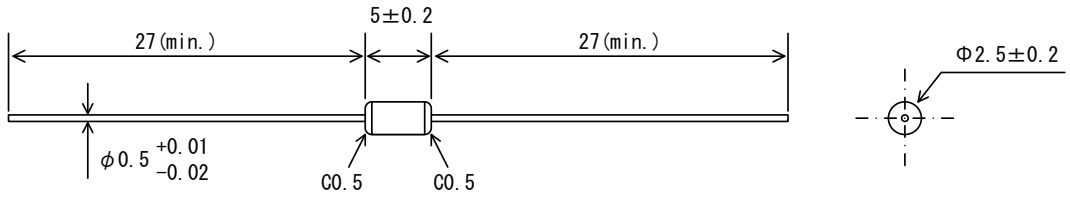
Figure 3-16 $V_Z - T_j$ typical characteristics

4. External Dimensions

- Dimension is in millimeters.
- Lead treatment Pb-free. Device composition compliant with the RoHS directive.

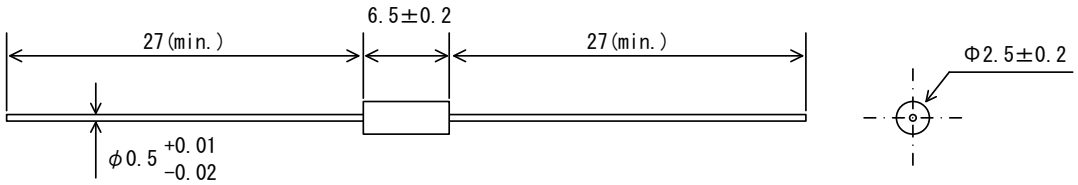
4.1. SHV-05J

- Axial (φ2.5 × 5L / φ0.5)



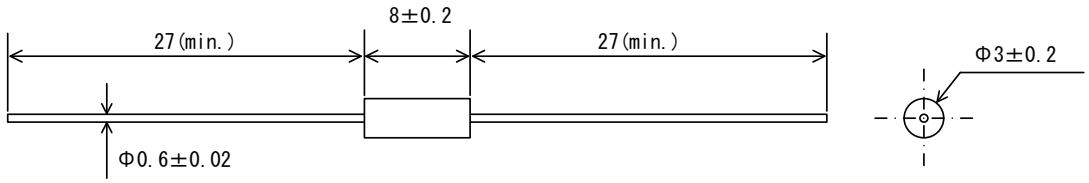
4.2. SHV-02JN、SHV-06JN

- Axial (φ2.5 × 6.5L / φ0.5)



4.3. SHV-08J

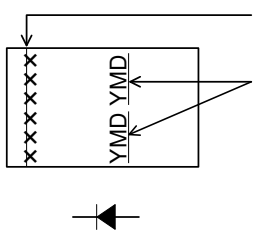
- Axial (φ3 × 8L / φ0.6)



5. Marking Diagram

5.1. SHV-05J

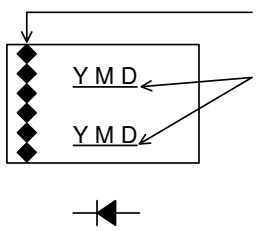
- Axial (φ2.5 × 5L / φ0.5)



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

5.2. SHV-02JN

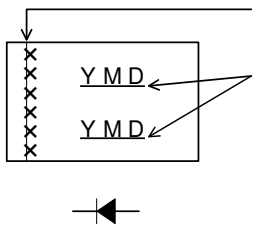
- Axial (φ2.5 × 6.5L / φ0.5)



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

5.3. SHV-06JN、SHV-08J

- SHV-06JN : Axial (φ2.5 × 6.5L / φ0.5)
- SHV-08J : Axial (φ3 × 8L / φ0.6)



Lot Number:
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