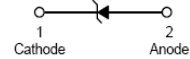


## Features

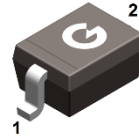
- Tight voltage tolerance:  $\pm 5\%$
- Ultra low-profile package well suited for automated assembly
- Moisture sensitivity level 1
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



## Mechanical Data

- Case: SOD-323
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOD-323

## Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| TMMSZ5231BS | SOD-323 | 3000 pcs / Tape & Reel | E1           |

## Thermal Characteristics

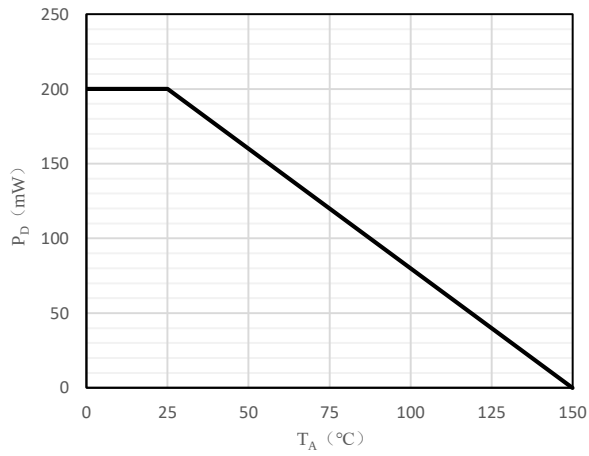
| Parameter                                         | Symbol          | Value      | Unit                 |
|---------------------------------------------------|-----------------|------------|----------------------|
| Power Dissipation                                 | $P_D$           | 200        | mW                   |
| Thermal Resistance Junction-to-Air <sup>*1</sup>  | $R_{\theta JA}$ | 400        | $^{\circ}\text{C/W}$ |
| Thermal Resistance Junction-to-Case <sup>*1</sup> | $R_{\theta JC}$ | 200        | $^{\circ}\text{C/W}$ |
| Thermal Resistance Junction-to-Lead <sup>*1</sup> | $R_{\theta JL}$ | 250        | $^{\circ}\text{C/W}$ |
| Operating Junction Temperature Range              | $T_J$           | -55 ~ +150 | $^{\circ}\text{C}$   |
| Storage Temperature Range                         | $T_{STG}$       | -65 ~ +150 | $^{\circ}\text{C}$   |

Note 1: The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper

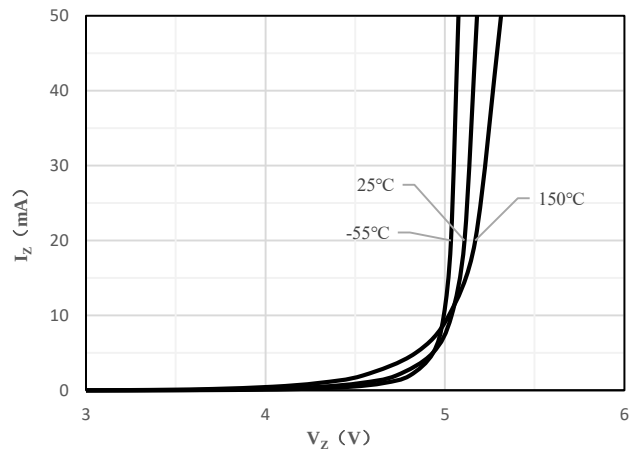
## Electrical Characteristics (@ $T_A = 25^{\circ}\text{C}$ unless otherwise specified)

| Parameter               | Symbol   | Test Condition           | Min. | Typ.  | Max. | Unit                         |
|-------------------------|----------|--------------------------|------|-------|------|------------------------------|
| Zener Voltage           | $V_Z$    | $I_{ZT} = 20\text{mA}$   | 4.85 | 5.10  | 5.36 | V                            |
| Forward Voltage         | $V_F$    | $I_F = 10\text{mA}$      | -    | -     | 0.9  | V                            |
| Maximum Reverse Current | $I_R$    | $V_R = 2\text{V}$        | -    | -     | 5    | $\mu\text{A}$                |
| Maximum Zener Impedance | $Z_{ZT}$ | $I_{ZT} = 20\text{mA}$   | -    | -     | 17   | $\Omega$                     |
| Maximum Zener Impedance | $Z_{ZK}$ | $I_{ZK} = 0.25\text{mA}$ | -    | -     | 1600 | $\Omega$                     |
| Temperature Coefficient | $T_C$    | $I_{ZT} = 20\text{mA}$   | -    | 0.555 | -    | $\text{mV}/^{\circ}\text{C}$ |

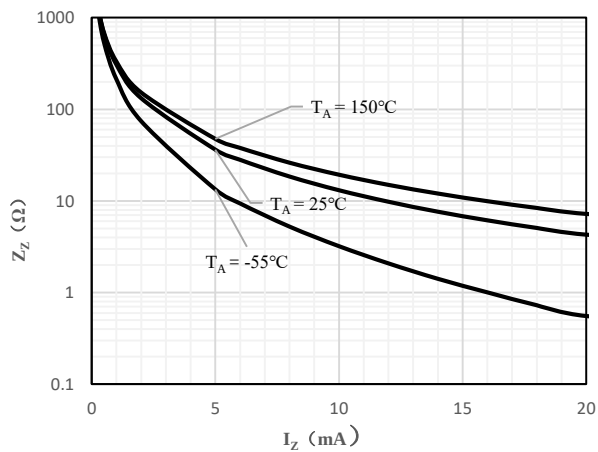
**TYPICAL CHARACTERISTICS** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



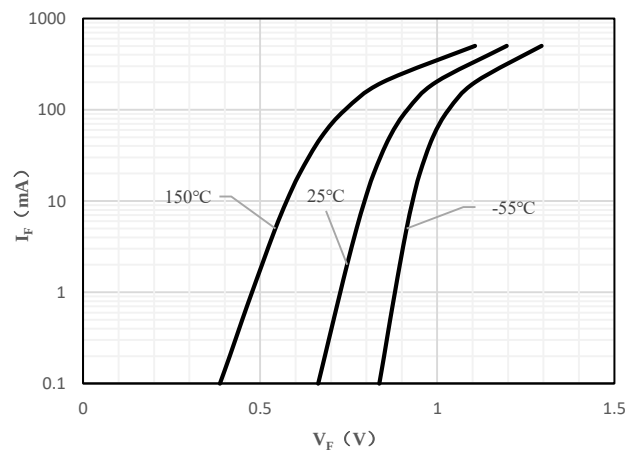
**Fig 1 Steady State Power Derating**



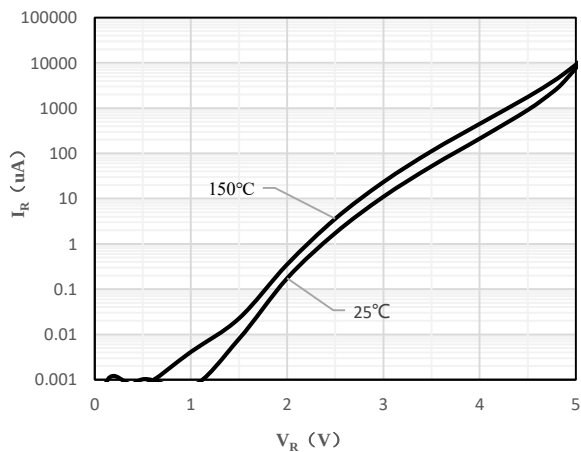
**Fig 2 Typical Zener Breakdown Characteristics**



**Fig 3 Zener Impedance vs. Zener Current**

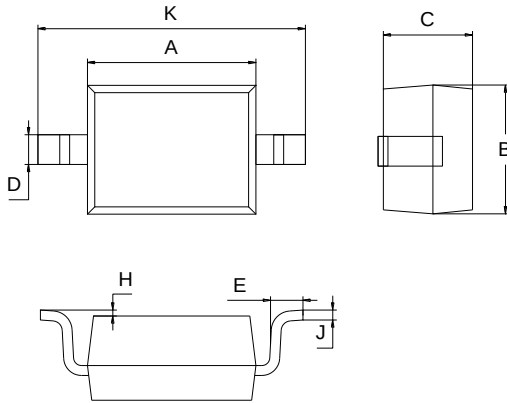


**Fig 4 Typical Forward Characteristics**



**Fig 5 Typical Reverse Characteristics**

**Package Outline Dimensions** (Unit: mm)



| SOD-323   |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 1.60 | 1.80 |
| B         | 1.20 | 1.40 |
| C         | 0.80 | 0.90 |
| D         | 0.25 | 0.35 |
| E         | 0.22 | 0.42 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.55 | 2.75 |

**Package Outline Dimensions** (Unit: mm)

**SOD-323**

