

## FEATURES

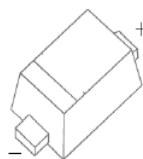
High breakdown voltage  
Low turn-on voltage  
Guard ring construction for transient protection

## VOLTAGE RANGE

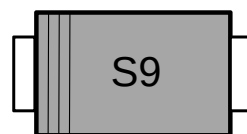
100 Volts

## CURRENT

150mA



SOD-523



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter                                                                  | Symbol          | Limit    | Unit |
|----------------------------------------------------------------------------|-----------------|----------|------|
| Peak repetitive peak reverse voltage                                       | $V_{RRM}$       | 100      | V    |
| Working peak reverse voltage                                               | $V_{RWM}$       |          |      |
| Forward continuous current                                                 | $I_F$           | 150      | mA   |
| Repetitive peak forward current (Note 1) @ $t_p < 1.0s$ , Duty Cycle < 50% | $I_{FRM}$       | 350      | mA   |
| Non-repetitive Peak Forward surge current @ $t = 8.3ms$                    | $I_{FSM}$       | 750      | mA   |
| Power dissipation                                                          | $P_D$           | 500      | mW   |
| Thermal resistance junction to ambient air                                 | $R_{\theta JA}$ | 200      | °C/W |
| Junction temperature                                                       | $T_j$           | 125      | °C   |
| Storage temperature                                                        | $T_{STG}$       | -55~+150 | °C   |

## Characteristics at Ta = 25°C

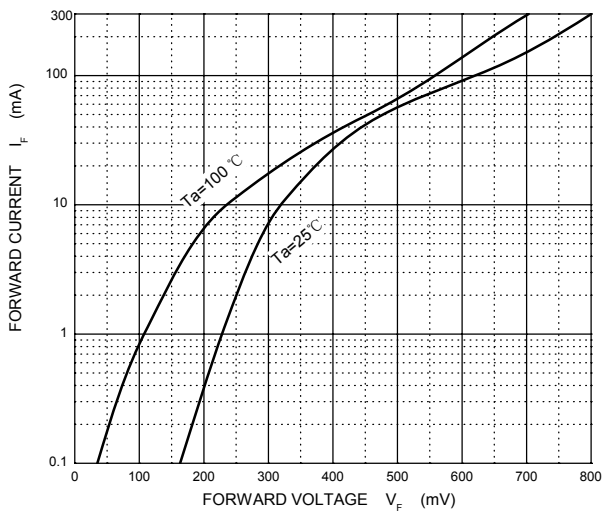
| Parameter                         | Symbol | Test Conditions      | Min | Typ | Max  | Unit    |
|-----------------------------------|--------|----------------------|-----|-----|------|---------|
| Reverse breakdown voltage(Note 2) | $V_R$  | $I_R = 100\mu A$     | 100 |     |      | V       |
| Reverse voltage leakage current   | $I_R$  | $V_{R1} = 1.5V$      |     |     | 0.3  | $\mu A$ |
|                                   |        | $V_{R2} = 10V$       |     |     | 0.5  |         |
|                                   |        | $V_{R3} = 50V$       |     |     | 1    |         |
|                                   |        | $V_{R4} = 75V$       |     |     | 2    |         |
| Forward voltage(Note 2)           | $V_F$  | $I_{F1} = 0.1mA$     |     |     | 0.30 | V       |
|                                   |        | $I_{F2} = 10mA$      |     |     | 0.45 |         |
|                                   |        | $I_{F3} = 250mA$     |     |     | 1    |         |
| Diode capacitance                 | $C_T$  | $V_R = 0, f = 1MHz$  |     | 20  |      | pF      |
|                                   |        | $V_R = 1V, f = 1MHz$ |     | 12  |      |         |

Notes: 1. Part mounted on FR-4 board with recommended pad layout.  
2. Short duration pulse test used to minimize self-heating effect.

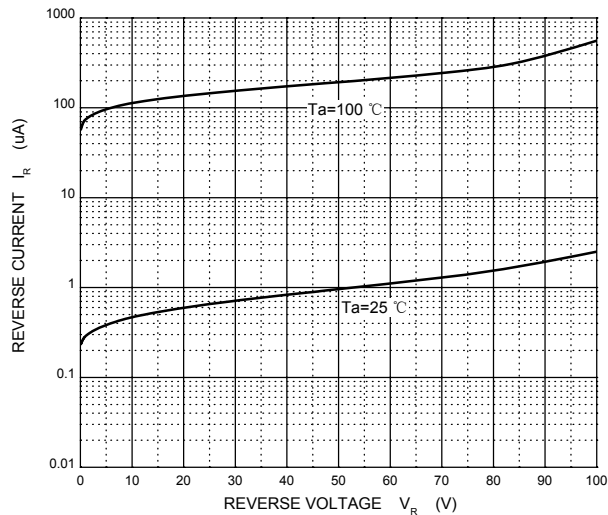


## RATING AND CHARACTERISTIC CURVES

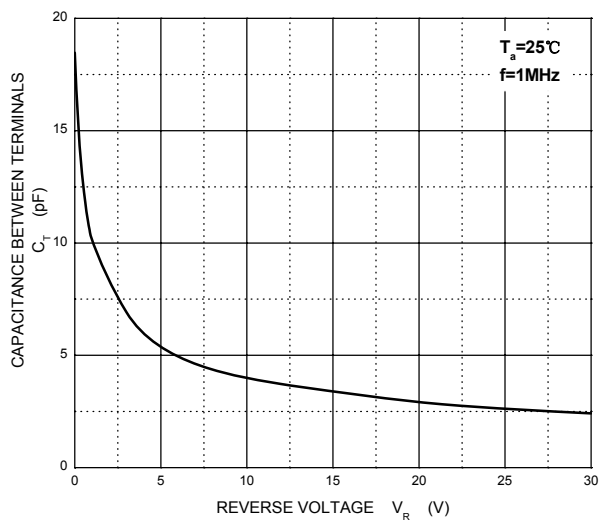
**Forward Characteristics**



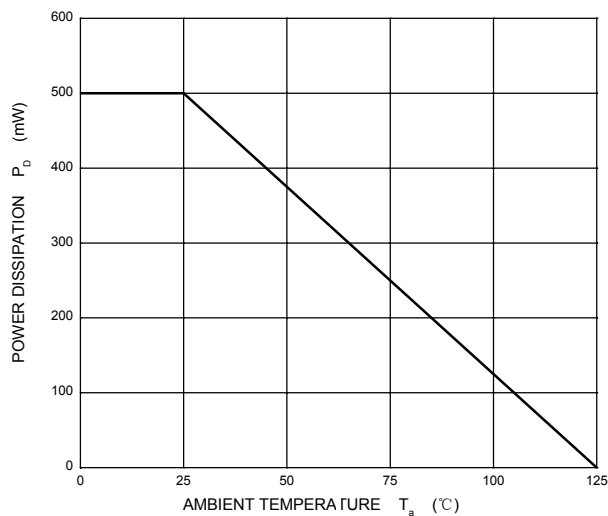
**Reverse Characteristics**



**Capacitance Characteristics**

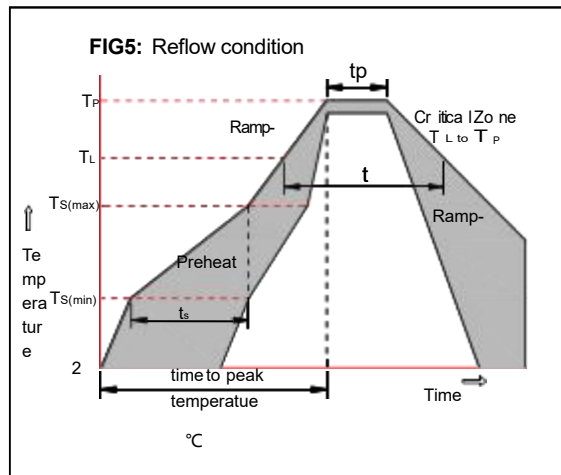


**Power Derating Curve**



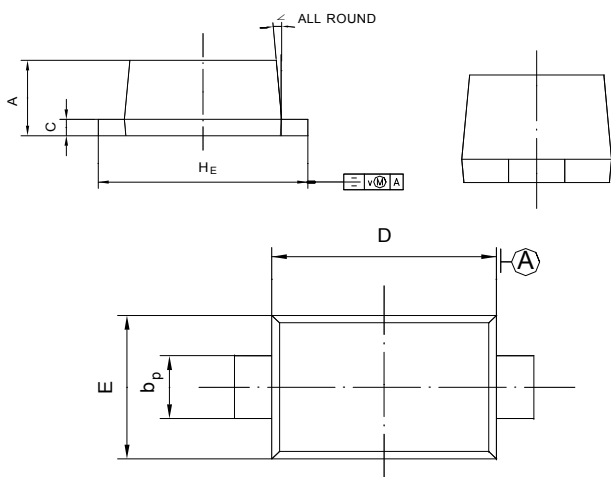
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150 °C                            |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200 °C                            |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3 °C/sec. Max                      |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3 °C/sec. Max                      |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217 °C                            |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5) °C                     |
| Time within 5 °C of actual Peak Temp ( $t_p$ )          |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6 °C/sec. Max                      |
| Time 25 °C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260 °C                            |

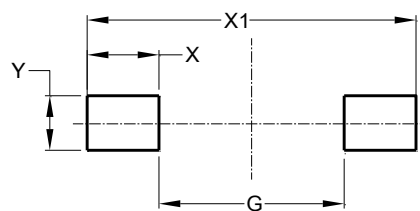


## Package Dimensions & Suggested Pad Layout

SOD523



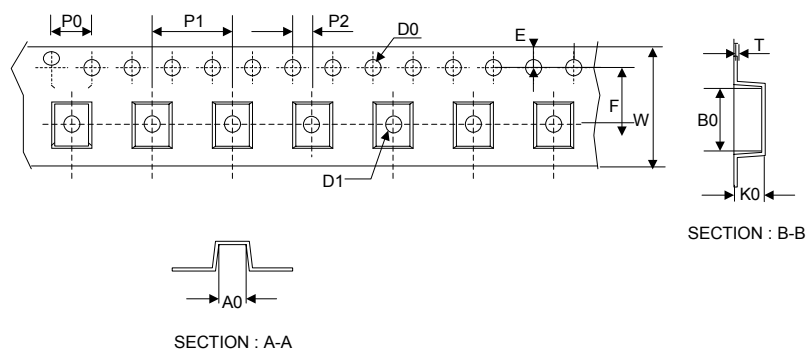
| UNIT | A            | b <sub>p</sub> | C            | D            | E            | H <sub>E</sub> | V   | ∠  |
|------|--------------|----------------|--------------|--------------|--------------|----------------|-----|----|
| mm   | 0.70<br>0.50 | 0.40<br>0.20   | 0.14<br>0.05 | 1.30<br>1.10 | 0.90<br>0.75 | 1.70<br>1.50   | 0.1 | 5° |



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 0.85          |
| X          | 0.70          |
| X1         | 2.25          |
| Y          | 0.80          |

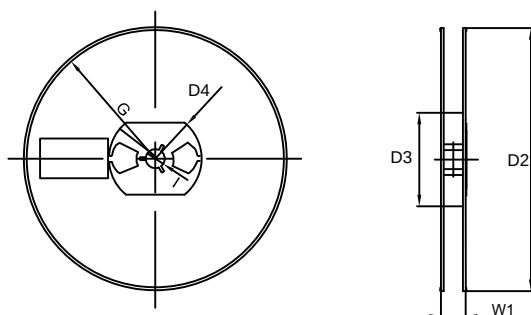
## Tape & reel specification

### Tape



| Symbol | Dimension (mm) |
|--------|----------------|
| P0     | 4.00±0.20      |
| P1     | 2.00±0.20      |
| P2     | 2.00±0.20      |
| D0     | 1.55±0.20      |
| D1     | 0.50±0.20      |
| E      | 1.55±0.25      |
| F      | 3.60±0.20      |
| W      | 8.00±0.20      |
| A0     | 1.30±0.20      |
| B0     | 2.35±0.20      |
| K0     | 0.95±0.20      |
| T      | 0.20±0.20      |
| D2     | 177.0±5.0      |
| D3     | 55Min.         |
| D4     | R24.6±2.0      |
| G      | R82.0±2.0      |
| I      | 13.0±2.0       |
| W1     | 10.20±3.0      |

### 7" Reel



Quantity: 3000PCS