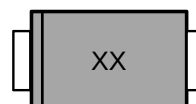


## FEATURES

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Reverse Breakdown Voltage

## MECHANICAL DATA

- Package: SOD123
- Package Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0



BAV19W Marking: A8  
BAV20W Marking: T2  
BAV21W Marking: T3

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.  
Single phase half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| TYPE NUMBER                                   | BAV19W      | BAV20W | BAV21W | UNITS |
|-----------------------------------------------|-------------|--------|--------|-------|
| Maximum Recurrent Peak Reverse Voltage        | 120         | 200    | 250    | V     |
| Maximum RMS Voltage                           | 100         | 150    | 200    | V     |
| Maximum DC Blocking Voltage                   | 120         | 200    | 250    | V     |
| Maximum Average Forward Rectified Current     | 0.25        |        |        | A     |
| Peak Forward Surge Current                    | @ at 1s     |        |        | A     |
|                                               | @ at 1ms    |        |        | A     |
|                                               | @ at 1us    |        |        | A     |
| Maximum Instantaneous Forward Voltage at 0.2A | 1.25        |        |        | V     |
| Maximum DC Reverse Current                    | 0.1         |        |        | μA    |
| at Rated DC Blocking Voltage<br>Ta=25°C       |             |        |        |       |
| Typical Junction Capacitance                  | 3.5         |        |        | pF    |
| Total Power Dissipation                       | 250         |        |        | mW    |
| Maximum Reverse Recovery Time                 | 50          |        |        | ns    |
| Operating Temperature Range T <sub>J</sub>    | -55 to +150 |        |        | °C    |
| Storage Temperature Range T <sub>STG</sub>    | -55 to +150 |        |        | °C    |

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL Forward Current Derating Curve

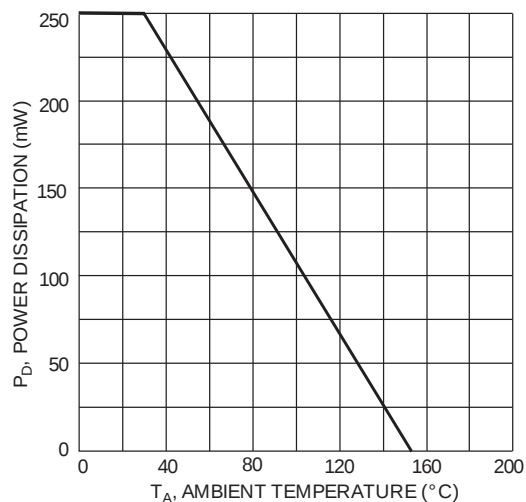


Fig. 2 Typical Forward Characteristics

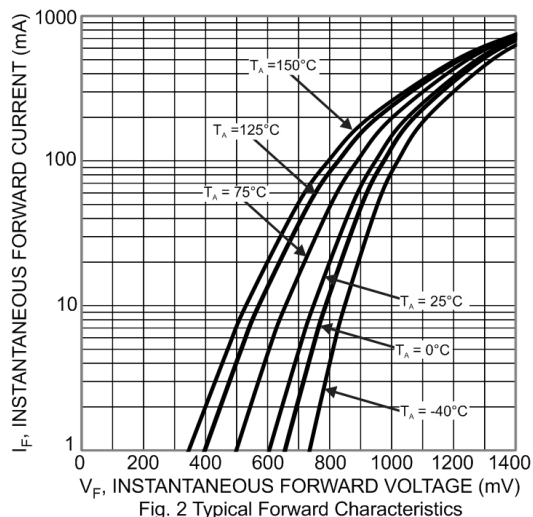


Fig. 3 Typical Reverse Characteristics

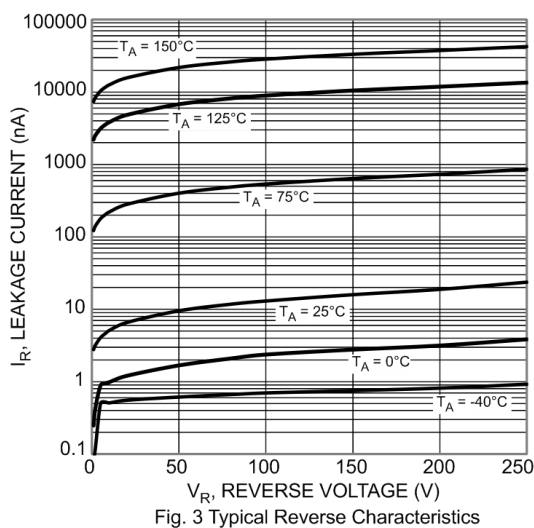


Fig. 4 Total Capacitance vs. Reverse Voltage

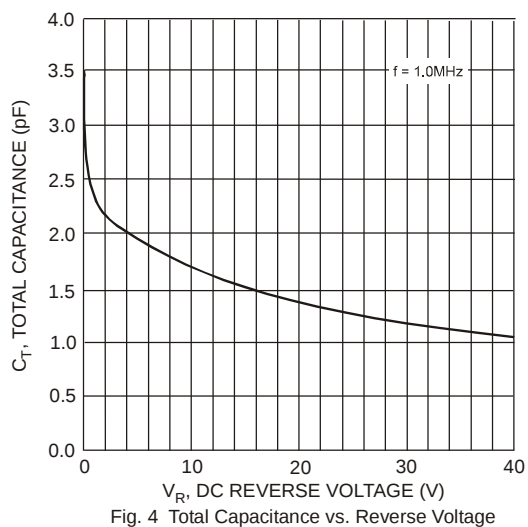
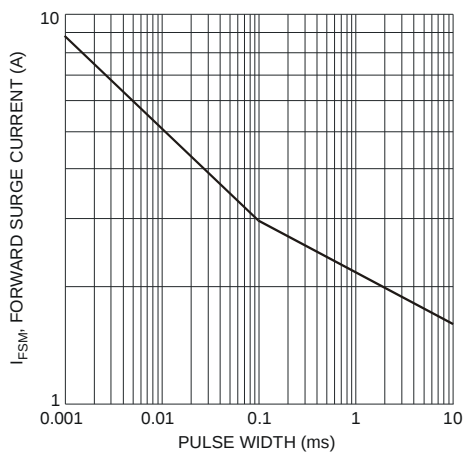
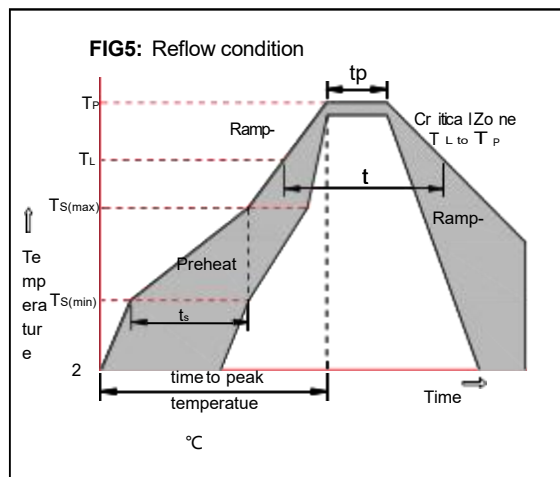


Fig. 5 Maximum Non-Repetitive Surge Currer



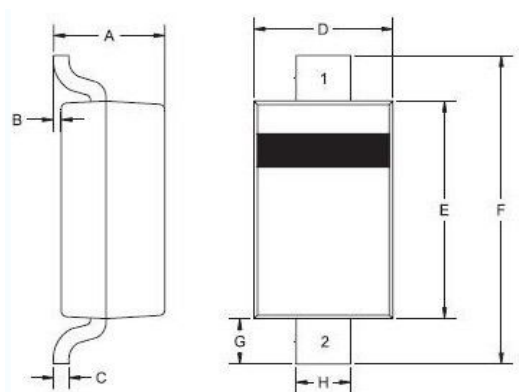
## Soldering parameters

| 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                            |

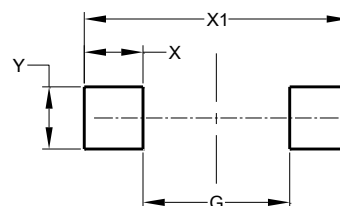


## Package Dimensions & Suggested Pad Layout

### SOD123

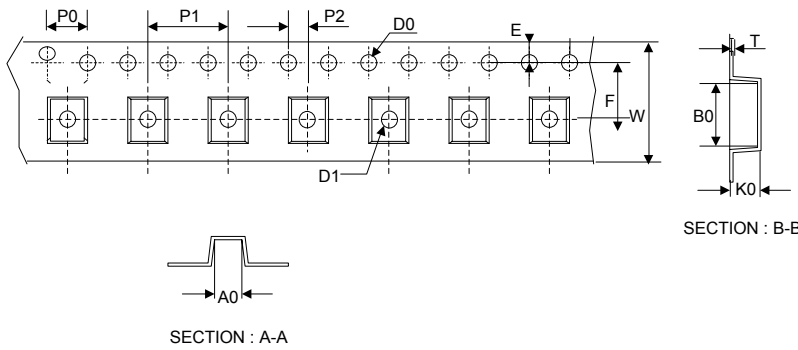
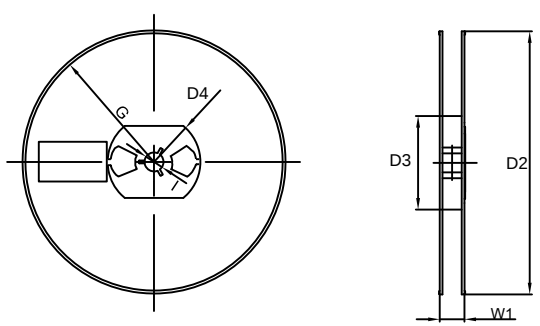


| SOD123               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.95 | 1.35 |
| B                    | 0.00 | 0.12 |
| C                    | -    | 0.20 |
| D                    | 1.40 | 1.80 |
| E                    | 2.50 | 2.80 |
| F                    | 3.60 | 3.90 |
| G                    | 0.40 | -    |
| H                    | 0.50 | 0.70 |
| All Dimensions in mm |      |      |



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 2.20          |
| X          | 1.20          |
| X1         | 4.60          |
| Y          | 1.20          |

## Tape & reel specification

| Tape                                                                                |  | Symbol            | Dimension (mm) |
|-------------------------------------------------------------------------------------|--|-------------------|----------------|
|    |  | P0                | 4.00±0.20      |
|                                                                                     |  | P1                | 4.00±0.20      |
|                                                                                     |  | P2                | 2.00±0.20      |
|                                                                                     |  | D0                | 1.55±0.10      |
|                                                                                     |  | D1                | 1.00±0.20      |
|                                                                                     |  | E                 | 1.75±0.20      |
|                                                                                     |  | F                 | 3.60±0.20      |
|                                                                                     |  | W                 | 8.00±0.40      |
|                                                                                     |  | A0                | 2.30±0.40      |
|                                                                                     |  | B0                | 4.00±0.40      |
|                                                                                     |  | K0                | 1.50±0.40      |
|                                                                                     |  | T                 | 0.23±0.10      |
|                                                                                     |  |                   |                |
| 7" Reel                                                                             |  |                   |                |
|  |  | D2                | 177.0±3.0      |
|                                                                                     |  | D3                | 55Min.         |
|                                                                                     |  | D4                | R24.0±3.0      |
|                                                                                     |  | G                 | R82.0±3.0      |
|                                                                                     |  | I                 | 13.0±2.0       |
|                                                                                     |  | W1                | 11.0±3.0       |
|                                                                                     |  | Quantity: 3000PCS |                |