

## VOLTAGE RANGE

20 to 100 Volts

## CURRENT

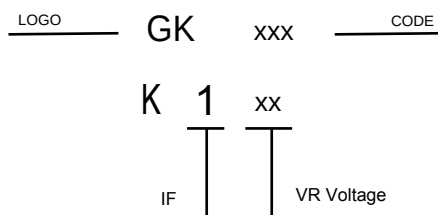
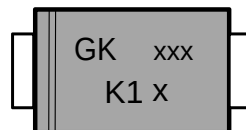
1.0 Ampere

## FEATURES

- \* Ideal for surface mount applications
- \* Easy pick and place
- \* Built-in strain relief
- \* Low forward voltage drop

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Terminals: Solder plated, solderable per MIL-STD-202F method 208 guaranteed
- \* Polarity: Color band denotes cathode end
- \* Mounting position: Any
- \*



## 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                                                                                        | DS12W      | DS13W | DS14W | DS15W | DS16W | DS18W      | DS19W | DS110W | UNITS |
|----------------------------------------------------------------------------------------------------|------------|-------|-------|-------|-------|------------|-------|--------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                             | 20         | 30    | 40    | 50    | 60    | 80         | 90    | 100    | V     |
| Maximum RMS Voltage                                                                                | 14         | 21    | 28    | 35    | 42    | 56         | 63    | 70     | V     |
| Maximum DC Blocking Voltage                                                                        | 20         | 30    | 40    | 50    | 60    | 80         | 90    | 100    | V     |
| Maximum Average Forward Rectified Current                                                          | 1.0        |       |       |       |       |            |       |        | A     |
| See Fig. 1                                                                                         |            |       |       |       |       |            |       |        |       |
| Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | 30         |       |       |       |       |            |       |        | A     |
| Maximum Instantaneous Forward Voltage at 1.0A                                                      | 0.55       |       | 0.70  |       | 0.85  |            | V     |        |       |
| Maximum DC Reverse Current Ta=25°C                                                                 | 0.2        |       |       |       |       |            |       |        | mA    |
| at Rated DC Blocking Voltage Ta=100°C                                                              | 10         |       |       |       |       |            |       |        | mA    |
| Typical Junction Capacitance (Note1)                                                               | 110        |       |       |       |       |            |       |        | pF    |
| Typical Thermal Resistance R JA (Note 2)                                                           | 80         |       |       |       |       |            |       |        | °C/W  |
| Operating Temperature Range Tj                                                                     | -65 — +125 |       |       |       |       | -65 — +150 |       |        | °C    |
| Storage Temperature Range Tstg                                                                     | -65 — +150 |       |       |       |       |            |       |        | °C    |

### NOTES:

1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2. Thermal Resistance Junction to Ambient.

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

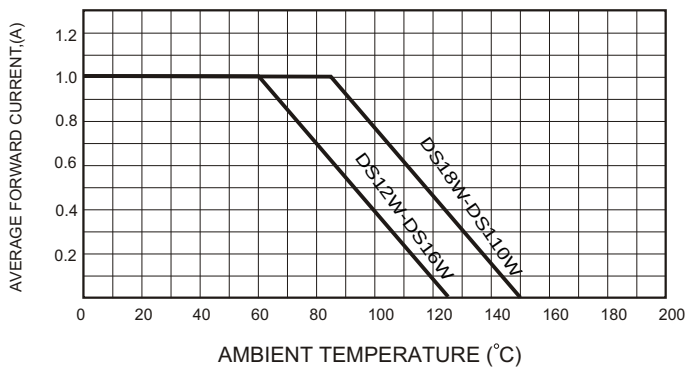


FIG.2-TYPICAL FORWARD CHARACTERISTICS

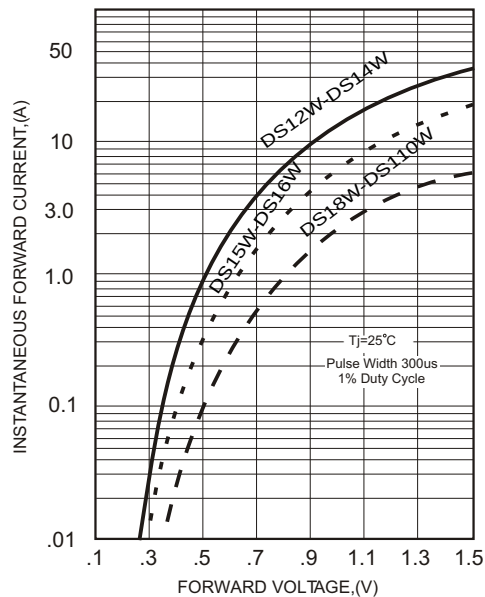


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

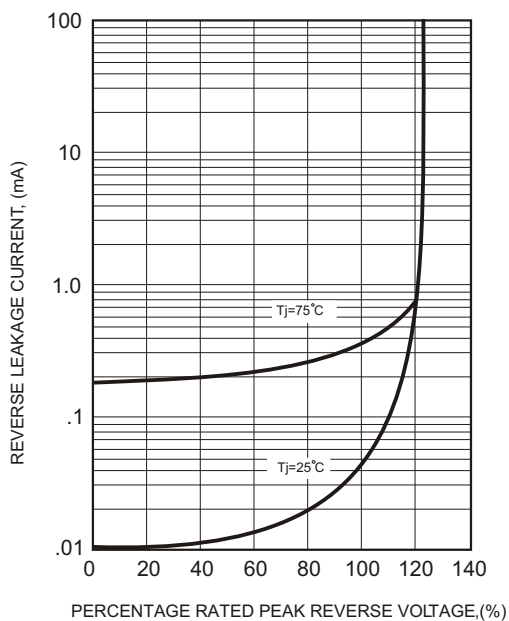


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

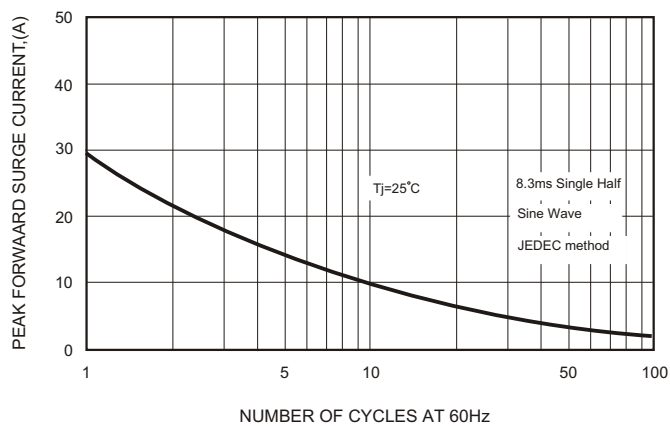
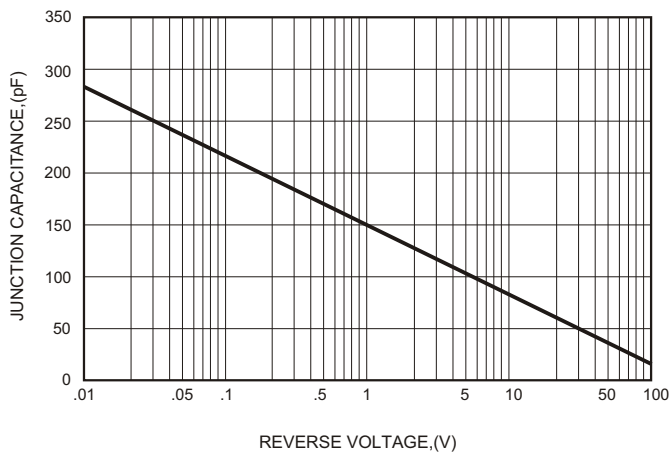
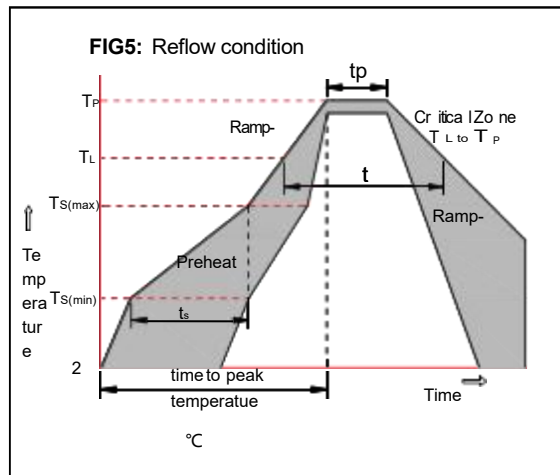


FIG.5-TYPICAL JUNCTION CAPACITANCE



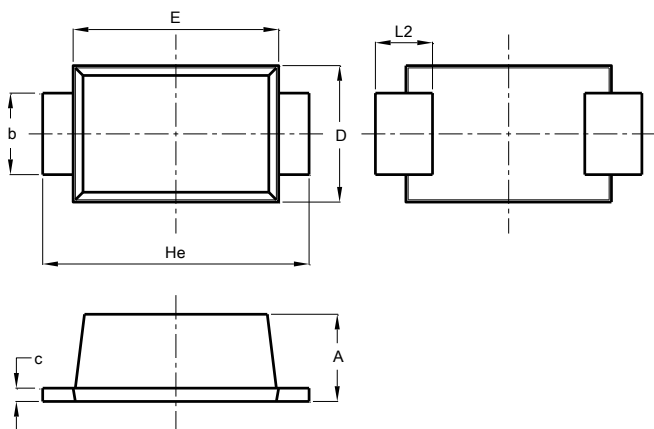
## Soldering parameters

| 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                             |

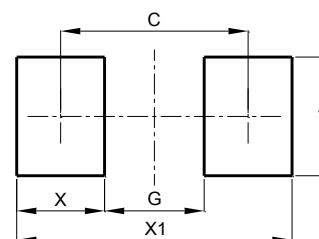


## Package Dimensions & Suggested Pad Layout

### SOD123FL

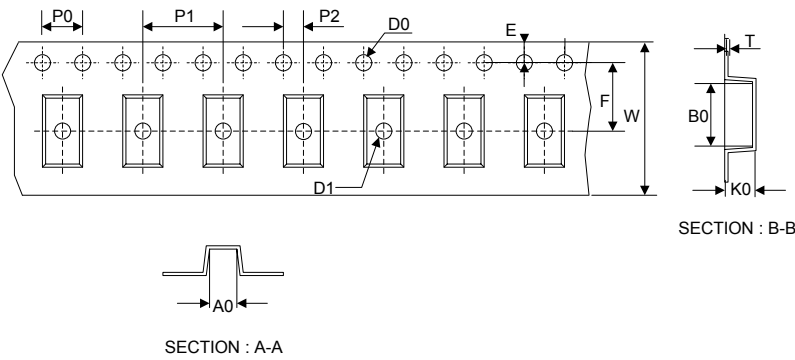
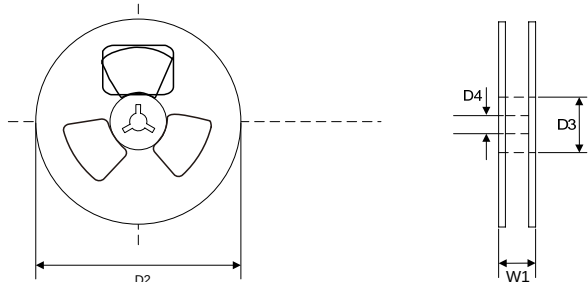


| SOD123FL             |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 1.00 | 1.20 |
| b                    | 0.80 | 1.10 |
| c                    | 0.12 | 0.20 |
| D                    | 1.75 | 1.95 |
| E                    | 2.60 | 2.90 |
| He                   | 3.55 | 3.80 |
| L2                   | 0.50 | 0.85 |
| All Dimensions in mm |      |      |



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 3.25          |
| G          | 2.00          |
| X          | 1.25          |
| X1         | 4.50          |
| Y          | 1.50          |

## Tape & reel specification

| Tape                                                                                                                        |  | Symbol            | Dimension (mm) |
|-----------------------------------------------------------------------------------------------------------------------------|--|-------------------|----------------|
|  <p>SECTION : A-A</p> <p>SECTION : B-B</p> |  | P0                | 4.00±0.20      |
|                                                                                                                             |  | P1                | 4.00±0.20      |
|                                                                                                                             |  | P2                | 2.00±0.20      |
|                                                                                                                             |  | D0                | 1.55±0.15      |
|                                                                                                                             |  | D1                | 1.00±0.20      |
|                                                                                                                             |  | E                 | 1.75±0.20      |
|                                                                                                                             |  | F                 | 3.50±0.25      |
|                                                                                                                             |  | W                 | 8.00±0.20      |
|                                                                                                                             |  | A0                | 1.85±0.20      |
|                                                                                                                             |  | B0                | 3.95±0.20      |
|                                                                                                                             |  | K0                | 1.30±0.20      |
|                                                                                                                             |  | T                 | 0.21±0.10      |
|                                                                                                                             |  | D2                | 178.0±5.0      |
|                                                                                                                             |  | D3                | 55.0Min.       |
| 7" Reel                                                                                                                     |  | D4                | 10.0±2.5       |
|                                           |  | W1                | 11.5±2.5       |
|                                                                                                                             |  | Quantity: 3000PCS |                |