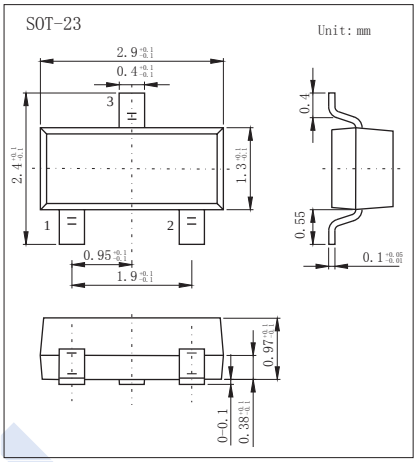
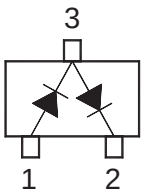
# Switching Diodes

# 1KS3004




## ■ Features

- Fast Switching Speed
- For General Purpose Switching Applications.
- High Conductance




## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Repetitive Peak Reverse Voltage | | $V_{RRM}$ | 100 | V |
| Continuous Reverse Voltage | | $V_R$ | 100 | |
| Forward Current (Double Diode Loaded) | | $I_F$ | 150 | mA |
| Forward Current (Single Diode Loaded) | | | 250 | |
| Repetitive Peak Forward Current | | $I_{FRM}$ | 450 | |
| Non-repetitive Peak Forward Surge Current | t=1s | $I_{FSM}$ | 1 | A |
| | t=1ms | | 2 | |
| | t=1us | | 4 | |
| Power Dissipation | | $P_d$ | 350 | mW |
| Junction Temperature | | $T_J$ | 150 | ℃ |
| Storage Temperature range | | $T_{stg}$ | -65 to 150 | |

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse breakdown voltage | $V_R$ | $I_R$= 100 uA | 100 | | | V |
| Forward voltage | $V_F$ | $I_F$= 1 mA | | | 0.715 | |
| | | $I_F$= 10 mA | | | 0.855 | |
| | | $I_F$= 50 mA | | | 1 | |
| | | $I_F$= 150 mA | | | 1.25 | |
| Reverse voltage leakage current | $I_R$ | $V_R$= 25 V | | | 30 | nA |
| | | $V_R$= 75 V | | | 1 | uA |
| | | $V_R$= 25 V , $T_J$=150℃ | | | 30 | |
| | | $V_R$= 75 V , $T_J$=150℃ | | | 50 | |
| Junction capacitance | $C_j$ | $V_R$= 0 V, f= 1 MHz | | | 1.5 | pF |
| Reverse recovery time | $t_{rr}$ | $I_F$=$I_R$=10mA,$I_R$=1mA, $R_L$=100Ω | | | 4 | ns |

## ■ Marking

| Marking | SS4 |
|---|---|

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■ Typical Characterisitics

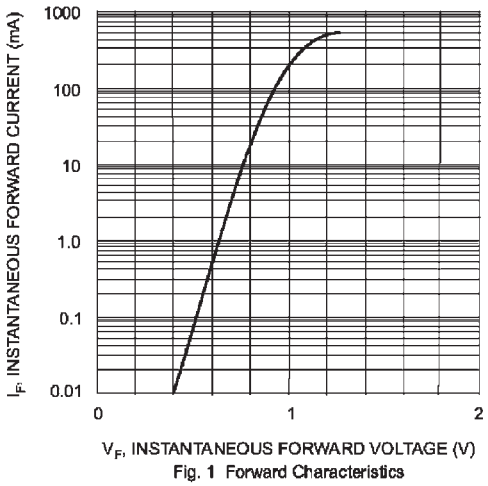



Fig. 1 Forward Characteristics

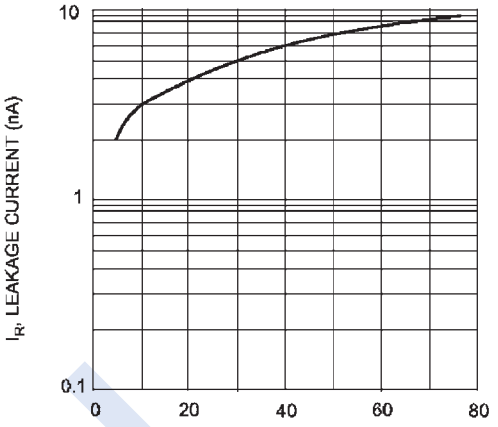



Fig. 2 Typical Leakage Current vs Reverse Voltage

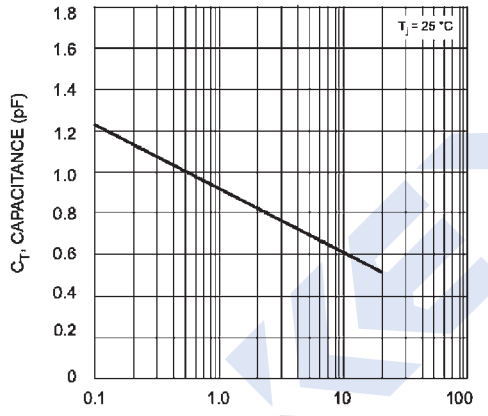


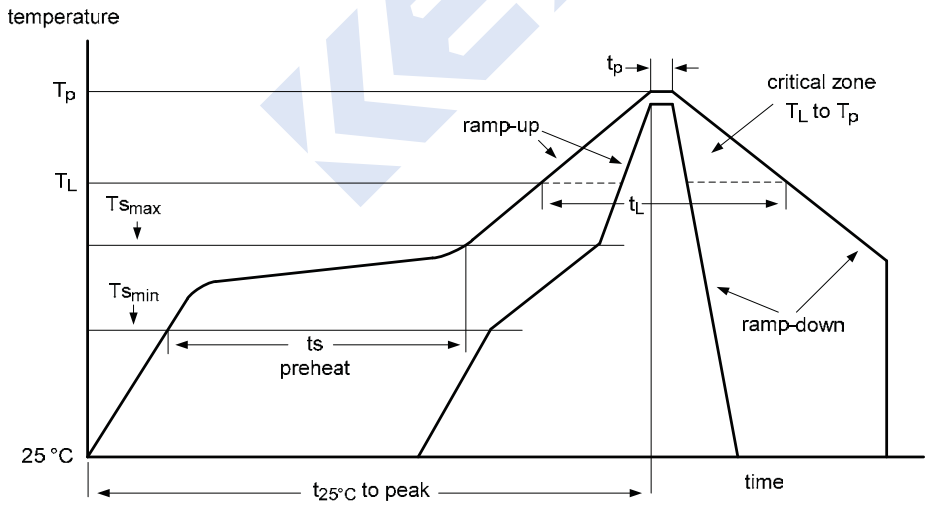

Fig. 3 Typical Total Capacitance vs Reverse Voltage

# Recommended Reflow Soldering Profile

The below temperature profile for moisture sensitivity characterization is based on the IPC/JEDEC joint industry standard: J-STD-020D-01.

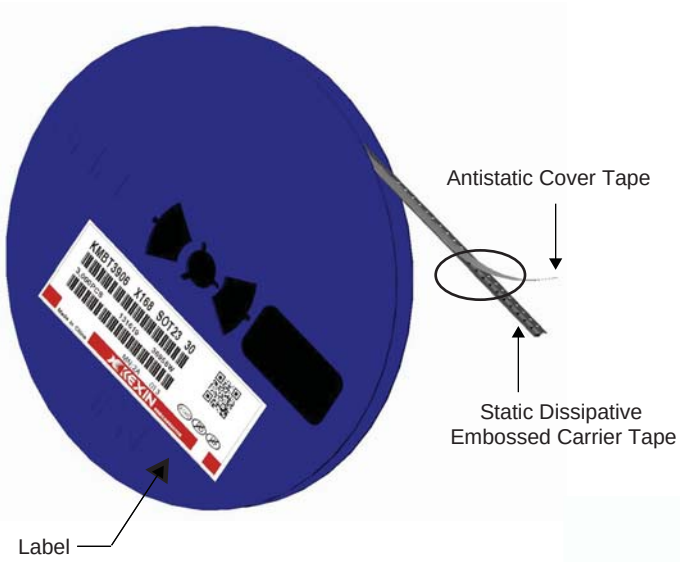
| Profile Feature | SnPb eutectic assembly | Pb-free assembly |
|---|---|---|
| Average ramp-up rate ($T_{smax}$ to $T_p$) | 3 °C/s maximum | 3 °C/s maximum |
| Preheat | | |
| Temperature minimum ($T_{smin}$) | 100 °C | 150 °C |
| Temperature maximum ($T_{smax}$) | 150 °C | 200 °C |
| Time ($t_{smin}$ to $t_{smax}$) | 60 s to 120 s | 60 s to 180 s |
| Time maintained above | | |
| Temperature ($T_L$) | 183 °C | 217 °C |
| Time ($t_L$) | 60 s to 150 s | 60 s to 150 s |
| Peak/classification temperature ($T_p$) | 235 °C | 260 °C |
| Number of allowed reflow cycles | 3 | 3 |
| Time within 5 °C of actual peak temperature ($t_p$) | 10 s to 30 s | 20 s to 40 s |
| Ramp-down rate | 6 °C/s maximum | 6 °C/s maximum |
| Time 25 °C to peak temperature | 6 minutes maximum | 8 minutes maximum |

## Reflow Soldering Profile

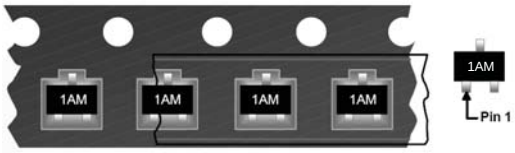


# SOT-23 Tape and Reel Data

## 1. SOT-23 Packing Configuration:



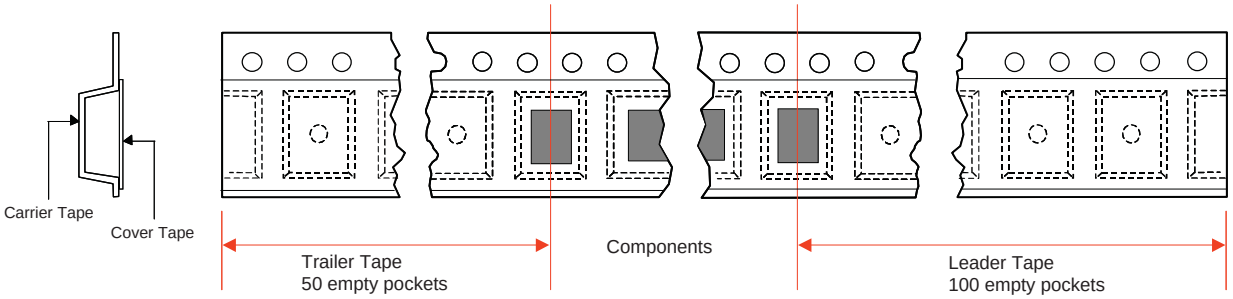

**Packaging Description**
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, Adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.7cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated). This and some other options are further described in the Packaging Information table. These full reels are individually barcode labeled and placed inside a standard intermediate box made of recyclable corrugated brown paper. One box contains ten reels maximum. And these boxes are placed inside a barcode labeled shipping box which comes in different sizes depending on the number of parts shipped.



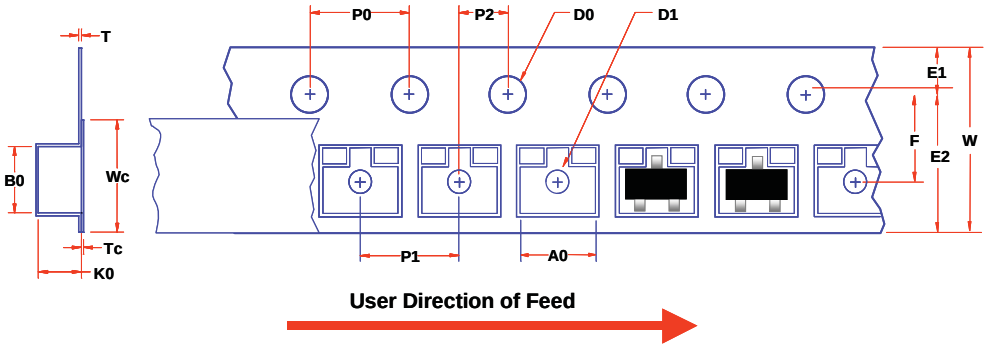

**SOT-23 Unit Orientation**


182mm x 182mm x 135mm
Inner box(10 Reels per box)

## 2. SOT-23 Tape Leader and Trailer Configuration:

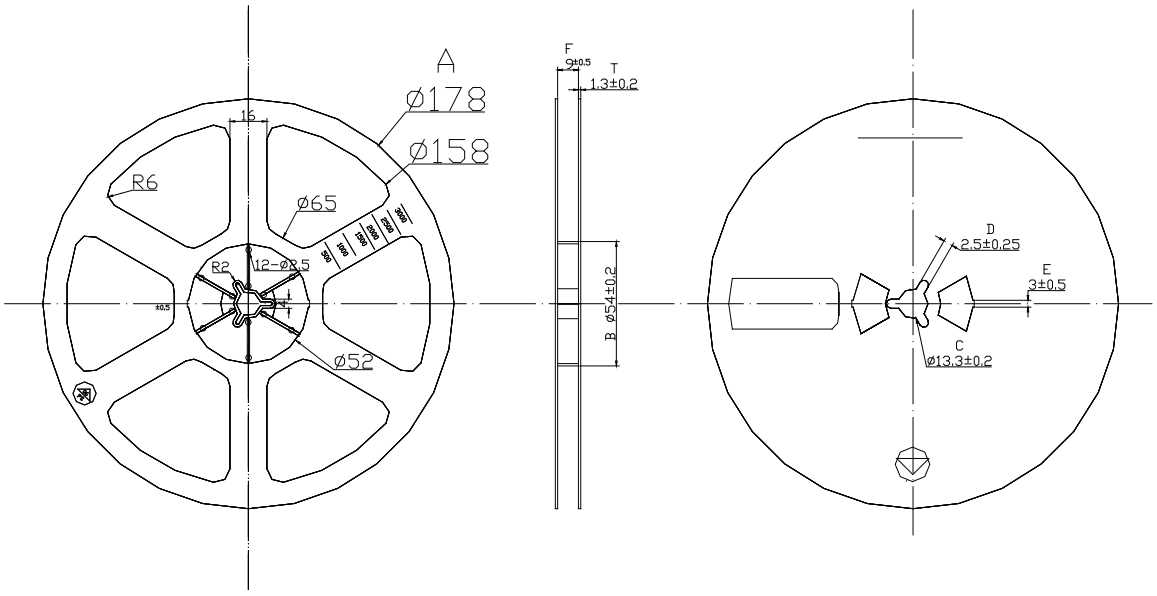


### 3. SOT-23 Embossed Carrier Tape Configuration:




| Dimension are in millimeter | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pkg type | A0 | B0 | W | D0 | D1 | E1 | E2 | F | P2 | P1 | P0 | K0 | T | Wc | Tc |
| SOT-23 | 3.20 +/-0.10 | 2.85 +/-0.10 | 8.0 +/-0.3 | 1.50 +0.10 | 1.0 +/-0.1 | 1.75 +/-0.10 | 6.25 min | 3.50 +/-0.05 | 2.0 +/-0.05 | 4.0 +/-0.1 | 4.0 +/-0.1 | 1.22 +/-0.10 | 0.2 +/-0.02 | 5.4 +/-0.1 | 0.05 +/-0.02 |

### 4. SOT-23 Reel Configuration:




NOTES:
ALL DIMENSION ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED