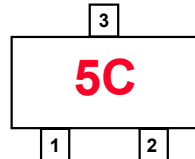
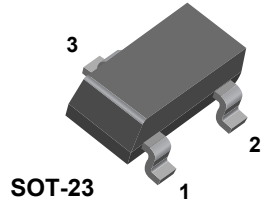
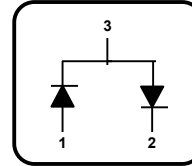


MMBD7000



CONNECTION DIAGRAM



High Conductance Ultra Fast Diode

Sourced from Process 1P. See MMBD1201-1205 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|-------------|--|-------------|--------|
| W_{IV} | Working Inverse Voltage | 70 | V |
| $I_{F(AV)}$ | Average Rectified Current | 200 | mA |
| I_{FM} | DC Forward Current | 600 | mA |
| I_{FRM} | Recurrent Peak Forward Current | 700 | mA |
| I_{FSM} | Non-repetitive Peak Forward Surge Current Pulse width = 1.0 second Pulse width = 1.0 microsecond | 1.0 2.0 | A A |
| T_{stg} | Storage Temperature Range | -55 to +150 | °C |
| T_J | Operating Junction Temperature | 150 | °C |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

| Symbol | Parameter | Max | Units |
|-----------------|---|------------|-------------|
| | | MMBD7000* | |
| P_D | Total Device Dissipation Derate above 25°C | 350 2.8 | mW mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | °C/W |

*Device mounted on glass epoxy PCB 1.6" X 1.6" X 0.06"; mounting pad for the collector lead min. 0.93 in2

High Conductance Ultra Fast Diode
(continued)

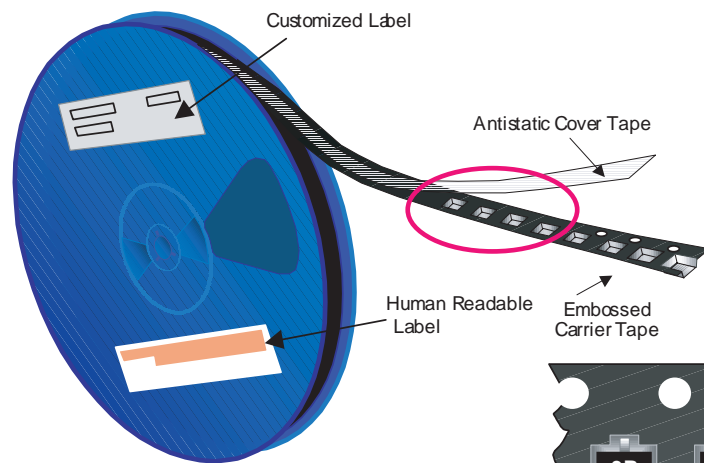
Electrical Characteristics TA = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Max | Units |
|----------|---------------------------------------|--|--------------------|---------------------------|---------------------------|
| V_R | Breakdown Voltage | $I_R = 100\ \mu\text{A}$ | 100 | | V |
| I_{RM} | Maximum Instantaneous Reverse Current | $V_R = 100\ \text{V}$ $V_R = 50\ \text{V}$ $V_R = 50\ \text{V}, T_A = 125^\circ\text{C}$ | | 500 300 100 | nA nA μA |
| V_{FM} | Maximum Instantaneous Forward Voltage | $I_F = 1.0\ \text{mA}$ $I_F = 10\ \text{mA}$ $I_F = 50\ \text{mA}$ $I_F = 150\ \text{mA}$ | 550 670 0.75 | 700 820 1.1 1.25 | mV mV V V |
| C_O | Diode Capacitance | $V_R = 0, f = 1.0\ \text{MHz}$ | | 1.5 | pF |
| t_{rr} | Reverse Recovery Time | $I_F = 10\ \text{mA}, I_{RR} = 1.0\ \text{mA}, R_L = 100\ \Omega$ | | 4.0 | ns |

SOT-23 Tape and Reel Data



SOT-23 Packaging Configuration: Figure 10

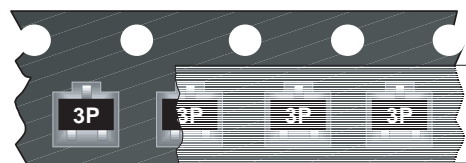


Packaging Description:

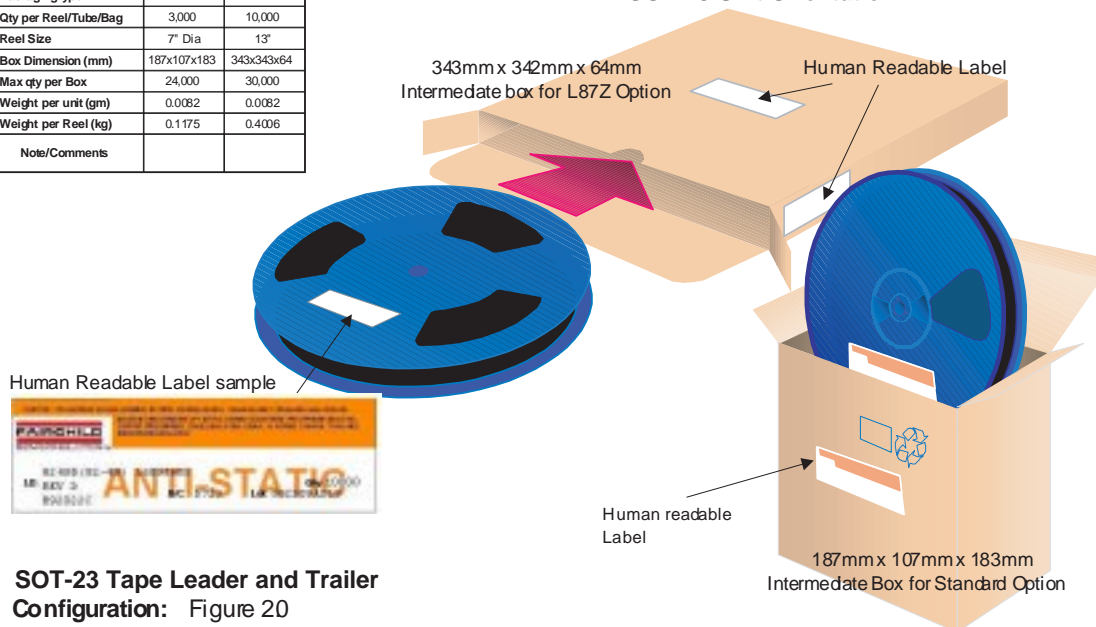
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 177cm diameter reel. The reels are dark blue in color and is made of polystyrene plastic (anti-static coated). Other option comes in 10,000 units per 13" or 330cm diameter reel. This and some other options are described in the Packaging Information table.

These full reels are individually labeled and placed inside a standard intermediate made of recyclable corrugated brown paper with a Fairchild logo printing. One pizza box contains eight reels maximum. And these intermediate boxes are placed inside a labeled shipping box which comes in different sizes depending on the number of parts shipped.

| SOT-23 Packaging Information | | |
|------------------------------|-------------------------|------------|
| Packaging Option | Standard (no flow code) | D87Z |
| Packaging type | TNR | TNR |
| Qty per Reel/Tube/Bag | 3,000 | 10,000 |
| Reel Size | 7" Dia | 13" |
| Box Dimension (mm) | 187x107x183 | 343x343x64 |
| Max qty per Box | 24,000 | 30,000 |
| Weight per unit (gm) | 0.0082 | 0.0082 |
| Weight per Reel (kg) | 0.1175 | 0.4006 |
| Note/Comments | | |



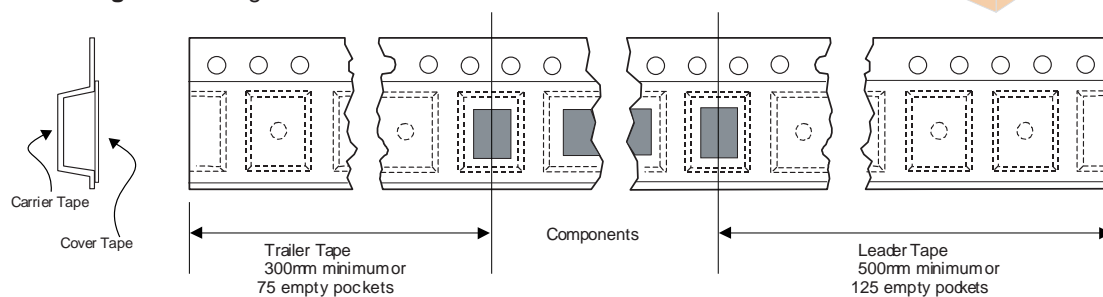
SOT-23 Unit Orientation



Human Readable Label sample

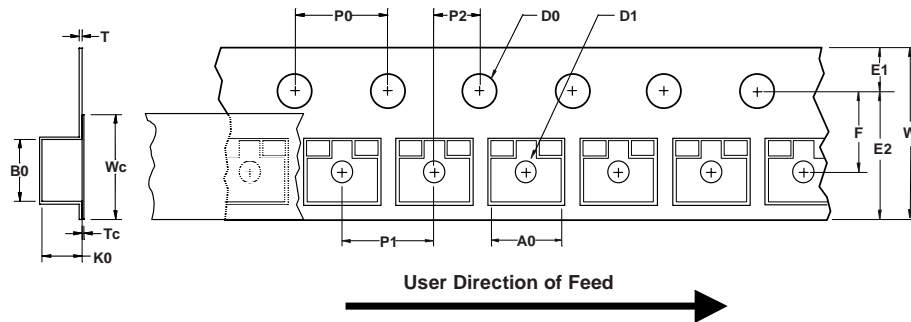


SOT-23 Tape Leader and Trailer Configuration: Figure 20



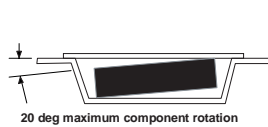
SOT-23 Tape and Reel Data, continued

SOT-23 Embossed Carrier Tape Configuration: Figure 3.0

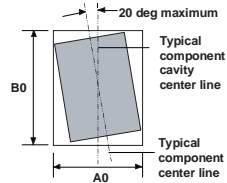


| Dimensions are in millimeter | | | | | | | | | | | | | | |
|------------------------------|-----------------|-----------------|---------------|-----------------|-------------------|-----------------|-------------|-----------------|---------------|---------------|-----------------|-------------------|---------------|-----------------|
| Pkg type | A0 | B0 | W | D0 | D1 | E1 | E2 | F | P1 | P0 | K0 | T | Wc | Tc |
| SOT-23 (8mm) | 3.15 +/-0.10 | 2.77 +/-0.10 | 8.0 +/-0.3 | 1.55 +/-0.05 | 1.125 +/-0.125 | 1.75 +/-0.10 | 6.25 min | 3.50 +/-0.05 | 4.0 +/-0.1 | 4.0 +/-0.1 | 1.30 +/-0.10 | 0.228 +/-0.013 | 5.2 +/-0.3 | 0.06 +/-0.02 |

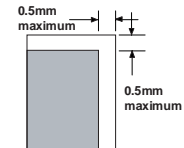
Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).



Sketch A (Side or Front Sectional View)
Component Rotation

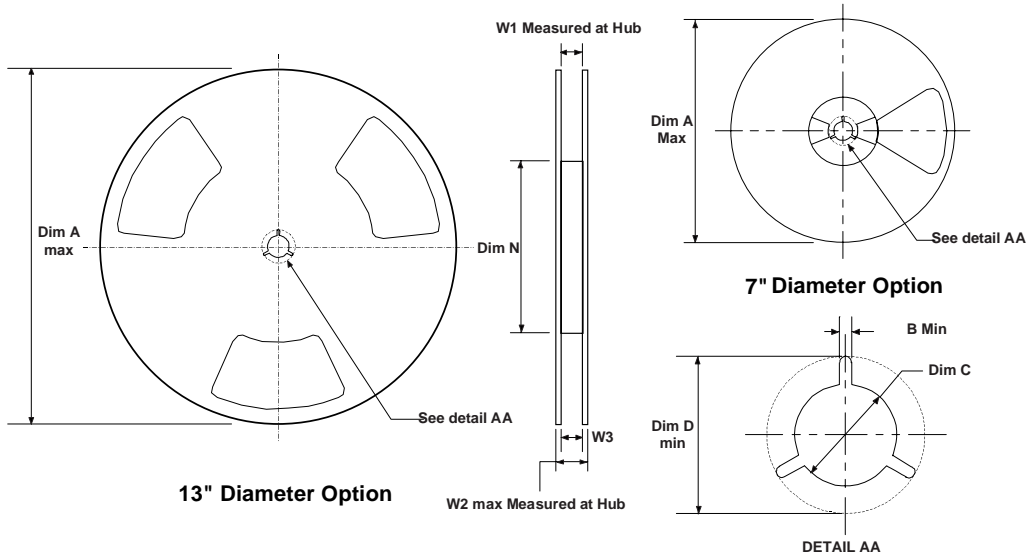


Sketch B (Top View)
Component Rotation



Sketch C (Top View)
Component lateral movement

SOT-23 Reel Configuration: Figure 4.0

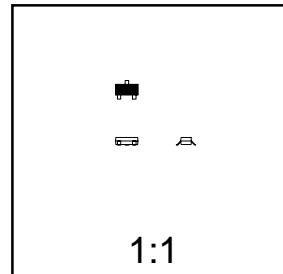
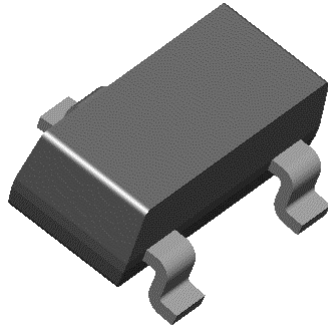


| Dimensions are in inches and millimeters | | | | | | | | | |
|--|-------------|---------------|--------------|-----------------------------------|---------------|-------------|-----------------------------------|---------------|-----------------------------|
| Tape Size | Reel Option | Dim A | Dim B | Dim C | Dim D | Dim N | Dim W1 | Dim W2 | Dim W3 (LSL-USL) |
| 8mm | 7" Dia | 7.00 177.8 | 0.059 1.5 | 512 +0.020/-0.008 13 +0.5/-0.2 | 0.795 20.2 | 2.165 55 | 0.331 +0.059/-0.000 8.4 +1.5/0 | 0.567 14.4 | 0.311 - 0.429 7.9 - 10.9 |
| 8mm | 13" Dia | 13.00 330 | 0.059 1.5 | 512 +0.020/-0.008 13 +0.5/-0.2 | 0.795 20.2 | 4.00 100 | 0.331 +0.059/-0.000 8.4 +1.5/0 | 0.567 14.4 | 0.311 - 0.429 7.9 - 10.9 |

SOT-23 Package Dimensions



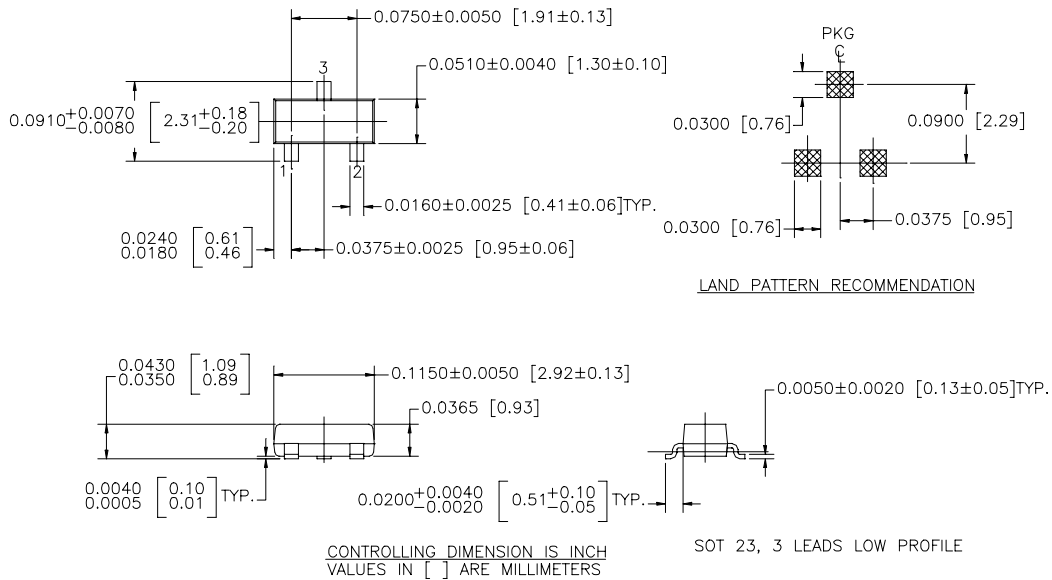
SOT-23 (FS PKG Code 49)



Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.0082



NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS
MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

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