

## FDH/FDLL 300/A / 333



DO-35



LL-34

THE PLACEMENT OF THE EXPANSION GAP  
HAS NO RELATIONSHIP TO THE LOCATION  
OF THE CATHODE TERMINAL

### COLOR BAND MARKING

| DEVICE   | 1ST BAND | 2ND BAND |
|----------|----------|----------|
| FDLL300  | BROWN    | GREEN    |
| FDLL300A | BROWN    | YELLOW   |
| FDLL333  | BROWN    | BLUE     |

## High Conductance Low Leakage Diode

Sourced from Process 1M. See MMBD1501/A-1505/A for characteristics.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

| Symbol         | Parameter                                                                               | Value       | Units  |
|----------------|-----------------------------------------------------------------------------------------|-------------|--------|
| $W_{IV}$       | Working Inverse Voltage                                                                 | 125         | V      |
| $I_O$          | Average Rectified Current                                                               | 200         | mA     |
| $I_F$          | DC Forward Current                                                                      | 500         | mA     |
| $i_f$          | Recurrent Peak Forward Current                                                          | 600         | mA     |
| $i_{f(surge)}$ | Peak Forward Surge Current<br>Pulse width = 1.0 second<br>Pulse width = 1.0 microsecond | 1.0<br>4.0  | A<br>A |
| $T_{stg}$      | Storage Temperature Range                                                               | -65 to +200 | °C     |
| $T_J$          | Operating Junction Temperature                                                          | 175         | °C     |

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

### NOTES:

- These ratings are based on a maximum junction temperature of 200 degrees C.
- 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          | Characteristic                                | Max                  | Units       |
|-----------------|-----------------------------------------------|----------------------|-------------|
|                 |                                               | FDH/FDLL 300/A / 333 |             |
| $P_D$           | Total Device Dissipation<br>Derate above 25°C | 500<br>3.33          | mW<br>mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient       | 300                  | °C/W        |

# High Conductance Low Leakage Diode

(continued)

## Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

| Symbol         | Parameter         | Test Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Min | Max                                                                                                  | Units                                                                            |
|----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| B <sub>V</sub> | Breakdown Voltage | I <sub>R</sub> = 100 μA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 150 |                                                                                                      | V                                                                                |
| I <sub>R</sub> | Reverse Current   | FDH/FDLL 300/A<br>V <sub>R</sub> = 125 V<br>FDH/FDLL 333<br>V <sub>R</sub> = 125 V, T <sub>A</sub> = 150°C<br>V <sub>R</sub> = 125 V<br>V <sub>R</sub> = 125 V, T <sub>A</sub> = 100°C                                                                                                                                                                                                                                                                                                                                                           |     | 1.0<br>3.0<br>3.0<br>500                                                                             | nA<br>μA<br>nA<br>nA                                                             |
| V <sub>F</sub> | Forward Voltage   | FDH/FDLL 300/A<br>I <sub>F</sub> = 1.0 mA<br>FDH/FDLL 300<br>I <sub>F</sub> = 5.0 mA<br>FDH/FDLL 300A<br>I <sub>F</sub> = 5.0 mA<br>FDH/FDLL 300/A<br>I <sub>F</sub> = 10 mA<br>FDH/FDLL 300<br>I <sub>F</sub> = 50 mA<br>FDH/FDLL 300A<br>I <sub>F</sub> = 50 mA<br>FDH/FDLL 300/A<br>I <sub>F</sub> = 100 mA<br>FDH/FDLL 300/A<br>I <sub>F</sub> = 200 mA<br><br>FDH/FDLL 333<br>I <sub>F</sub> = 50 mA<br>I <sub>F</sub> = 100 mA<br>I <sub>F</sub> = 150 mA<br>I <sub>F</sub> = 200 mA<br>I <sub>F</sub> = 250 mA<br>I <sub>F</sub> = 300 mA |     | 680<br>750<br>760<br>800<br>880<br>890<br>920<br>1.0<br><br>800<br>830<br>860<br>0.87<br>0.88<br>0.9 | mV<br>mV<br>mV<br>mV<br>mV<br>mV<br>mV<br>V<br><br>mV<br>mV<br>mV<br>V<br>V<br>V |
| C <sub>O</sub> | Diode Capacitance | V <sub>R</sub> = 0, f = 1.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     | 6.0                                                                                                  | pF                                                                               |

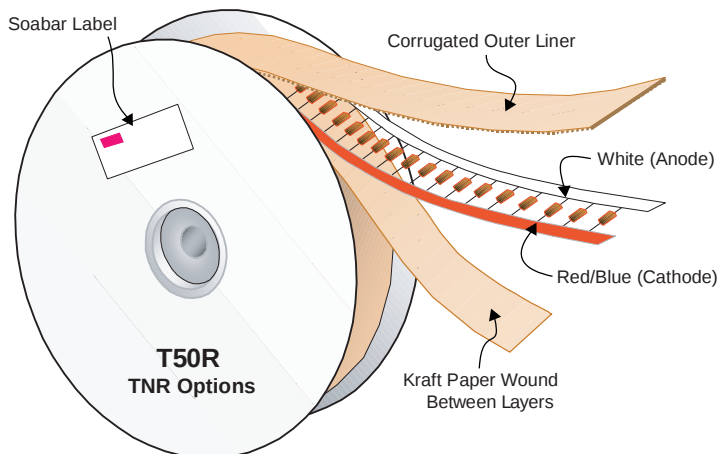
FDH300/A / FDLL300/A / FDH333 / FDLL333

## DO-35 Tape and Reel Data



### DO-35 Packaging

Configuration: Figure 1.0



### DO-35 Packaging

Information Table: Figure 2.0

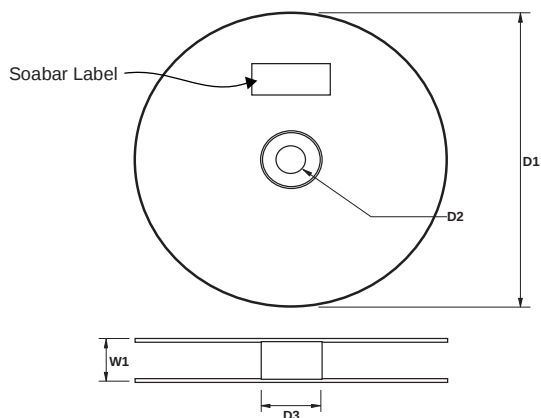
| DO-35 Packaging Information |            |             |                         |
|-----------------------------|------------|-------------|-------------------------|
| Packaging Option            | T50R       | T50A        | Standard (no flow code) |
| Packaging type              | TNR        | Ammo        | Bag                     |
| Qty per Reel/Tube/Bag       | 10,000     | 5,000       | 500                     |
| Reel Size (inch diameter)   | 13         | -           | -                       |
| Inside Tape Spacing (mm)    | 52         | 52          | -                       |
| Int Box Dimension (mm)      | 254x79x794 | 406x267x184 | 279x133x108             |
| Max qty per Box             | 30,000     | 50,000      | 5,000                   |
| Weight per unit (gm)        | 0.137      | 0.137       | 0.137                   |
| Weight per Reel/Ammo (kg)   | 2.23       | 0.800       | -                       |
| Note/Comments               |            |             | Bulk                    |

Soabar Label sample

|                                                            |         |          |            |
|------------------------------------------------------------|---------|----------|------------|
| <b>FAIRCHILD</b><br>SEMICONDUCTOR                          |         | P.O. No. |            |
| TYPE                                                       | IN5225A | MARK     | BLK-BRN    |
| REV                                                        | A2      | PART No. |            |
| PKG                                                        |         | EC No.   |            |
| QTY                                                        | 10,000  | M.O. No. | OX5046F035 |
| Q.C.                                                       |         | DATE     | D9903      |
| MFD. UNDER US PAT 3,025,589 & OTHER US PATS & APPLICATIONS |         |          |            |

### DO-35 Reel Dimensions:

Figure 3.0



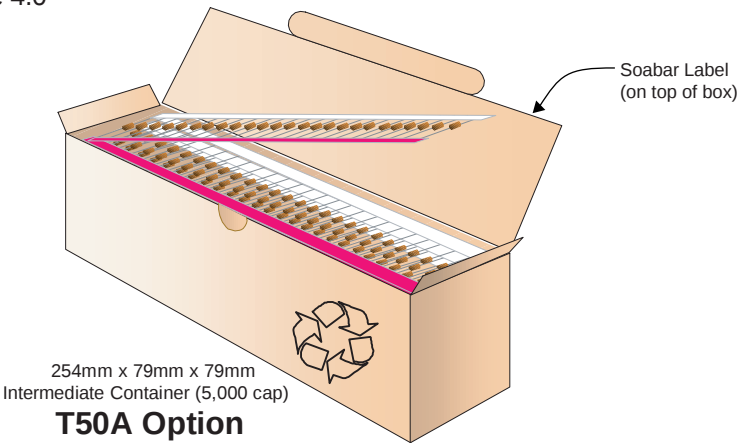
#### REEL DIMENSIONS

| ITEM DESCRIPTION               | SYMBOL | MINIMUM | MAXIMUM |
|--------------------------------|--------|---------|---------|
| Reel Diameter                  | D1     | 10.375  | 10.625  |
| Arbor Hole Diameter (Standard) | D2     | 1.245   | 1.255   |
| Core Diameter                  | D3     | 3.190   | 3.310   |
| Flange to Flange Inner Width   | W1     |         | 3.400   |

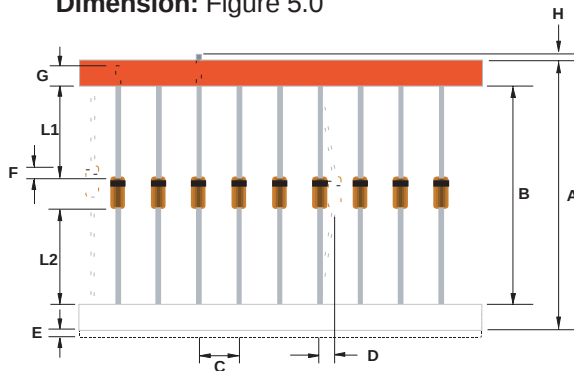
Note: All Dimensions are in inches

DO-35 Tape and Ammo Data, continued

DO-35 Ammo Packing  
Configuration: Figure 4.0



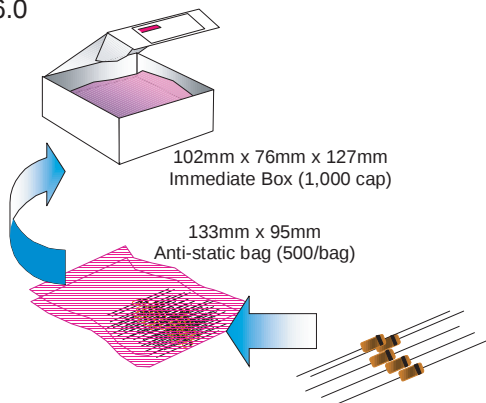
DO-35 Taping  
Dimension: Figure 5.0



TAPING DIMENSIONS

|       | INCH                       | MM                       | MILS                    | NOTES                        |
|-------|----------------------------|--------------------------|-------------------------|------------------------------|
| A     | 2.520<br>+0.066/<br>-0.027 | 64.00<br>+1.69/<br>-0.69 | 2519<br>+66.5/<br>-27.0 | Overall width                |
| B     | 2.047±0.027                | 52 ±0.69                 | 2047±27                 | Inside Tape Spacing          |
| C     | 0.200 ±0.0157              | 5.08 ±0.40               | 200 ±15.7               | Component Pitch              |
| D     | 0.047(max)                 | 1.2(max)                 | 47(max)                 | Component Misalignment       |
| E     | 0.022(max)                 | 0.55(max)                | 22(max)                 | Tape Mismatch                |
| F     | 0.027(max)                 | ±0.69                    | ±27                     | Units in line w/ one another |
| G     | 0.126(min)                 | 3.2(min)                 | 126(min)                | Lead amount between tapes    |
| H     | 0                          | 0                        | 0                       | Lead amount beyond tapes     |
| L1-L2 | ±0.027                     | ±0.69                    | ±27                     | Delta between two leads      |

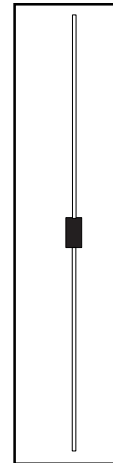
DO-35 Bulk Packing  
Configuration: Figure 6.0



## DO-35 Package Dimensions



### DO-35 (FS PKG Code D2)

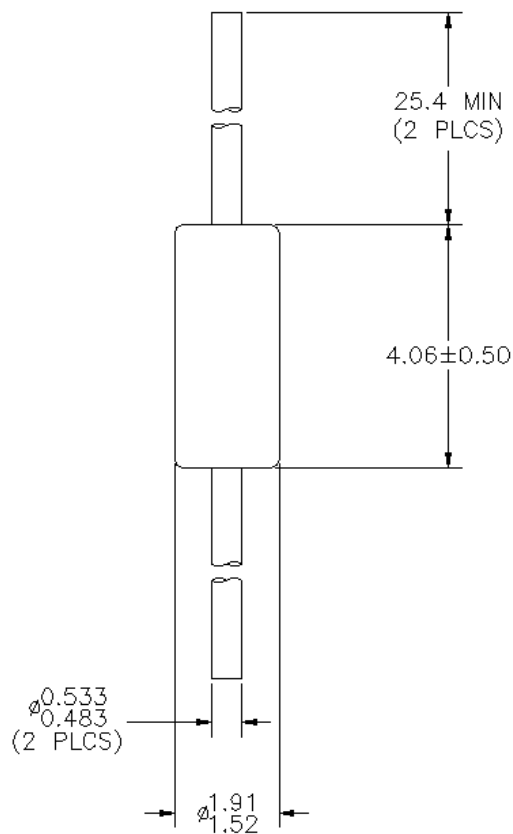


1:1

Scale 1:1 on letter size paper

Dimensions shown below are in millimeters

Part Weight per unit (gram): 0.137



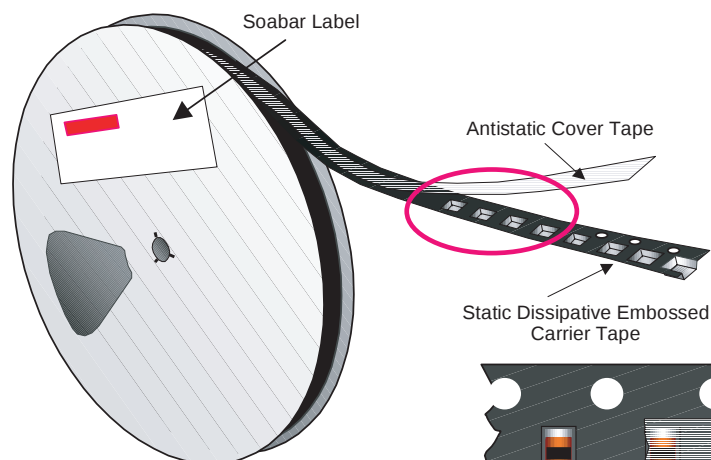
NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO JEDEC  
DO-204, VAR. AH, ISSUE B,  
DATED JANUARY 20, 1976.
- B) HERMITICALLY SEALED GLASS PACKAGE

## LL-34 Tape and Reel Data



### LL-34 Packaging Configuration: Figure 1.0

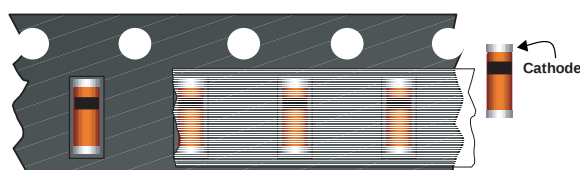


#### Packaging Description:

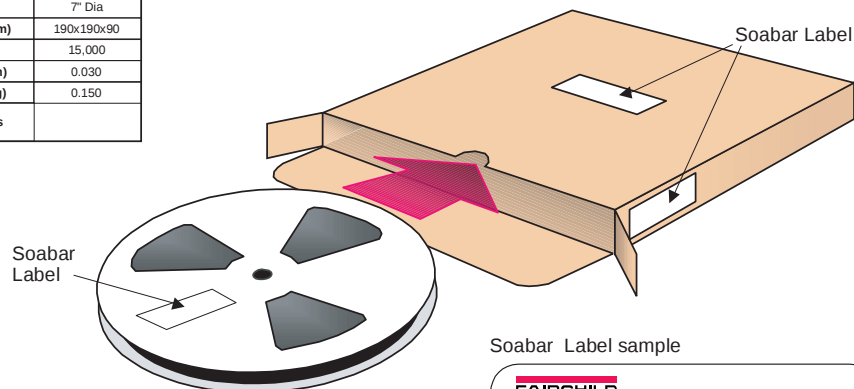
LL-34 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 7" or 178cm diameter reel. The reels are white in color and is made of recyclable chipboard. 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 bleach box (illustrated in figure 1.0) made of recyclable corrugated paper. One bleach box contains six reels maximum. These bleach boxes are placed inside a labeled shipping box which comes in different sizes depending on the number of reels shipped.

| LL-34 Packaging Information |                         |
|-----------------------------|-------------------------|
| Packaging Option            | Standard (no flow code) |
| Packaging type              | TNR                     |
| Qty per Reel/Tube/Bag       | 2,500/1,000 (bulk)      |
| Reel Size                   | 7" Dia                  |
| Box Dimension (mm)          | 190x190x90              |
| Max qty per Box             | 15,000                  |
| Weight per unit (gm)        | 0.030                   |
| Weight per Reel (kg)        | 0.150                   |
| Note/Comments               |                         |



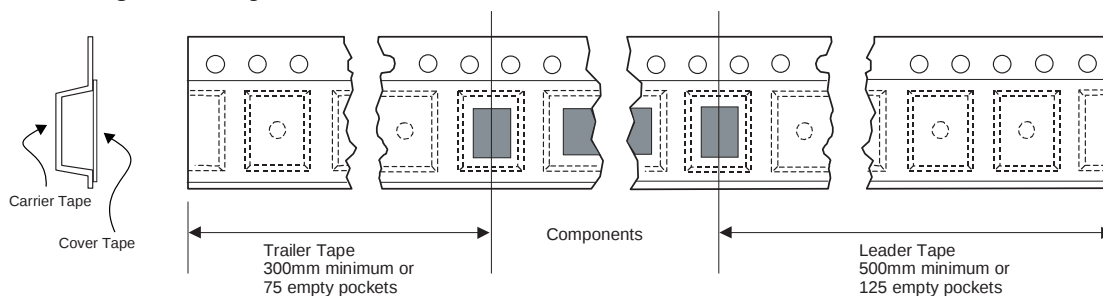
#### LL-34 Unit Orientation



#### Soabar Label sample

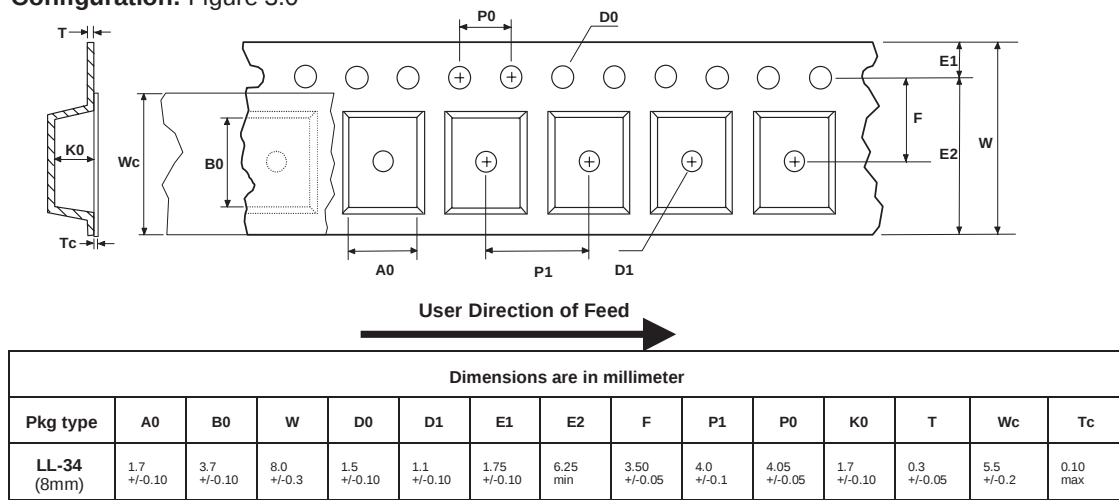
**FAIRCHILD SEMICONDUCTOR**  
 TYPE FDL4148  
 REV A2  
 PKG  
 QTY 2,500  
 Q.C.  
 P.O. No.  
 MARK BLK-BRN  
 PART No.  
 EC No.  
 M.O. No. OX5046F035  
 DATE D9903  
 MFD. UNDER US PAT 3,025,589 & OTHER US PATS & APPLICATIONS

### LL-34 Tape Leader and Trailer Configuration: Figure 2.0

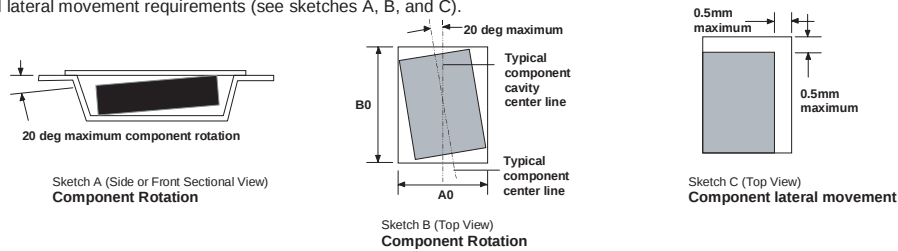


## LL-34 Tape and Reel Data,continued

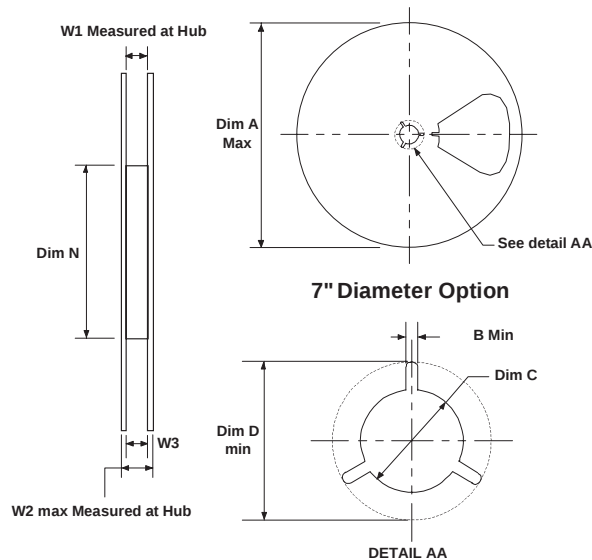
### LL-34 Embossed Carrier Tape Configuration: Figure 3.0



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).

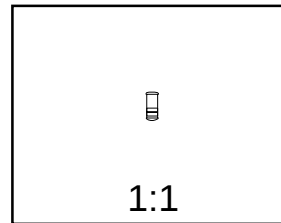


### LL-34 Carton Reel Configuration: Figure 4.0



| 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<br>178  | 0.059<br>1.5 | 512 +0.020/-0.008<br>13 +0.5/-0.2 | 0.795<br>20.2 | 2.165<br>55 | 0.331 +0.059/-0.000<br>8.4 +1.5/0 | 0.567<br>14.4 | 0.311 - 0.429<br>7.9 - 10.9 |
| 8mm                                      | 13" Dia     | 13.00<br>330 | 0.059<br>1.5 | 512 +0.020/-0.008<br>13 +0.5/-0.2 | 0.795<br>20.2 | 4.00<br>100 | 0.331 +0.059/-0.000<br>8.4 +1.5/0 | 0.567<br>14.4 | 0.311 - 0.429<br>7.9 - 10.9 |

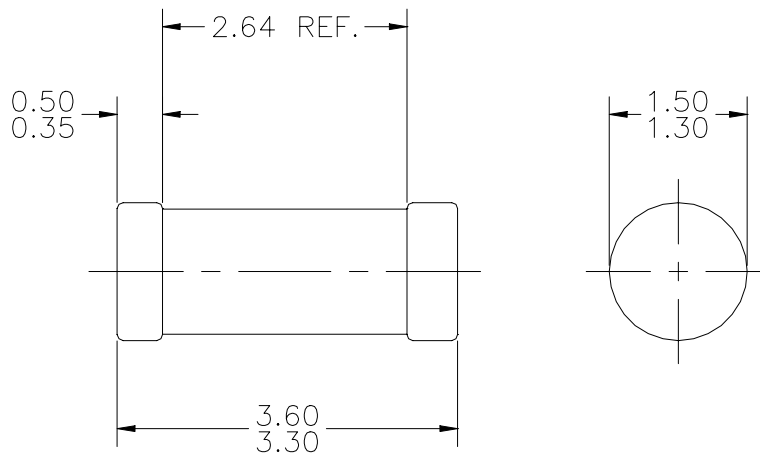
## LL-34 (FS PKG Code D3)



Scale 1:1 on letter size paper

Dimensions shown below are in millimeters

Part Weight per unit (gram): 0.030



NOTE: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO JEDEC  
DO-213, VAR AC, ISSUE D,  
DATED SEPTEMBER 1988.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.

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| FACT Quiet Series <sup>™</sup>   | PACMAN <sup>™</sup>             | SuperSOT <sup>™</sup> -6        |                        |
| FAST <sup>®</sup>                | POP <sup>™</sup>                | SuperSOT <sup>™</sup> -8        |                        |

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|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advance Information      | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.                                                                                    |
| Preliminary              | First Production       | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| No Identification Needed | Full Production        | This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.                                                       |
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Электрон  
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