

# Tape and Reel Options for T-1<sup>3/4</sup> (5 mm), T-1 (3 mm), LED Lamps

## Technical Data

### Option 01

### Option 02

### Features

- **Compatible with Radial Lead Automatic Insertion Equipment**
- **Meets Dimensional Specifications of IEC Publication 286 and ANSI/EIA Standard RS-468 for Tape and Reel**
- **Reel Packaging Simplifies Handling and Testing**
- **T-1 and T-1<sup>3/4</sup> LED Lamps Available Packaged on Tape and Reel**
- **5 mm (0.197 inch) Formed Lead and 2.54 mm (0.100 inch) Straight Lead Spacing Available**

### Description

T-1 and T-1<sup>3/4</sup> LED lamps are available on tape and reel as specified by the IEC Publication 286 and ANSI/EIA Standard RS-468. The Option 01 lamp devices have formed leads with 5 mm (0.197 inch) spacing for automatic insertion into PC boards by radial lead insertion equipment. The Option 02 lamp devices have straight leads with 2.54 mm (0.100 inch) spacing, packaged on tape and reel for ease of handling. T-1 lamps are packaged 1800/reel. T-1<sup>3/4</sup> lamps are packaged 1300/reel.

### Ordering Information

To order LED lamps packaged on tape and reel, include the appropriate option code along with the device catalog part number. Example: to order the HLMP-3300 on tape and reel with formed leads (5 mm lead spacing) order as follows: HLMP-3300 Option 01. Minimum order quantities vary by part number. Orders must be placed in reel increments. Please contact your local Agilent sales office or franchised Agilent distributor for a complete list of lamps available on tape and reel.

LED lamps with 0.46 mm (0.018 inch) square leads with 5 mm (0.197 inch) lead spacing are recommended for use with automatic insertion equipment.



Caution: Agilent does not recommend T-1 package, option 02 LEDs for auto-insertion. The force exerted on the LED lead frame during the cut and clinch operation of auto-insertion may result in cracking of the lamp epoxy dome which results in catastrophic failure. It is suggested that insertion machine compatibility be confirmed.

### Device Selection Guide

| Option | Description                                         |
|--------|-----------------------------------------------------|
| 01     | Tape and reel, 5 mm (0.197 inch) formed leads.      |
| 02     | Tape and reel, 2.54 mm (0.100 inch) straight leads. |

| Package            | Quantity/Reel | Order Increments |
|--------------------|---------------|------------------|
| T-1                | 1800          | 1800             |
| T-1 <sup>3/4</sup> | 1300          | 1300             |

## Absolute Maximum Ratings and Electrical/Optical Characteristics

The absolute maximum ratings, mechanical dimension tolerances and electrical/optical characteristics for lamps packaged on tape and reel are identical to the basic catalog device. Refer to the basic data sheet for the specified values.

### Notes:

1. Minimum leader length at either end of tape is 3 blank part spaces.
2. Silver saver paper is used as the interlayer for silver plated lead devices.
3. The maximum number of consecutive missing lamps is 3.
4. In accordance with EIA and IEC specs, the anode lead leaves the reel first.
5. Drawings apply to devices with 0.46 mm (0.018 inch) square leads only. Contact Agilent Sales Office for dimensions of 0.635 mm (0.025 inch) square lead devices.

## Tape and Reel LED Configurations

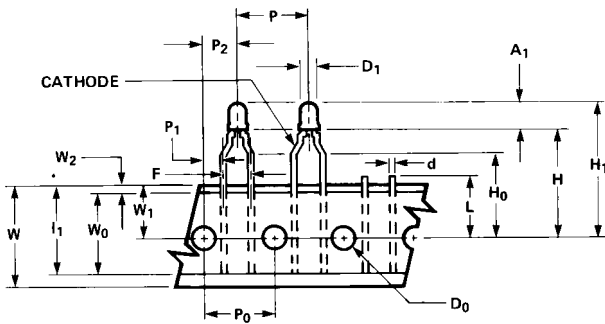


Figure 1. T-1 High Profile Lamps, Option 01.

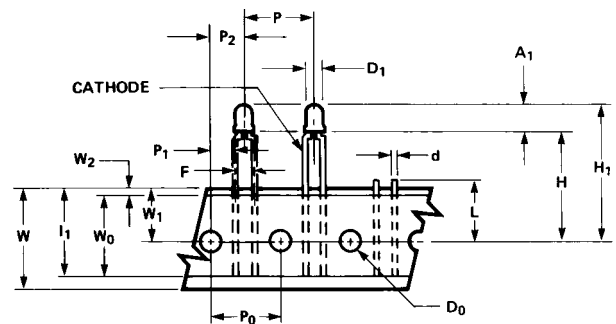


Figure 2. T-1 High Profile Lamps, Option 02.

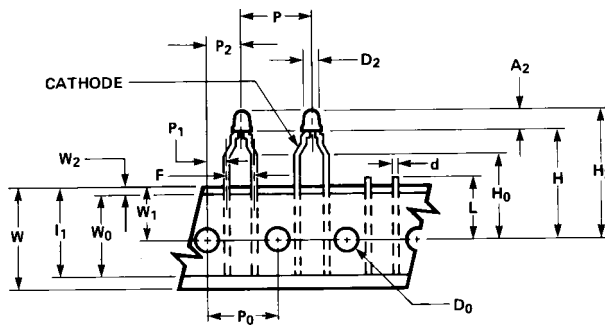


Figure 3. T-1 Low Profile Lamps, Option 01.

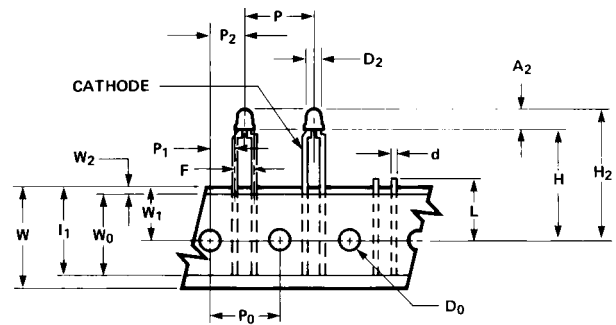


Figure 4. T-1 Low Profile Lamps, Option 02.

## Tape and Reel LED Configurations (cont.)

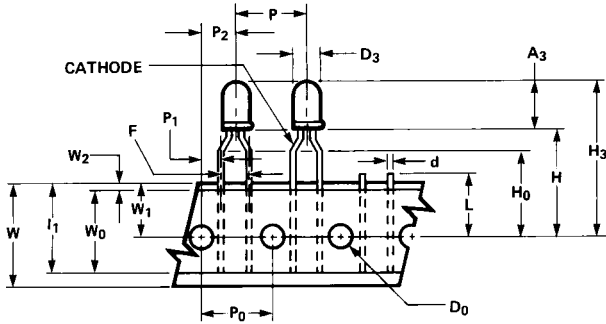


Figure 5. T-1<sup>3/4</sup> High Profile Lamps, Option 01.

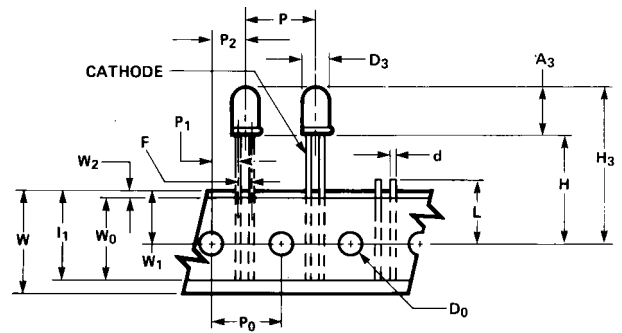


Figure 6. T-1<sup>3/4</sup> High Profile Lamps, Option 02.

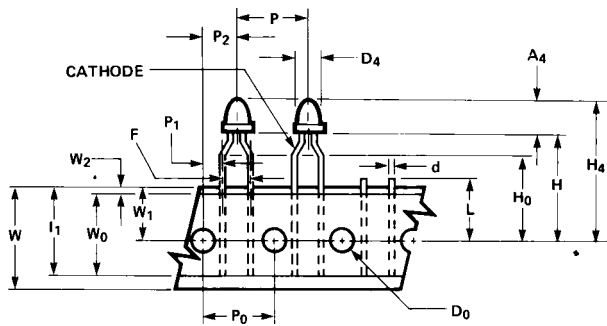


Figure 7. T-1<sup>3/4</sup> Low Profile Lamps, Option 01.

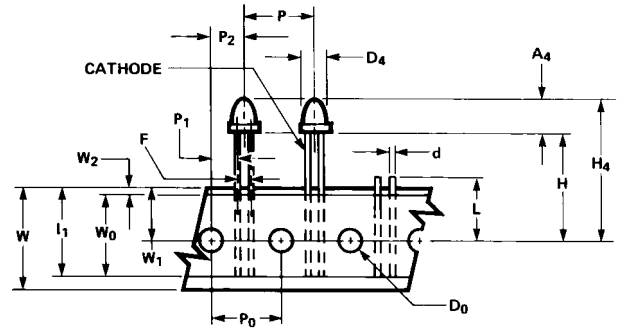


Figure 8. T-1<sup>3/4</sup> Low Profile Lamps, Option 02.

## Dimensional Specifications for Tape and Reel

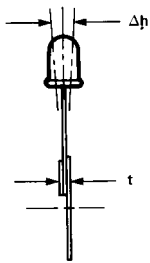
| Item                                                | Option 01                                                                           | 02                                                                                  | Symbol         | Specification                          | Notes                                                                        |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|----------------------------------------|------------------------------------------------------------------------------|
| <b>T1 High Profile</b><br>Body Height               |    |    | A1             | $\frac{4.70}{4.19}$ (0.185)<br>(0.165) |                                                                              |
| Body Diameter                                       |                                                                                     |                                                                                     | D1             | $\frac{3.18}{2.67}$ (0.125)<br>(0.105) |                                                                              |
| Component Height                                    |                                                                                     |                                                                                     | H1             | 25.7 (1.012) Max.                      |                                                                              |
| <b>T1 Low Profile</b><br>Body Height                |    |    | A2             | $\frac{3.73}{3.23}$ (0.147)<br>(0.127) |                                                                              |
| Body Diameter                                       |                                                                                     |                                                                                     | D2             | $\frac{3.05}{2.79}$ (0.120)<br>(0.110) |                                                                              |
| Component Height                                    |                                                                                     |                                                                                     | H2             | 24.7 (0.974) Max.                      |                                                                              |
| <b>T1<sup>3/4</sup> High Profile</b><br>Body Height |   |   | A3             | $\frac{9.19}{8.43}$ (0.362)<br>(0.332) |                                                                              |
| Body Diameter                                       |                                                                                     |                                                                                     | D3             | $\frac{5.08}{4.32}$ (0.200)<br>(0.170) |                                                                              |
| Component Height                                    |                                                                                     |                                                                                     | H3             | 30.2 (1.189) Max.                      |                                                                              |
| <b>T1<sup>3/4</sup> Low Profile</b><br>Body Height  |  |  | A4             | $\frac{6.35}{5.33}$ (0.250)<br>(0.210) |                                                                              |
| Body Diameter                                       |                                                                                     |                                                                                     | D4             | $\frac{5.08}{4.32}$ (0.200)<br>(0.170) |                                                                              |
| Component Height                                    |                                                                                     |                                                                                     | H4             | 27.4 (1.079) Max.                      |                                                                              |
| Lead Wire Thickness                                 |                                                                                     |                                                                                     | d              | 0.45 (0.018)                           | Square Leads                                                                 |
| Pitch of Component                                  |                                                                                     |                                                                                     | P              | $\frac{13.7}{11.7}$ (0.539)<br>(0.461) |                                                                              |
| Feed Hole Pitch                                     |                                                                                     |                                                                                     | P <sub>0</sub> | $\frac{12.9}{12.5}$ (0.508)<br>(0.492) | Cumulative error:<br>1.0 mm/20 pitches                                       |
| Feed Hole Center to Lead Center                     |                                                                                     |                                                                                     | P1             | $\frac{4.55}{3.15}$ (0.179)<br>(0.124) | Measure at crimp<br>bottom 5.78/3.68<br>(0.227/0.1448) for<br>straight leads |
| Hole Center to Component Center                     |                                                                                     |                                                                                     | P2             | $\frac{7.35}{5.35}$ (0.289)<br>(0.211) |                                                                              |
| Lead to Lead Distance                               |                                                                                     |                                                                                     | F              | $\frac{5.40}{4.90}$ (0.213)<br>(0.193) | 2.54 (0.100) nominal<br>for straight leads                                   |
| Component Alignment, Front-rear                     |                                                                                     |                                                                                     | Δh             | 0 ± 1.0 (0.039)                        | Figure 9                                                                     |
| Tape Width                                          |                                                                                     |                                                                                     | W              | $\frac{18.5}{17.5}$ (0.728)<br>(0.689) |                                                                              |
| Hold Down Tape Width                                |                                                                                     |                                                                                     | W <sub>0</sub> | $\frac{15.3}{12.0}$ (0.602)<br>(0.472) |                                                                              |
| Hole Position                                       |                                                                                     |                                                                                     | W1             | $\frac{9.75}{8.50}$ (0.384)<br>(0.335) |                                                                              |

### Dimensional Specifications for Tape and Reel (cont.)

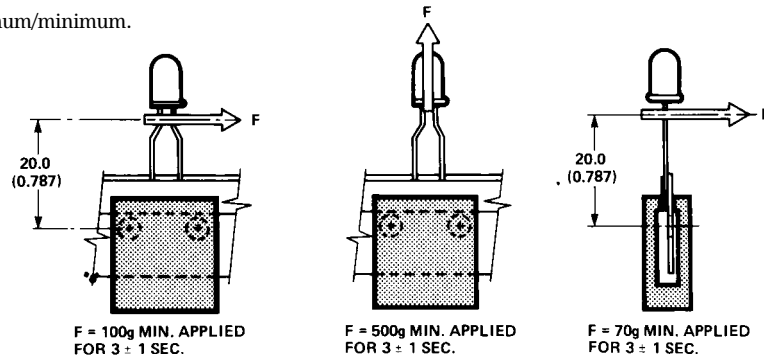
| Item                                 | Option 01 02 | Symbol         | Specification                       | Notes                                                     |
|--------------------------------------|--------------|----------------|-------------------------------------|-----------------------------------------------------------|
| Hold Down Tape Position              |              | W2             | 2.54 (0.100) Max.                   |                                                           |
| Height of Component from Hole Center |              | H              | $\frac{21.0 (0.827)}{20.0 (0.787)}$ |                                                           |
| Lead Clinch Height                   |              | H <sub>O</sub> | $\frac{16.5 (0.650)}{15.5 (0.610)}$ |                                                           |
| Feed Hole Diameter                   |              | D <sub>O</sub> | $\frac{4.20 (0.165)}{3.80 (0.150)}$ |                                                           |
| Total Tape Thickness                 |              | t              | $\frac{0.90 (0.035)}{0.50 (0.020)}$ | Paper thickness:<br>0.55 (0.022)<br>0.45 (0.018) Figure 9 |
| Length of Snipped Lead               |              | L              | 11.0 (0.433) Max.                   |                                                           |
| Lead Length Under Hold Down Tape     |              | l1             | 14.5 (0.571) Min.                   |                                                           |

**Note:**

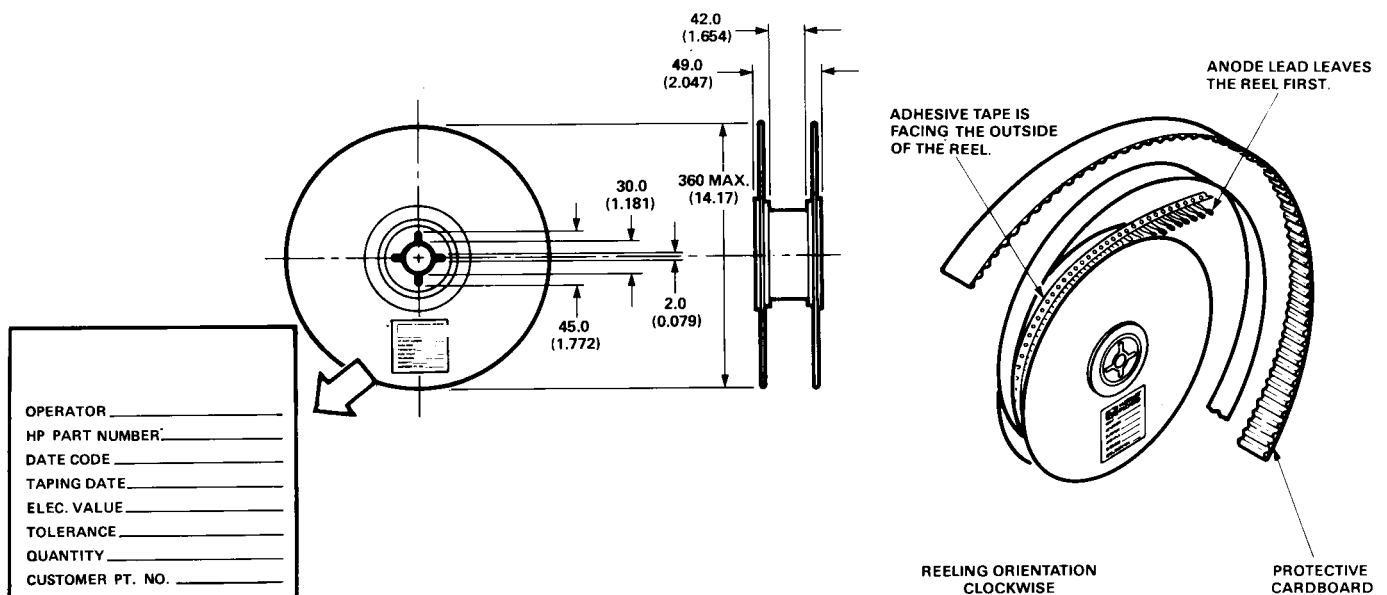
1. Dimensions in millimetres (inches) maximum/minimum.



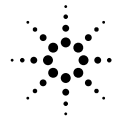
**Figure 9. Front to Rear Alignment and Tape Thickness, Typical All Device Types.**



**Figure 10. Device Retention Tests and Specifications.**



**Figure 11. Reel Configuration and Labeling.**



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Obsoletes 5964-9375E (4/96)

5968-4164E (11/99)