

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                             |
|----------------------|-----------------------------|
| <b>Part Number:</b>  | 1206L100WR                  |
| <b>Manufacturer:</b> | Littelfuse Inc.             |
| <b>Package:</b>      | 1206 (3216 Metric), Concave |
| <b>Availability:</b> | Please confirm with sales   |

#### Product Page:

<https://antrexco.com/product/details/littelfuse-inc/1206l100wr.html>

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### Quality & Trust

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#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



### Description

The 1206L Series device provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.

### Features

- RoHS compliant and lead-free
- Fast response to fault currents
- Compact design saves board space
- Low resistance
- Low-profile
- Compatible with high temperature solders

### Applications

- USB peripherals
- Disk drives
- CD-ROMs
- Plug and play protection for motherboards and peripherals
- Mobile phones - battery and port protection
- Disk drives
- PDAs / digital cameras
- Game console port protection

### Agency Approvals

| AGENCY                                                                            | AGENCY FILE NUMBER |
|-----------------------------------------------------------------------------------|--------------------|
|  | E183209            |
|  | R50119118          |

### Electrical Characteristics

| Part Number* | Marking | $I_{hold}$<br>(A) | $I_{trip}$<br>(A) | $V_{max}$<br>(Vdc) | $I_{max}$<br>(A) | $P_d$<br>max.<br>(W) | Maximum Time To Trip |                | Resistance                |                           |                            | Agency Approvals                                                                      |                                                                                       |
|--------------|---------|-------------------|-------------------|--------------------|------------------|----------------------|----------------------|----------------|---------------------------|---------------------------|----------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|              |         |                   |                   |                    |                  |                      | Current<br>(A)       | Time<br>(Sec.) | $R_{min}$<br>( $\Omega$ ) | $R_{typ}$<br>( $\Omega$ ) | $R_{1max}$<br>( $\Omega$ ) |  |  |
| 1206L012     | A       | 0.125             | 0.29              | 30                 | 100              | 0.6                  | 1.00                 | 0.20           | 1.500                     | 3.600                     | 6.000                      | X                                                                                     | X                                                                                     |
| 1206L016     | B       | 0.16              | 0.37              | 30                 | 100              | 0.6                  | 1.00                 | 0.30           | 1.200                     | 2.800                     | 4.500                      | X                                                                                     | X                                                                                     |
| 1206L020-C   | C       | 0.20              | 0.42              | 24                 | 100              | 0.6                  | 8.00                 | 0.10           | 0.650                     | 1.550                     | 2.600                      | X                                                                                     | X                                                                                     |
| 1206L025-C   | D       | 0.25              | 0.50              | 16                 | 100              | 0.6                  | 8.00                 | 0.08           | 0.550                     | 1.400                     | 2.300                      | X                                                                                     | X                                                                                     |
| 1206L035-C   | E       | 0.35              | 0.75              | 6                  | 100              | 0.6                  | 8.00                 | 0.10           | 0.300                     | 0.750                     | 1.200                      | X                                                                                     | X                                                                                     |
| 1206L035/16  | J       | 0.35              | 0.75              | 16                 | 100              | 0.6                  | 8.00                 | 0.10           | 0.300                     | 0.750                     | 1.200                      | X                                                                                     | X                                                                                     |
| 1206L050-C   | F       | 0.50              | 1.00              | 6                  | 100              | 0.6                  | 8.00                 | 0.10           | 0.150                     | 0.400                     | 0.700                      | X                                                                                     | X                                                                                     |
| 1206L050/15  | M       | 0.50              | 1.00              | 15                 | 100              | 0.6                  | 8.00                 | 0.10           | 0.150                     | 0.400                     | 0.750                      | X                                                                                     | X                                                                                     |
| 1206L075-C   | G       | 0.75              | 1.50              | 6                  | 100              | 0.6                  | 8.00                 | 0.20           | 0.090                     | 0.200                     | 0.290                      | X                                                                                     | X                                                                                     |
| 1206L100     | N       | 1.00              | 1.80              | 6                  | 100              | 0.8                  | 8.00                 | 0.30           | 0.055                     | 0.110                     | 0.210                      | X                                                                                     | X                                                                                     |
| 1206L110-C   | H       | 1.10              | 2.20              | 6                  | 100              | 0.8                  | 8.00                 | 0.30           | 0.040                     | 0.110                     | 0.180                      | X                                                                                     | X                                                                                     |
| 1206L150-C   | K       | 1.50              | 3.00              | 6                  | 100              | 0.8                  | 8.00                 | 1.00           | 0.040                     | 0.080                     | 0.120                      | X                                                                                     | X                                                                                     |
| 1206L160     | L       | 1.60              | 3.20              | 6                  | 100              | 0.8                  | 8.00                 | 0.40           | 0.025                     |                           | 0.110                      | X                                                                                     | X                                                                                     |

$I_{hold}$  = Hold current: maximum current device will pass without tripping in 20°C still air.

$I_{trip}$  = Trip current: minimum current at which the device will trip in 20°C still air.

$V_{max}$  = Maximum voltage device can withstand without damage at rated current ( $I_{max}$ )

$I_{max}$  = Maximum fault current device can withstand without damage at rated voltage ( $V_{max}$ )

$P_d$  = Power dissipated from device when in the tripped state at 20°C still air.

$R_{min}$  = Minimum resistance of device in initial (un-soldered) state.

$R_{typ}$  = Typical resistance of device in initial (un-soldered) state.

$R_{1max}$  = Maximum resistance of device at 20°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

**Caution:** Operation beyond the specified rating may result in damage and possible arcing and flame.

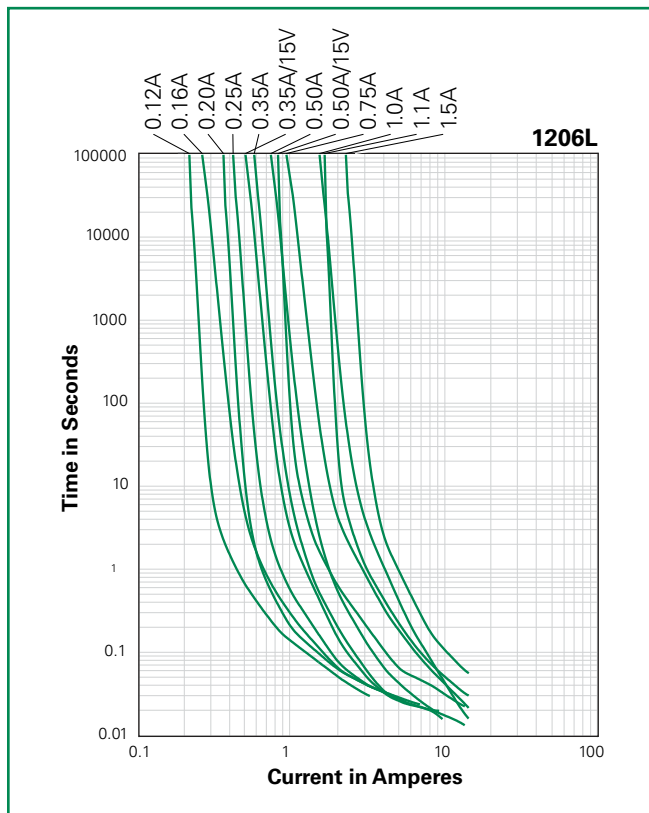
**\*Note:** Some devices in this product series may have “-C” in the Part Number. The “-C” should be omitted when placing orders for the device.

### Temperature Derating

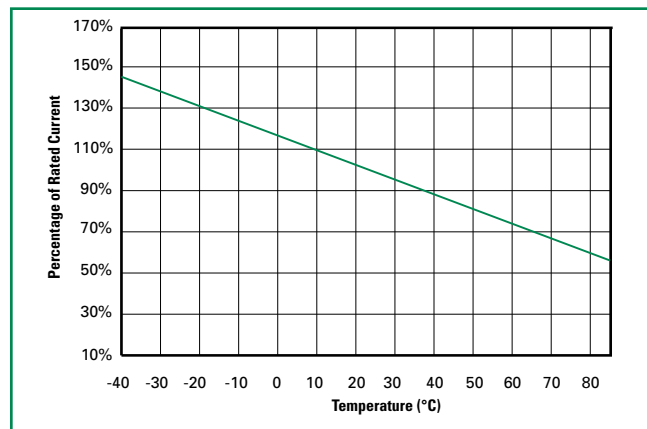
| Part Number* | Ambient Operation Temperature |       |      |       |      |      |      |      |      |
|--------------|-------------------------------|-------|------|-------|------|------|------|------|------|
|              | -40°C                         | -20°C | 0°C  | 23°C  | 40°C | 50°C | 60°C | 70°C | 85°C |
| Part Number* | Hold Current (A)              |       |      |       |      |      |      |      |      |
| 1206L012     | 0.18                          | 0.16  | 0.14 | 0.125 | 0.10 | 0.09 | 0.08 | 0.07 | 0.05 |
| 1206L016     | 0.22                          | 0.20  | 0.18 | 0.16  | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 |
| 1206L020-C   | 0.28                          | 0.25  | 0.23 | 0.20  | 0.17 | 0.15 | 0.14 | 0.12 | 0.09 |
| 1206L025-C   | 0.37                          | 0.33  | 0.29 | 0.25  | 0.22 | 0.20 | 0.17 | 0.15 | 0.12 |
| 1206L035-C   | 0.50                          | 0.45  | 0.40 | 0.35  | 0.30 | 0.27 | 0.24 | 0.21 | 0.15 |
| 1206L035/16  | 0.50                          | 0.45  | 0.40 | 0.35  | 0.30 | 0.27 | 0.24 | 0.21 | 0.15 |
| 1206L050-C   | 0.71                          | 0.64  | 0.57 | 0.50  | 0.42 | 0.39 | 0.35 | 0.31 | 0.25 |
| 1206L050/15  | 0.71                          | 0.64  | 0.57 | 0.50  | 0.42 | 0.39 | 0.35 | 0.31 | 0.25 |
| 1206L075-C   | 1.14                          | 1.01  | 0.88 | 0.75  | 0.65 | 0.59 | 0.54 | 0.49 | 0.41 |
| 1206L100     | 1.45                          | 1.31  | 1.15 | 1.00  | 0.84 | 0.77 | 0.69 | 0.61 | 0.48 |
| 1206L110-C   | 1.52                          | 1.37  | 1.25 | 1.10  | 0.92 | 0.82 | 0.75 | 0.64 | 0.52 |
| 1206L150-C   | 2.18                          | 1.94  | 1.72 | 1.50  | 1.28 | 1.17 | 1.06 | 0.96 | 0.77 |

\*Note: Some devices in this product series may have "-C" in the Part Number. The "-C" should be omitted when placing orders for the device.

### Average Time Current Curves



### Temperature Derating Curve



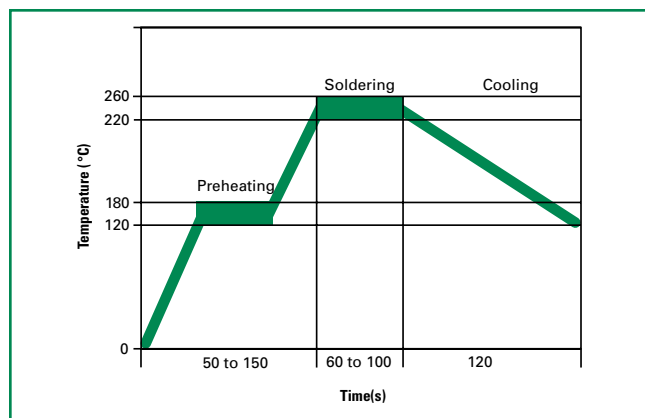
The average time current curves and Temperature Derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

### Soldering Parameters

|                                |                  |
|--------------------------------|------------------|
| Condition                      | Reflow           |
| Peak Temp/ Duration Time       | 260°C / 10 Sec   |
| Time above liquids (TAL) 220°C | 60 Sec ~ 100 Sec |
| Preheat 120°C~ 180°C           | 50 Sec ~ 150 Sec |
| Storage Condition              | 0°C~35°C, 70%RH  |

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N<sub>2</sub> environment for lead-free
- Recommended maximum paste thickness is 0.25mm (0.010 inch)
- Devices can be cleaned using standard industry methods and solvents.

**Note:** If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.



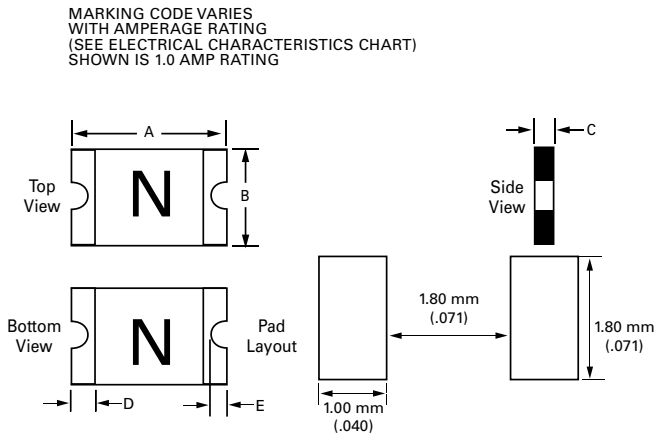
### Physical Specifications

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Terminal Material  | Solder-Plated Copper (Solder Material: Matte Tin (Sn))       |
| Lead Solderability | Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3. |

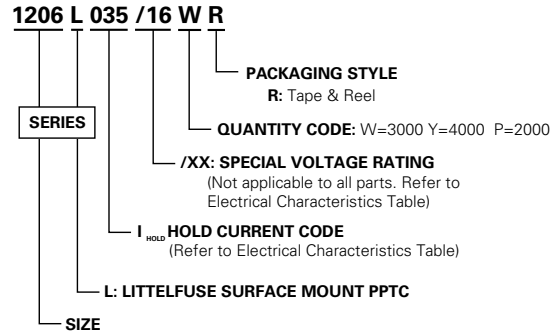
### Environmental Specifications

|                                                     |                                                                                    |
|-----------------------------------------------------|------------------------------------------------------------------------------------|
| Operating/Storage Temperature                       | -40°C to +85°C                                                                     |
| Maximum Device Surface Temperature in Tripped State | 125°C                                                                              |
| Passive Aging                                       | +85°C, 1000 hours<br>-/ +5% typical resistance change                              |
| Humidity Aging                                      | +85°C, 85%, R.H., 1000 hours<br>-/ +5% typical resistance change                   |
| Thermal Shock                                       | MIL-STD-202, Method 107G<br>+85°C/-40°C 20 times<br>-30% typical resistance change |
| Solvent Resistance                                  | MIL-STD-202, Method 215<br>No change                                               |
| Vibration                                           | MIL-STD-883C, Method 2007.1, Condition A<br>No change                              |
| Moisture Sensivity Level                            | Level 1, J-STD-020C                                                                |

### Dimensions



### Part Ordering Number System\*



| Part Number* | A      |      |      |      | B      |      |      |      | C      |      |      |      | D      |      | E      |      |      |      |
|--------------|--------|------|------|------|--------|------|------|------|--------|------|------|------|--------|------|--------|------|------|------|
|              | Inches |      | mm   |      | Inches |      | mm   |      | Inches |      | mm   |      | Inches | mm   | Inches | mm   | Min. | Max. |
|              | Min.   | Max. | Min. | Max. | Min.   | Max. | Min. | Max. | Min.   | Max. | Min. | Max. | Min.   | Min. | Min.   | Max. | Min. | Max. |
| 1206L012     | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.06 | 0.65 | 1.45 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L016     | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.06 | 0.65 | 1.45 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L020-C   | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.04 | 0.5  | 1    | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L025-C   | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.04 | 0.5  | 1    | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L035-C   | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.03 | 0.45 | 0.75 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L035/16  | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.03 | 0.45 | 0.75 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L050-C   | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.03 | 0.45 | 0.75 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L050/15  | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.03 | 0.45 | 0.75 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L075-C   | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.02   | 0.05 | 0.45 | 1.25 | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L100     | 0.12   | 0.13 | 3    | 3.4  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.04 | 0.75 | 1    | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L110-C   | 0.12   | 0.13 | 3    | 3.4  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.04 | 0.75 | 1    | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L150-C   | 0.12   | 0.13 | 3    | 3.4  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.06 | 0.85 | 1.4  | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |
| 1206L160     | 0.12   | 0.14 | 3    | 3.5  | 0.06   | 0.07 | 1.5  | 1.8  | 0.03   | 0.07 | 0.80 | 1.6  | 0.01   | 0.2  | 0.004  | 0.02 | 0.1  | 0.45 |

### Packaging

| Part Number* | Ordering Number* | I <sub>hold</sub> (A) | I <sub>hold</sub> Code | Packaging Option | Quantity | Quantity & Packaging Codes |
|--------------|------------------|-----------------------|------------------------|------------------|----------|----------------------------|
| 1206L012     | 1206L012WR       | 0.125                 | 012                    | Tape and Reel    | 3000     | WR                         |
| 1206L016     | 1206L016WR       | 0.16                  | 016                    | Tape and Reel    | 3000     | WR                         |
| 1206L020-C   | 1206L020YR       | 0.20                  | 020                    | Tape and Reel    | 4000     | YR                         |
| 1206L025-C   | 1206L025YR       | 0.25                  | 025                    | Tape and Reel    | 4000     | YR                         |
| 1206L035-C   | 1206L035YR       | 0.35                  | 035                    | Tape and Reel    | 4000     | YR                         |
| 1206L035/16  | 1206L035/16YR    | 0.35                  | 035                    | Tape and Reel    | 4000     | YR                         |
| 1206L050-C   | 1206L050YR       | 0.50                  | 050                    | Tape and Reel    | 4000     | YR                         |
| 1206L050/15  | 1206L050/15YR    | 0.50                  | 050                    | Tape and Reel    | 4000     | YR                         |
| 1206L075-C   | 1206L075WR       | 0.75                  | 075                    | Tape and Reel    | 3000     | WR                         |
| 1206L100     | 1206L100WR       | 1.00                  | 100                    | Tape and Reel    | 3000     | WR                         |
| 1206L110-C   | 1206L110WR       | 1.10                  | 110                    | Tape and Reel    | 3000     | WR                         |
| 1206L150-C   | 1206L150WR       | 1.50                  | 150                    | Tape and Reel    | 2000     | PR                         |
| 1206L160     | 1206L160         | 1.60                  | 160                    | Tape and Reel    | 2000     | PR                         |

\*Note: Some devices in this product series may have "-C" in the Part Number. The "-C" should be omitted when placing orders for the device.

## Tape and Reel Specifications

| TAPE SPECIFICATIONS: EIA-481-1 (mm) |                                                                                             |                                                   |                        | REEL DIMENSIONS:<br>EIA-481-1 (mm) |              |
|-------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------|------------------------------------|--------------|
|                                     | 1206L020-C, 1206L025-C,<br>1206L035-C, 1206L035/16,<br>1206L050-C, 1206L050/15,<br>1206L075 | 1206L012,<br>1206L016,<br>1206L100,<br>1206L110-C | 1206L150-C<br>1206L160 |                                    |              |
| <b>W</b>                            | 8.15+0.15-0.30                                                                              | 8.00+/-0.30                                       | 8.15+0.15-0.30         | <b>H</b>                           | 16.0+/-0.2   |
| <b>F</b>                            | 3.50+/-0.05                                                                                 | 3.50+/-0.05                                       | 3.50+/-0.05            | <b>W</b>                           | 13.2+/-1.5   |
| <b>E<sub>1</sub></b>                | 1.75+/-0.10                                                                                 | 1.75+/-0.10                                       | 1.75+/-0.10            | <b>D</b>                           | Ø 60.2+/-0.5 |
| <b>D<sub>0</sub></b>                | 1.55+/-0.05                                                                                 | 1.55+/-0.05                                       | 1.55+/-0.05            | <b>F</b>                           | Ø 13.0+/-0.5 |
| <b>D<sub>1</sub></b>                | 1.00 (MIN)                                                                                  | 1.00 (MIN)                                        | 1.00 (MIN)             | <b>C</b>                           | Ø 178+/-1.0  |
| <b>P<sub>0</sub></b>                | 4.00+/-0.10                                                                                 | 4.00+/-0.10                                       | 4.00+/-0.10            | <b>H<sub>1</sub></b>               | 11+/-0.5     |
| <b>P<sub>1</sub></b>                | 4.00+/-0.10                                                                                 | 4.00+/-0.10                                       | 4.00+/-0.10            | <b>W<sub>1</sub></b>               | 2.5+0.5      |
| <b>P<sub>2</sub></b>                | 2.00+/-0.05                                                                                 | 2.00+/-0.05                                       | 2.00+/-0.05            | <b>W<sub>2</sub></b>               | 3.0+0.5      |
| <b>A<sub>0</sub></b>                | 1.95+/-0.10                                                                                 | 1.95+/-0.10                                       | 1.95+/-0.10            | <b>W<sub>3</sub></b>               | 4.0+0.5      |
| <b>B<sub>0</sub></b>                | 3.65+/-0.10                                                                                 | 3.65+/-0.10                                       | 3.65+/-0.10            | <b>W<sub>4</sub></b>               | 5.0+0.5      |
| <b>T</b>                            | 0.25+/-0.10                                                                                 | 0.25+/-0.10                                       | 0.25+/-0.10            |                                    |              |
| <b>K<sub>0</sub></b>                | 0.87+/-0.10                                                                                 | 1.30+/-0.10                                       | 1.70+/-0.10            |                                    |              |
| <i>Leader min.</i>                  | 390                                                                                         | 390                                               | 390                    |                                    |              |
| <i>Trailer min.</i>                 | 160                                                                                         | 160                                               | 160                    |                                    |              |

## Tape and Reel Diagram

