



# LED Display Product Data Sheet LTD-4830CKG-P

Spec No.: DS30-2011-0196

Effective Date: 11/18/2011

Revision: -

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

**LED DISPLAY****LTD-4830CKG-P**  
**DATA SHEET**

| <b><u>ITEM</u></b> | <b><u>Description</u></b>            | <b><u>By</u></b> | <b><u>DATE</u></b> |
|--------------------|--------------------------------------|------------------|--------------------|
| 1                  | New Spec                             | Lester Chen      | 2011/03/18         |
| 2                  | Add Luminous Intensity range for 1mA | Eason Lin        | 2011/08/01         |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |
|                    |                                      |                  |                    |

**FEATURES**

- \* 0.39 inch (10.0 mm) DIGIT HEIGHT
- \* CONTINUOUS UNIFORM SEGMENTS
- \* LOW POWER REQUIREMENT
- \* EXCELLENT CHARACTERS APPEARANCE
- \* HIGH BRIGHTNESS & HIGH CONTRAST
- \* WIDE VIEWING ANGLE
- \* SOLID STATE RELIABILITY
- \* CATEGORIZED FOR LUMINOUS INTENSITY
- \* SMD DISPLAY
- \* **LEAD FREE PACKAGE (ACCORDING TO ROHS)**

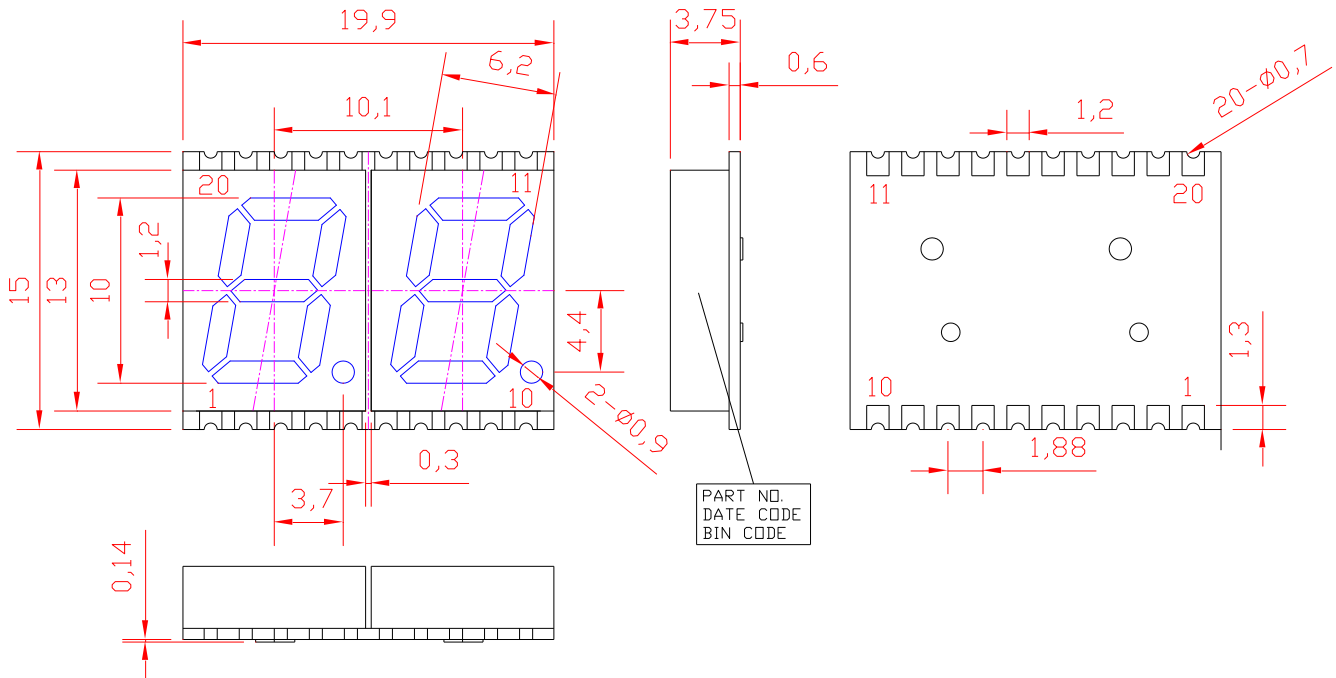
**DESCRIPTION**

The LTD-4830CKG-P is a 0.39 inch (10.0 mm) digit height dual digit SMD display. This device uses AS-AllnGaP Green LED chips (AllnGaP epi on GaAs substrate). The display has gray face and white segments.

**DEVICE**

| <b>PART NO.</b> | <b>DESCRIPTION</b> |
|-----------------|--------------------|
| AllnGaP Green   | Common Anode       |
| LTD-4830CKG-P   |                    |

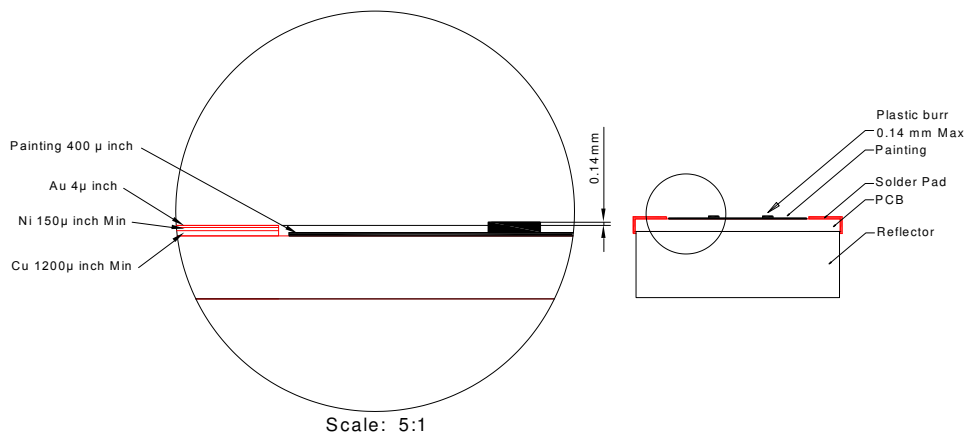
## PACKAGE DIMENSIONS



### Notes:

1. All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm (0.01") unless otherwise noted.
2. Pin tip's shift tolerance is  $\pm 0.4$  mm.

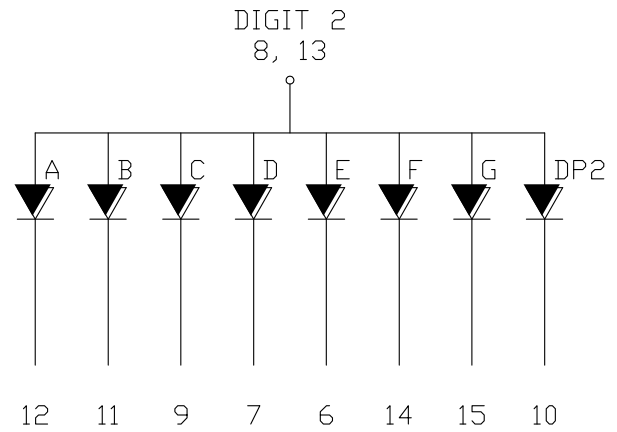
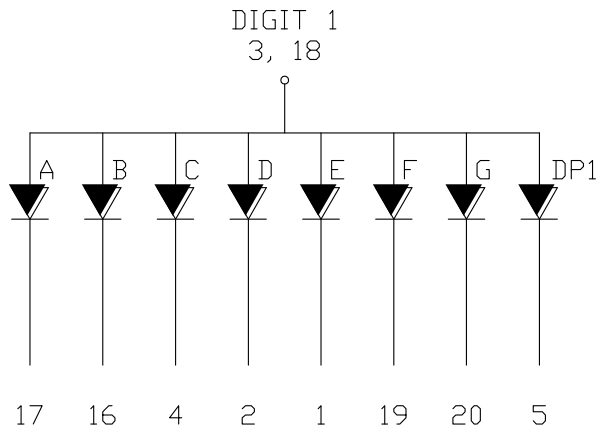
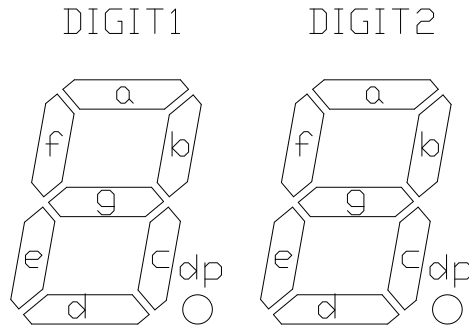
## Solder Pad Vs Painting Diagram



### Notes:

1. Plastic pins' burr max. 0.14 mm.
2. All dimensions are in millimeters. Tolerances are  $\pm 0.25$ mm (0.01") unless otherwise noted.
3. Solder pad materials and thickness: Cu: 1200  $\mu$  inch Ni: Min 150  $\mu$  inch Au: 4  $\mu$  inch.

**INTERNAL CIRCUIT DIAGRAM**



**PIN CONNECTION**

| <b>No.</b> | <b>CONNECTION</b>      |
|------------|------------------------|
| 1          | CATHODE (DIGIT1 E)     |
| 2          | CATHODE (DIGIT1 D)     |
| 3          | COMMON ANODE (DIGIT 1) |
| 4          | CATHODE (DIGIT1 C)     |
| 5          | CATHODE (DIGIT1 DP)    |
| 6          | CATHODE (DIGIT2 E)     |
| 7          | CATHODE (DIGIT2 D)     |
| 8          | COMMON ANODE (DIGIT 2) |
| 9          | CATHODE (DIGIT2 C)     |
| 10         | CATHODE (DIGIT2 DP)    |
| 11         | CATHODE (DIGIT2 B)     |
| 12         | CATHODE (DIGIT2 A)     |
| 13         | COMMON ANODE (DIGIT 2) |
| 14         | CATHODE (DIGIT2 F)     |
| 15         | CATHODE (DIGIT2 G)     |
| 16         | CATHODE (DIGIT1 B)     |
| 17         | CATHODE (DIGIT1 A)     |
| 18         | COMMON ANODE (DIGIT 1) |
| 19         | CATHODE (DIGIT1 F)     |
| 20         | CATHODE (DIGIT1 G)     |

**ABSOLUTE MAXIMUM RATING AT Ta = 25°C**

| PARAMETER  | MAXIMUM RATING    | UNIT  |
|--|-------------------|-------|
| Power Dissipation Per Segment  | 70                | mW    |
| Peak Forward Current Per Segment<br>(Frequency 1Khz,10% duty cycle ) | 60                | mA    |
| Continuous Forward Current Per Segment                               | 25                | mA    |
| Forward Current Derating from 25 °C                                  | 0.28              | mA/°C |
| Operating Temperature Range  | -35 °C to +105 °C |       |
| Storage Temperature Range  | -35 °C to +105 °C |       |

**ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta = 25°C**

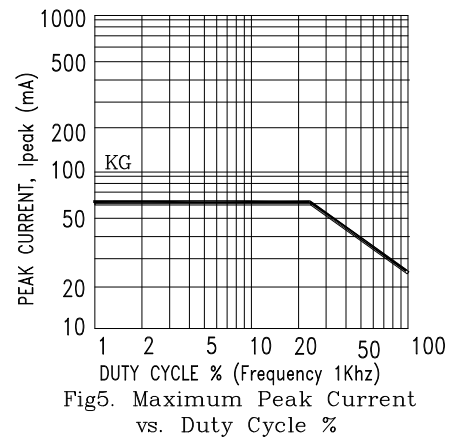
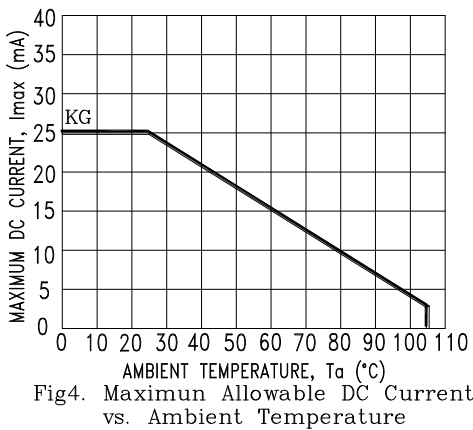
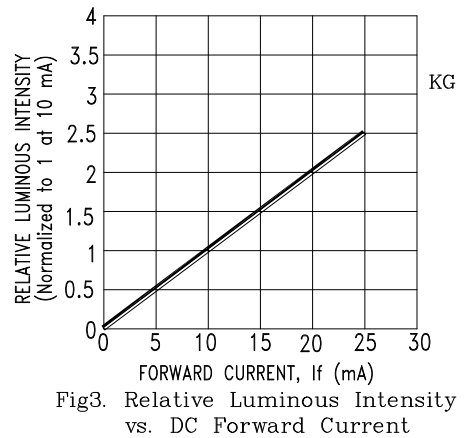
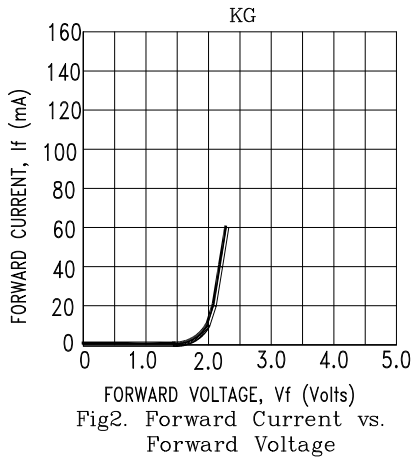
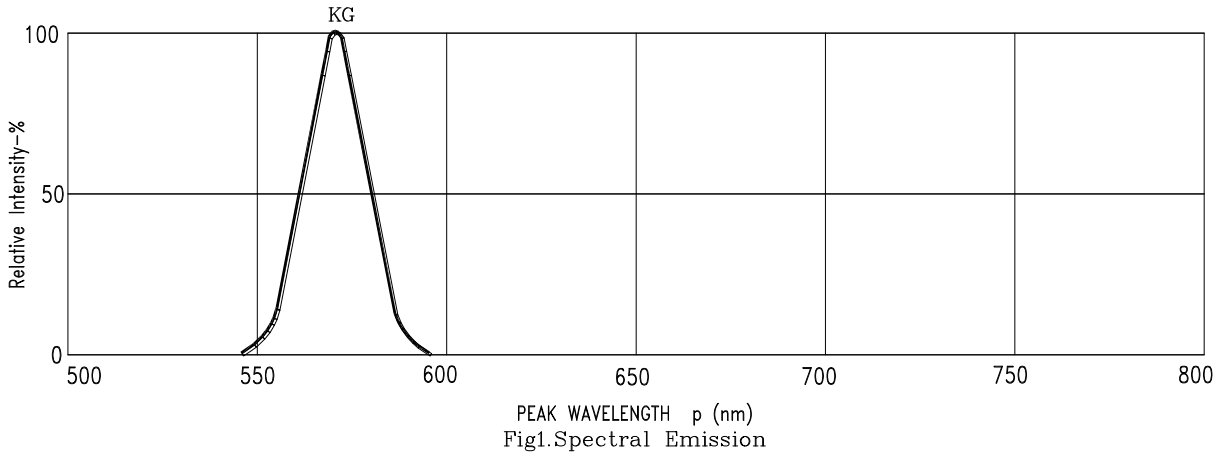
| PARAMETER                                  | SYMBOL         | MIN. | TYP. | MAX. | UNIT | TEST CONDITION     |
|--|----------------|------|------|------|------|--------------------|
| Luminous Intensity                         | IV             | 160  | 500  |      | μ cd | If=1mA             |
| Peak Emission Wavelength                   | λp             |      | 571  |      | nm   | If=20mA            |
| Spectral Line Half-Width                   | Δλ             |      | 15   |      | nm   | If=20mA            |
| Dominant Wavelength                        | λd             |      | 572  |      | nm   | If=20mA            |
| Forward Voltage Per Segment                | V <sub>F</sub> |      | 2.05 | 2.6  | V    | If=20mA            |
| Reverse Current Per Segment <sup>(2)</sup> | I <sub>R</sub> |      |      | 100  | μ A  | V <sub>R</sub> =5V |
| Luminous Intensity Matching Ratio          | Iv-m           |      |      | 2:1  |      | If=1mA             |

Note:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.
- Reverse voltage is only for IR test. It can not continue to operate at this situation.

**TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES**

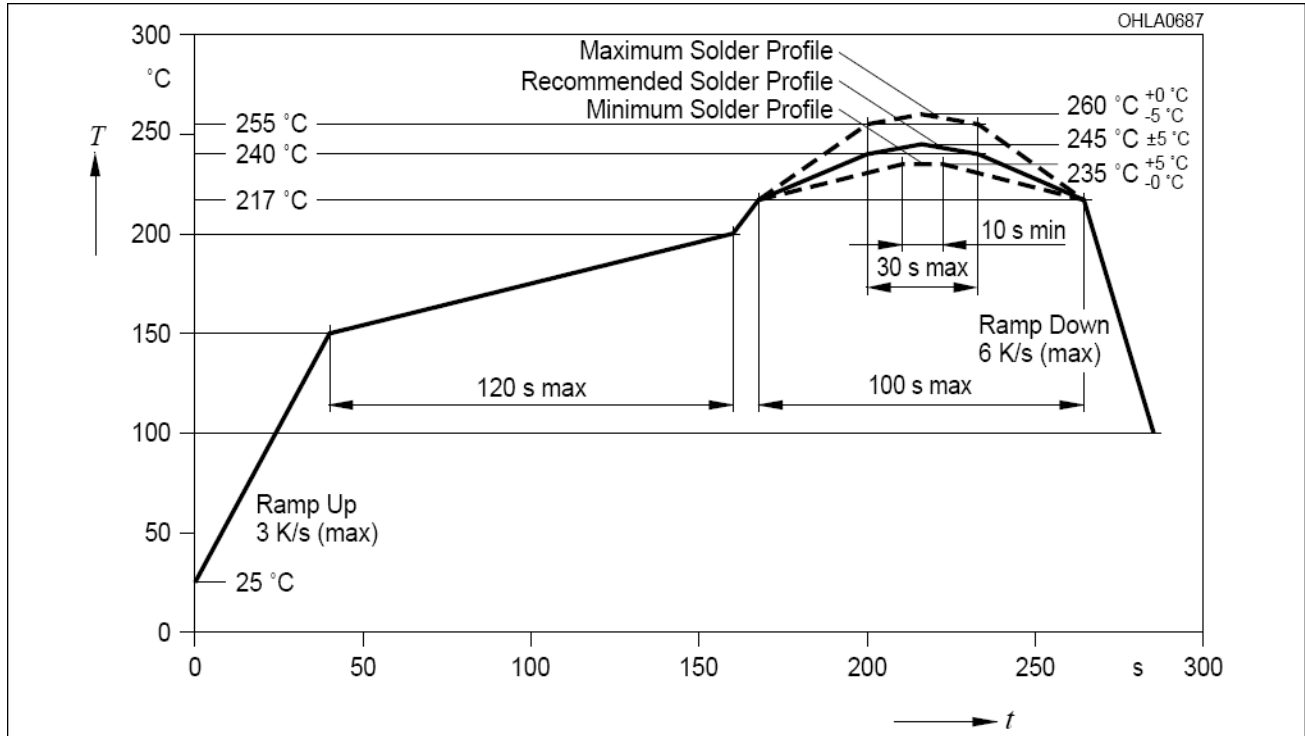
(25°C Ambient Temperature Unless Otherwise Noted)



NOTE : KG=AlInGaP Green



## SMT SOLDERING INSTRUCTION



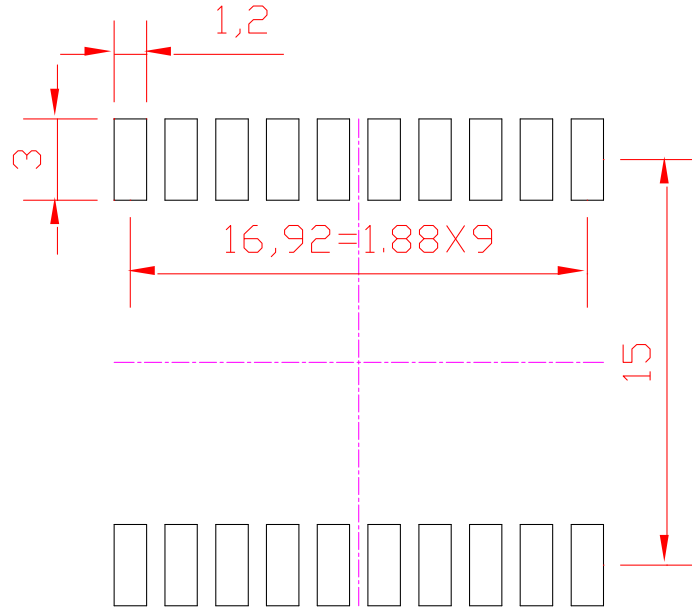
Note:

1. Recommended soldering condition:

| Reflow Soldering (Two times only) |              | Soldering Iron (One time only) |            |
|-----------------------------------|--------------|--------------------------------|------------|
| Pre-heat:                         | 120~150°C.   | Temperature                    | 300°C Max. |
| Pre-heat time:                    | 120sec. Max. | Soldering time                 | 3sec. Max. |
| Peak temperature:                 | 260°C Max.   |                                |            |
| Soldering time:                   | 5sec. Max.   |                                |            |

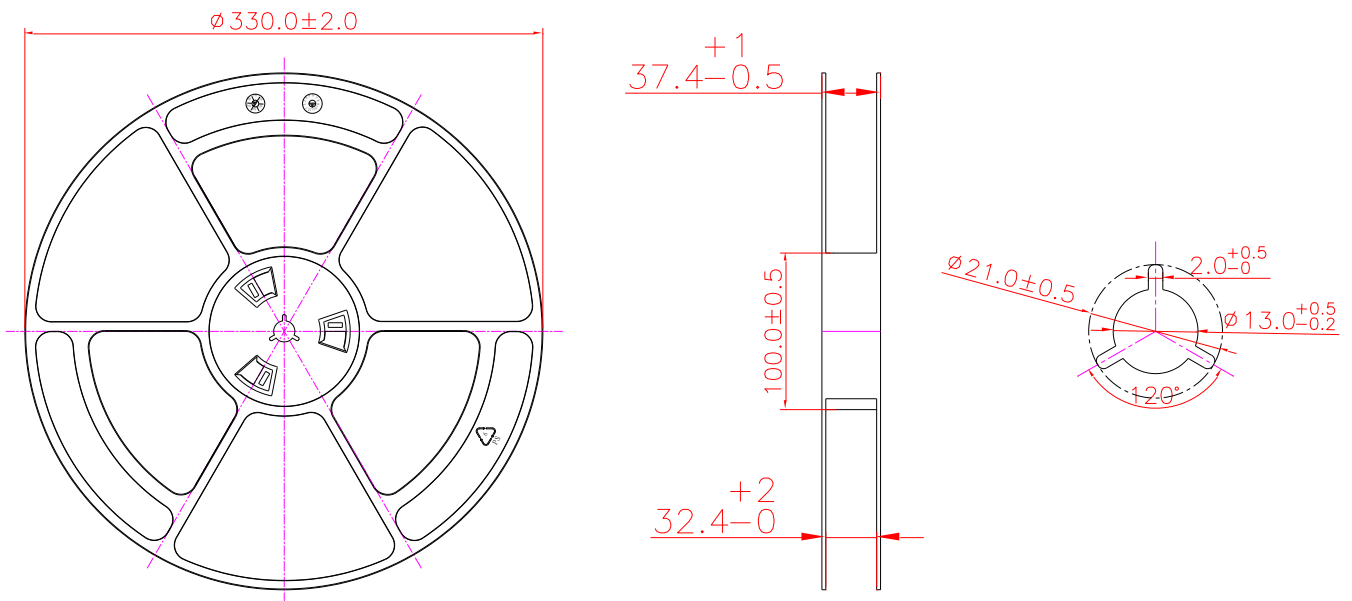
2. Number of reflow process shall be less than 2 times, and cooling process to normal temperature is required between the first and the second soldering process.

**RECOMMENDED SOLDERING PATTERN**



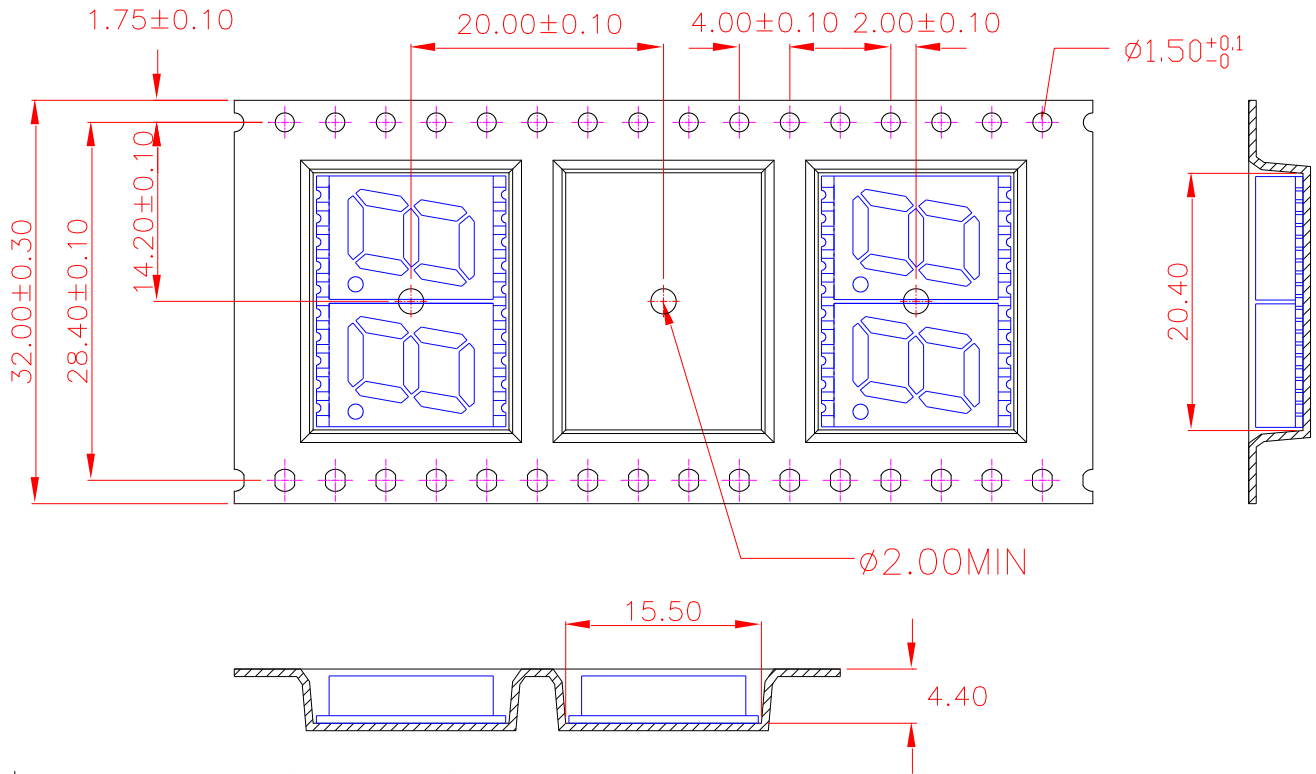
Note: All dimensions are in millimeters.

**PACKING REEL DIMENSIONS**



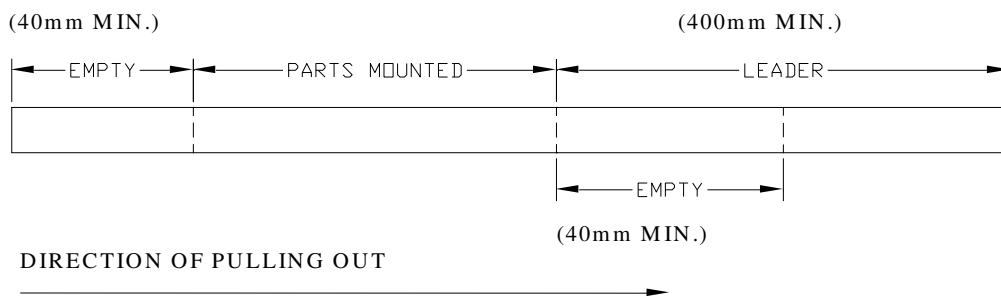
## PACKING CARRIER DIMENSIONS

### 1. Taping parts:



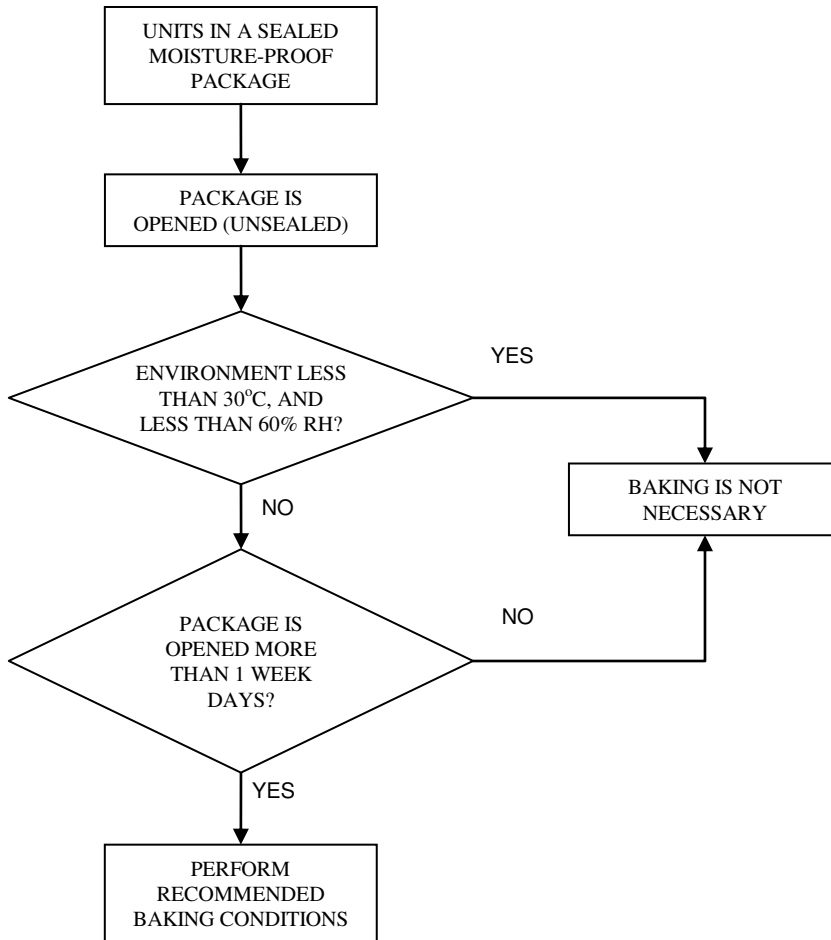
1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.20$ .
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-C requirements.
5. Thickness :  $0.30 \pm 0.05$  mm.
6. Packing length per 22" reel : 35.5 Meters.

### 2. Trailer part/ Leader part:



## MOISTURE PROOF PACKAGING

All N/D SMD displays are shipped in moisture proof package. The displays should be stored at 30°C or less and 90% RH or less. Once the package opened, moisture absorption begins.



### Baking Conditions

If the parts are not stored in dry conditions, they must be baked before reflow to prevent damage to the parts.

| Package | Temperature | Time      |
|---------|-------------|-----------|
| In Reel | 60°C        | ≥ 48hours |
| In Bulk | 100°C       | ≥ 4hours  |
|         | 125°C       | ≥ 2hours  |

**Baking should only be done once.**