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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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LED DISPLAY

LTP-4824CTB-P
DATA SHEET

ITEM	Description	By	DATE
1.	New Spec	Reo Lin	2012/11/02

FEATURES

＊0.4 inch (10.16 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)

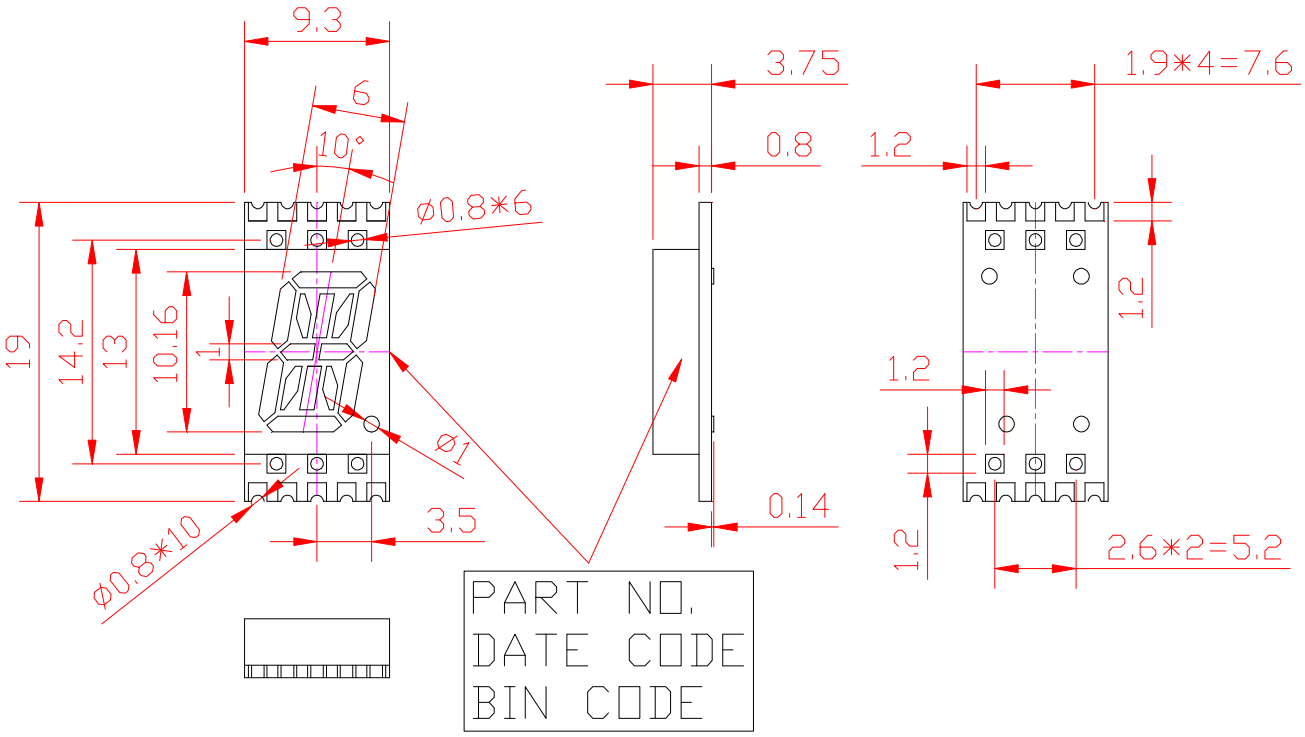
DESCRIPTION

The LTP-4824CTB-P is a 0.4 inch (10.16 mm) digit height single digit alphanumeric display. This device uses InGaN blue LED chips (InGaN epi on Sapphire substrate). The display has gray face and white segments.

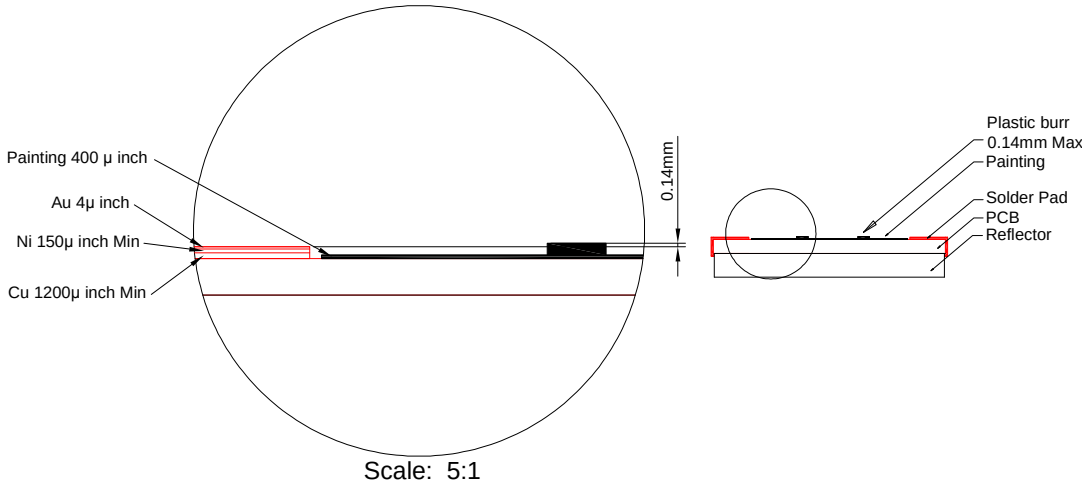
DEVICE

PART NO.	DESCRIPTION
InGaN Blue LTP-4824CTB-P	Common Anode

PACKAGE DIMENSIONS



Solder Pad Vs Painting Diagram

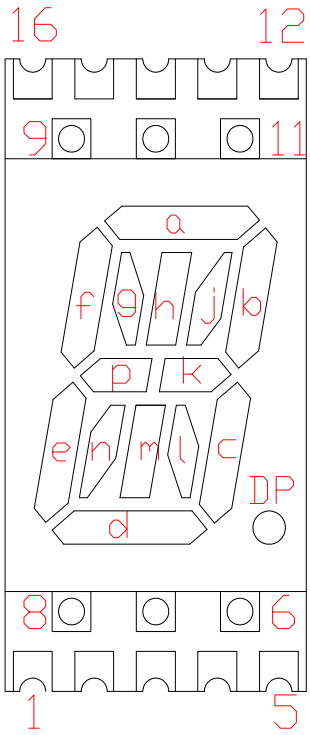


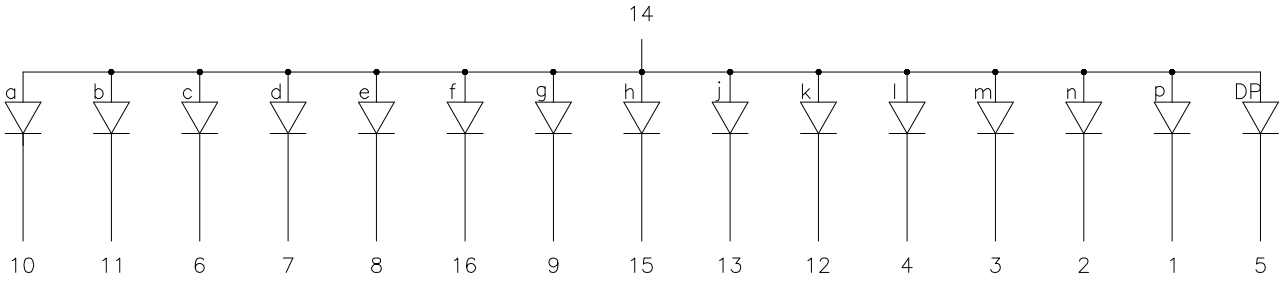
Scale: 5:1

NOTES:

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

INTERNAL CIRCUIT DIAGRAM





PIN CONNECTION

No.	CONNECTION	No.	CONNECTION
1	Cathode p	9	Cathode g
2	Cathode n	10	Cathode a
3	Cathode m	11	Cathode b
4	Cathode l	12	Cathode k
5	Cathode DP	13	Cathode j
6	Cathode c	14	Common Anode
7	Cathode d	15	Cathode h
8	Cathode e	16	Cathode f

ABSOLUTE MAXIMUM RATING

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (Frequency 1Khz, 10% duty cycle)	30	mA
Continuous Forward Current Per Segment Forward Current Derating from 25°C	25 0.33	mA mA/°C
Operating Temperature Range	-35°C to +85°C	
Storage Temperature Range	-35°C to +85°C	
Soldering Conditions : 1/16 inch below seating plane for 3 seconds at 260^0C		

ELECTRICAL / OPTICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V	1300	5600		μcd	I_F=10mA
Peak Emission Wavelength	λp		468		nm	I_F=20mA
Spectral Line Half-Width	Δλ		25		nm	I_F=20mA
Dominant Wavelength	λd		470		nm	I_F=20mA
Forward Voltage Per Segment	V_F		3.3	3.8	V	I_F=20mA
Reverse Current Per Segment(2)	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		I_F=1mA

Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.
2. Reverse voltage is only for IR test. It can not continue to operate at this situation.
3. Cross talk specification ≦ 2.5%

ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

- Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- All devices, equipment, and machinery must be properly grounded.
- Work tables, storage racks, etc. should be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic for N/D as a result of friction between LEDs during storage and handling.

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

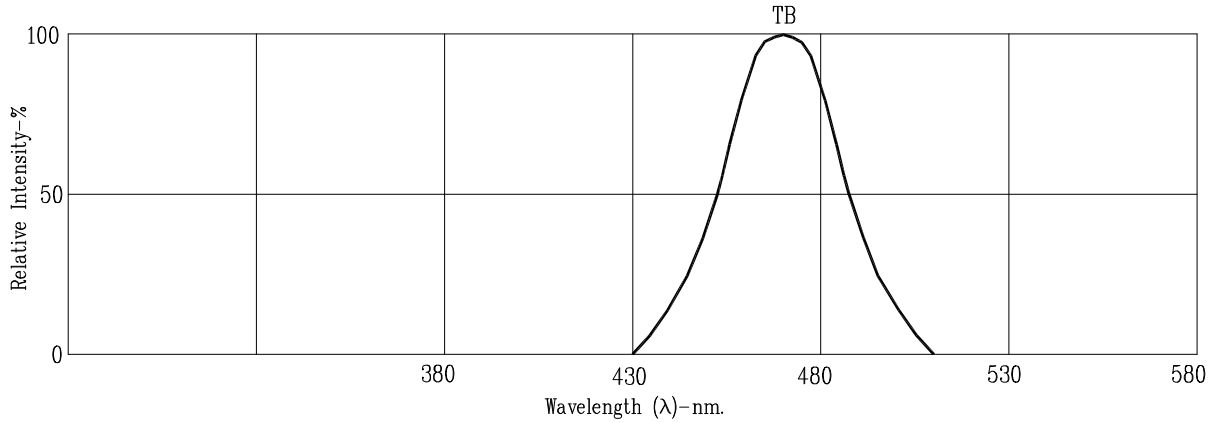


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

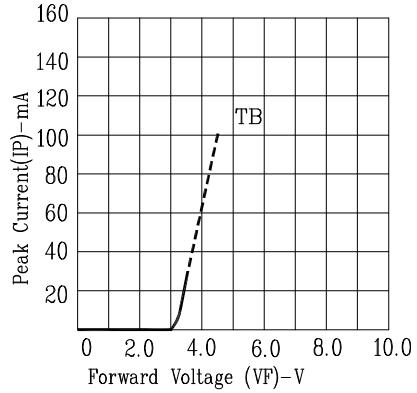


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

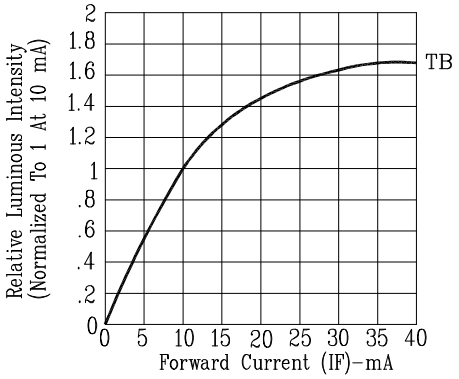


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

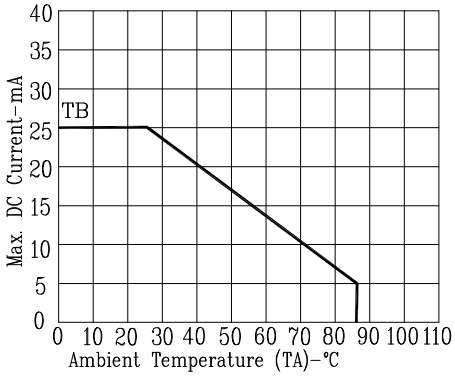


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

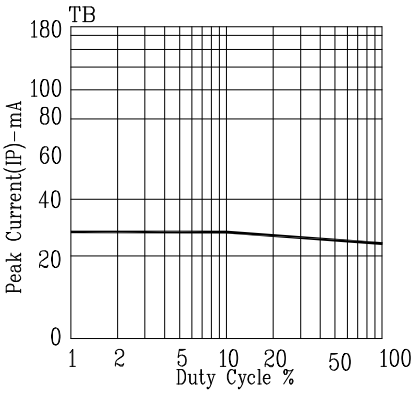
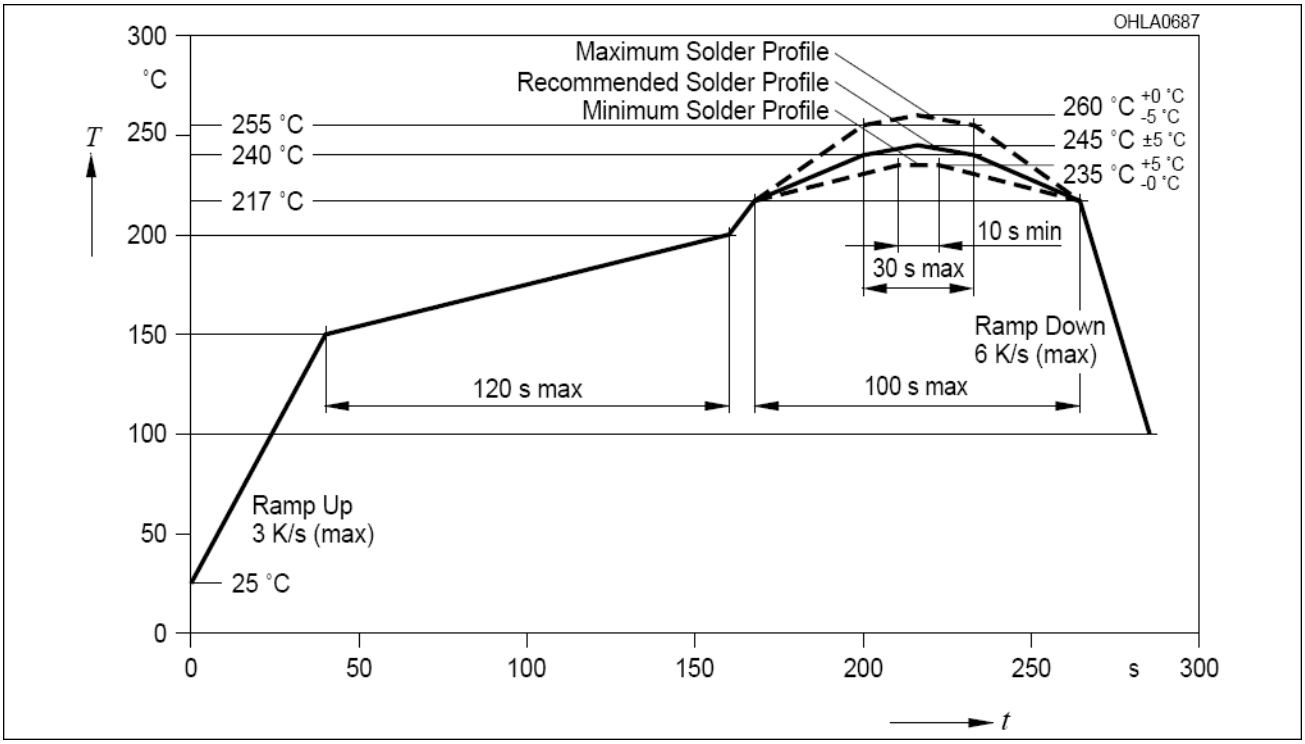


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: TB=InGaN/sapphire Blue

SMT SOLDERING INSTRUCTION

(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)



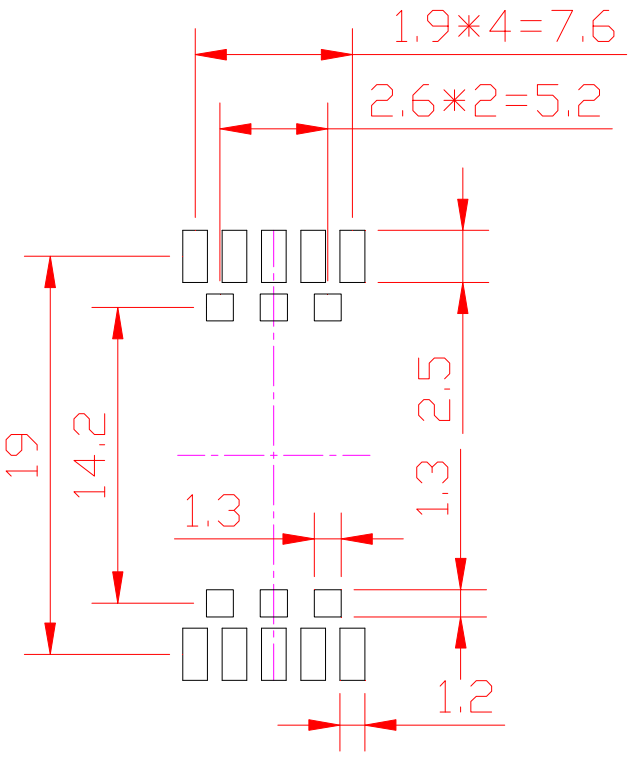
Note:

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.		

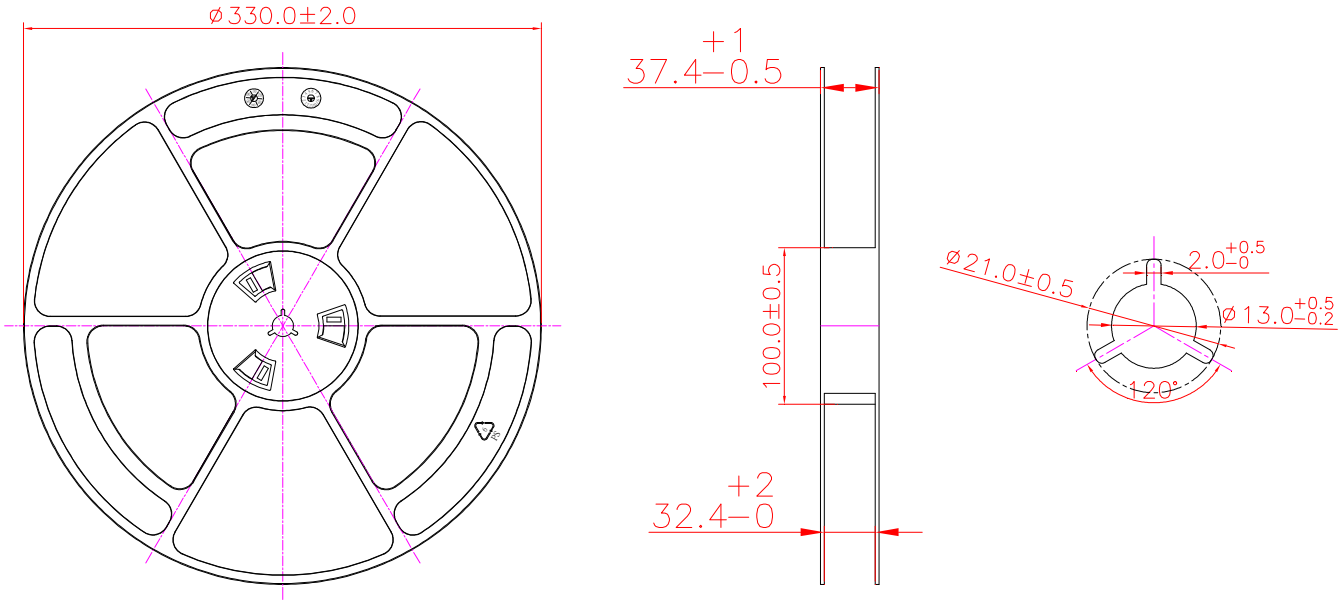
2. Number of reflow process shall be less than 2 times, and cooling process to normal temperature is required between the first and the second soldering process.

RECOMMENDED SOLDERING PATTERN



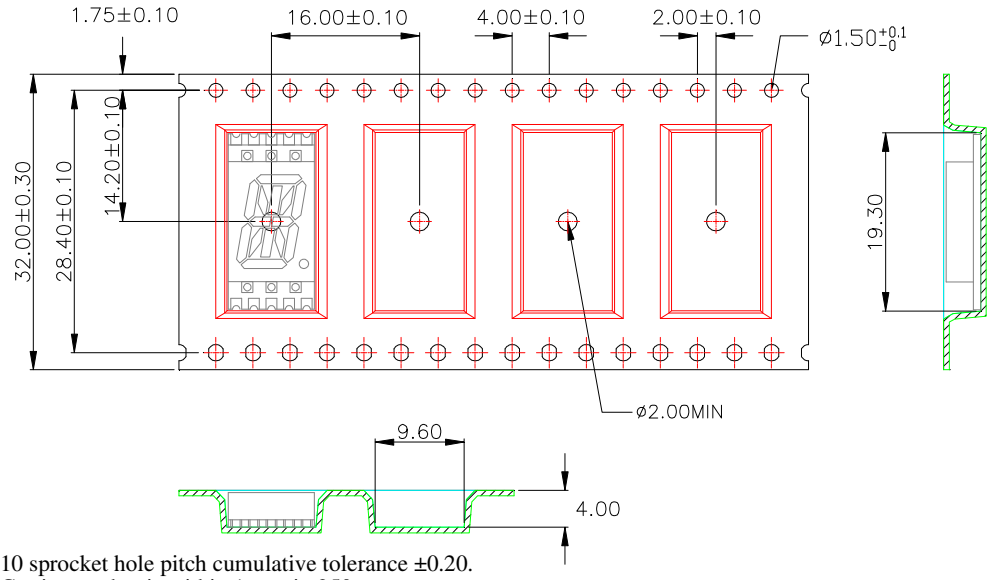
Note: All dimensions are in millimeters.

PACKING REEL DIMENSIONS



PACKING CARRIER DIMENSIONS

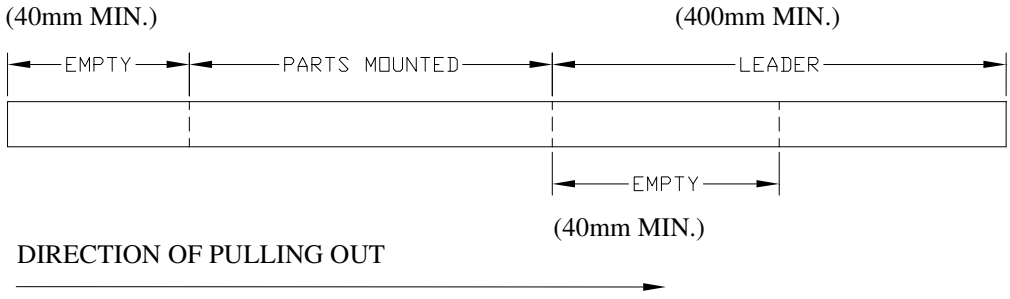
1. Taping parts:



W	32.00±0.30
A0	9.60±0.10
B0	19.30±0.10
K0	4.00±0.10

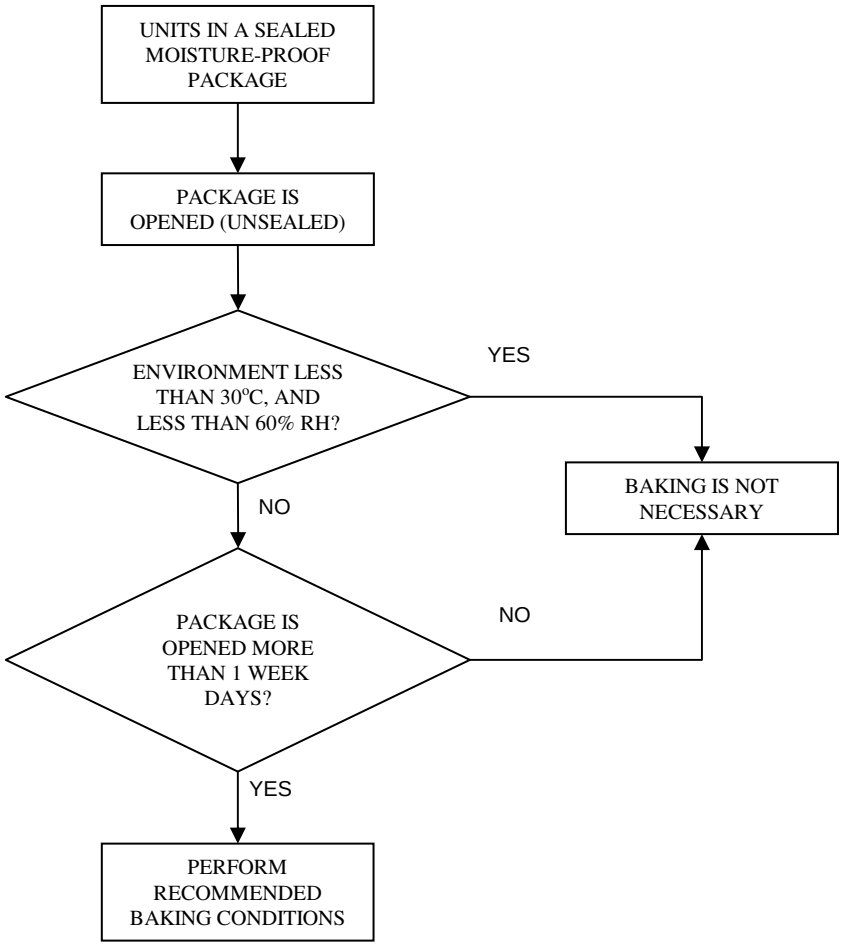
1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.
6. Packing length per 22" reel : 45.5 Meters.(1:3)
7. Component load per 13" reel : 900 pcs.

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.