



LED Display

Product Data Sheet

LTS-4812CKR-PM

Spec No.: DS30-2011-0022

Effective Date: 11/12/2013

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

LED DISPLAY

LTS-4812CKR-PM DATA SHEET

<u>ITEM</u>	<u>Description</u>	<u>By</u>	<u>DATE</u>
1	New Spec.	Reo Lin	2013/01/28

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)**

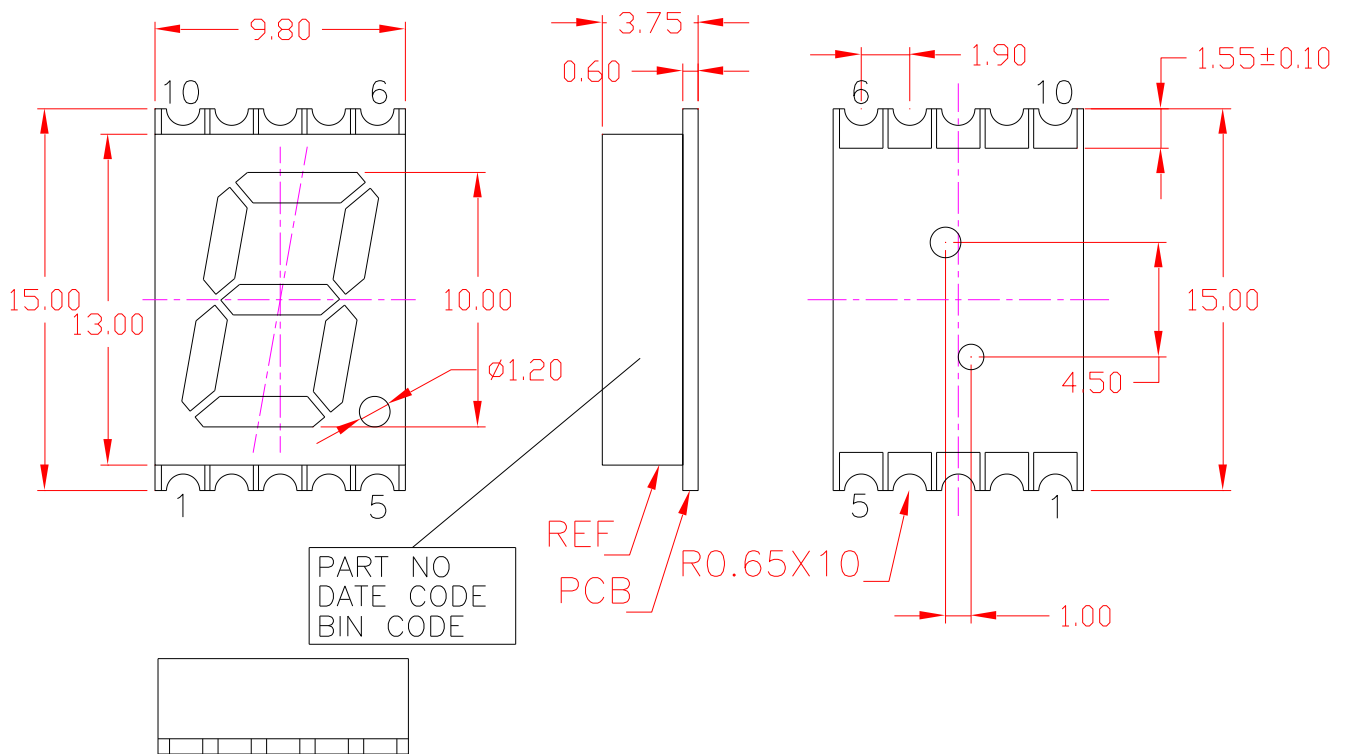
DESCRIPTION

The LTS-4812CKR-PM is a 0.39 inch (10.0 mm) digit height single digit SMD display . This device uses AS-AlInGaP SUPER RED chips (AlInGaP epi on GaAs substrate). The display has gray face and white segments.

DEVICE

PART NO.	DESCRIPTION
AllnGaP SUPER RED	Common Anode
LTS-4812CKR-PM	

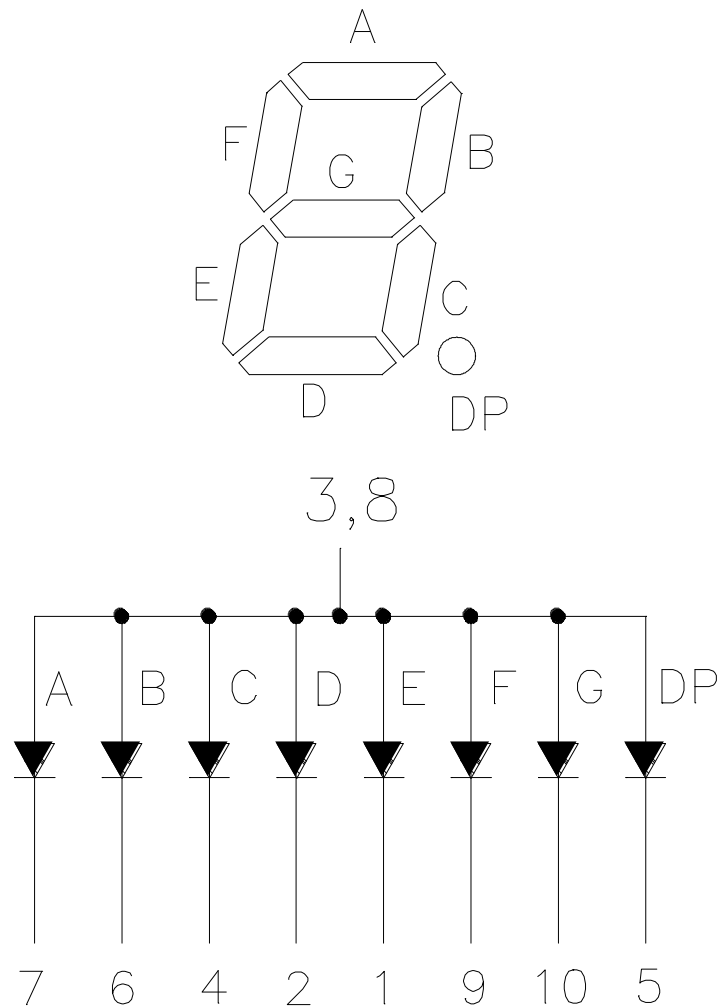
PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters. Tolerances are ± 0.25 mm (0.01") unless otherwise noted.
2. Foreign material on segment ≤ 10 mils
3. Ink contamination (surface) ≤ 20 mils
4. Bending $\leq 1\%$ of reflector length
5. Bubble in segment ≤ 10 mils
6. Plastic pin's burr max is 0.03 mm

INTERNAL CIRCUIT DIAGRAM



PIN CONNECTION

No.	CONNECTION
1	CATHODE E
2	CATHODE D
3	COMMON ANODE
4	CATHODE C
5	CATHODE D.P.
6	CATHODE B
7	CATHODE A
8	COMMON ANODE
9	CATHODE F
10	CATHODE G

ABSOLUTE MAXIMUM RATING AT Ta = 25°C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (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	
Iron Soldering Conditions: 1/16 inch Below Seating Plane for 3 Seconds at 260 °C		

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta = 25°C

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _v	201	650		μ cd	I _F =1mA
			8250			I _F =10mA
Peak Emission Wavelength	λ _p		639		nm	I _F =20mA
Spectral Line Half-Width	Δλ		20		nm	I _F =20mA
Dominant Wavelength	λ _d		631		nm	I _F =20mA
Forward Voltage Per Segment	V _F		2.05	2.6	V	I _F =20mA
Reverse Current Per Segment ⁽²⁾	I _R			100	uA	V _R =5V
Luminous Intensity Matching Ratio	I _v -m			2:1		I _F =10mA

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.
- Cross talk specification ≤ 2.5%

LUMINOUS INTENSITY BIN SELECTIONS: IF=1mA (Unit : ucd)

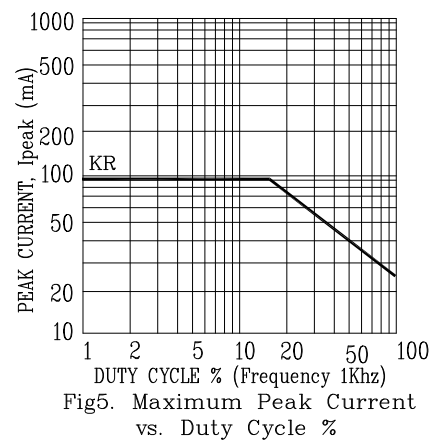
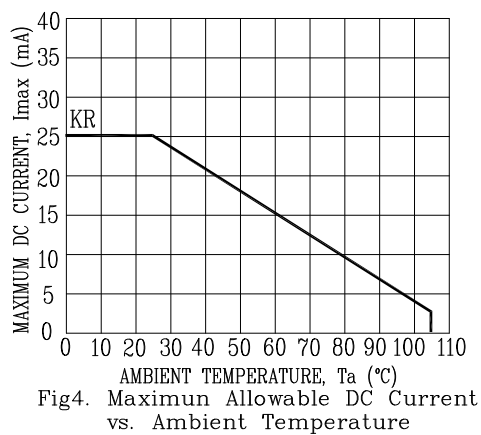
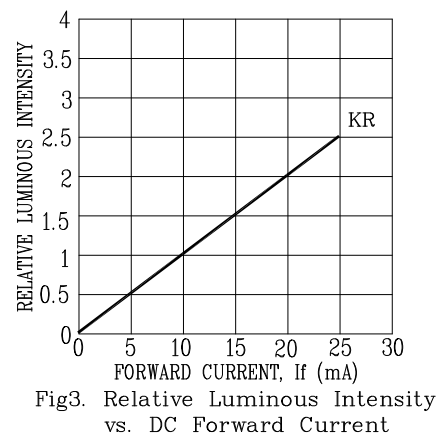
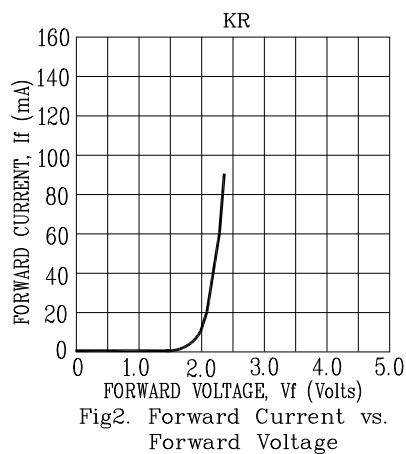
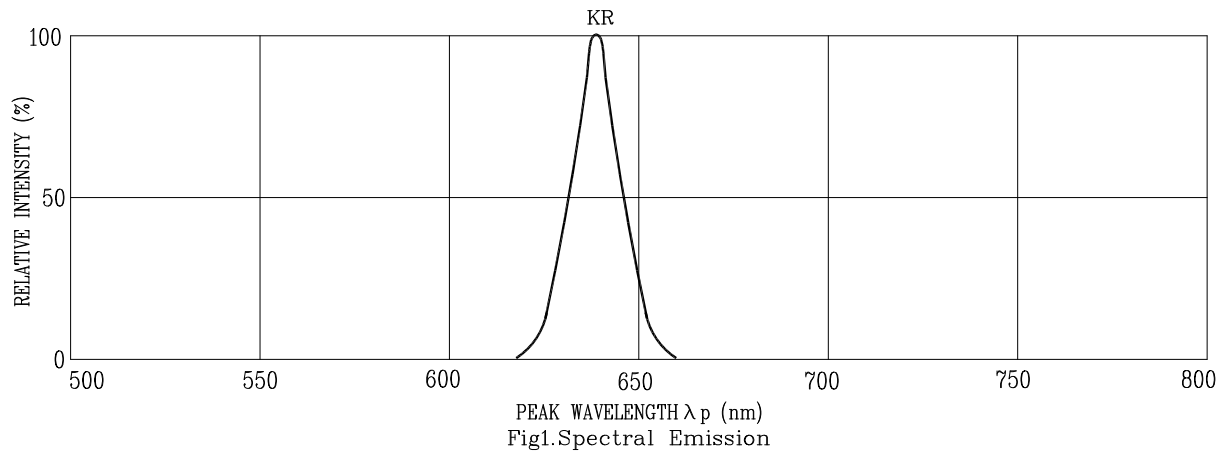
(Only one BIN for each reel)

Luminous Intensity		Unit : μ cd @1mA
Rank	Min.	Max.
E	201	320
F	321	500
G	501	800
H	801	1300
J	1301	2100

Tolerance on each Intensity bin is +/-15%

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

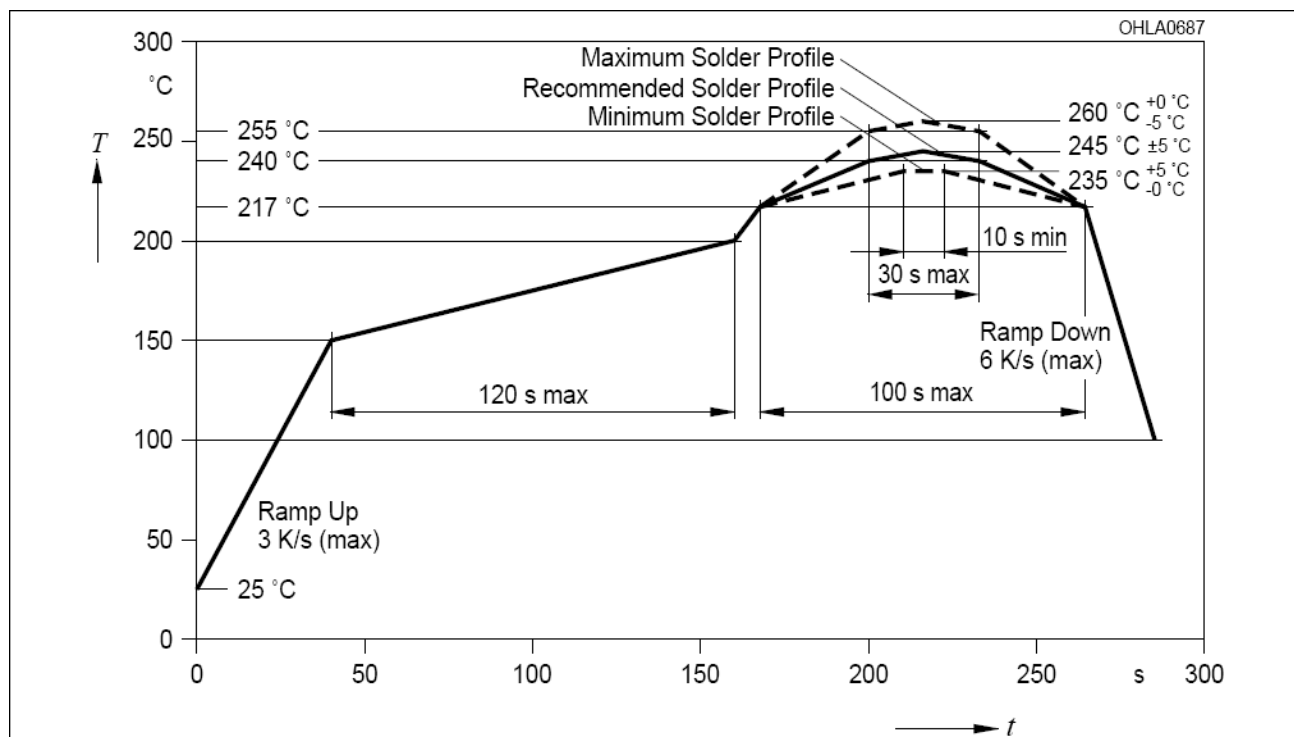
(25°C Ambient Temperature Unless Otherwise Noted)



NOTE : KR=AlInGaP SUPER RED

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)



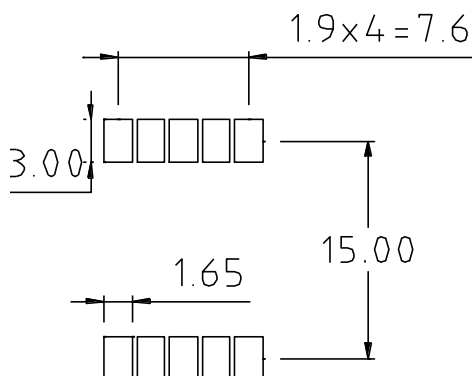
Note:

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.		

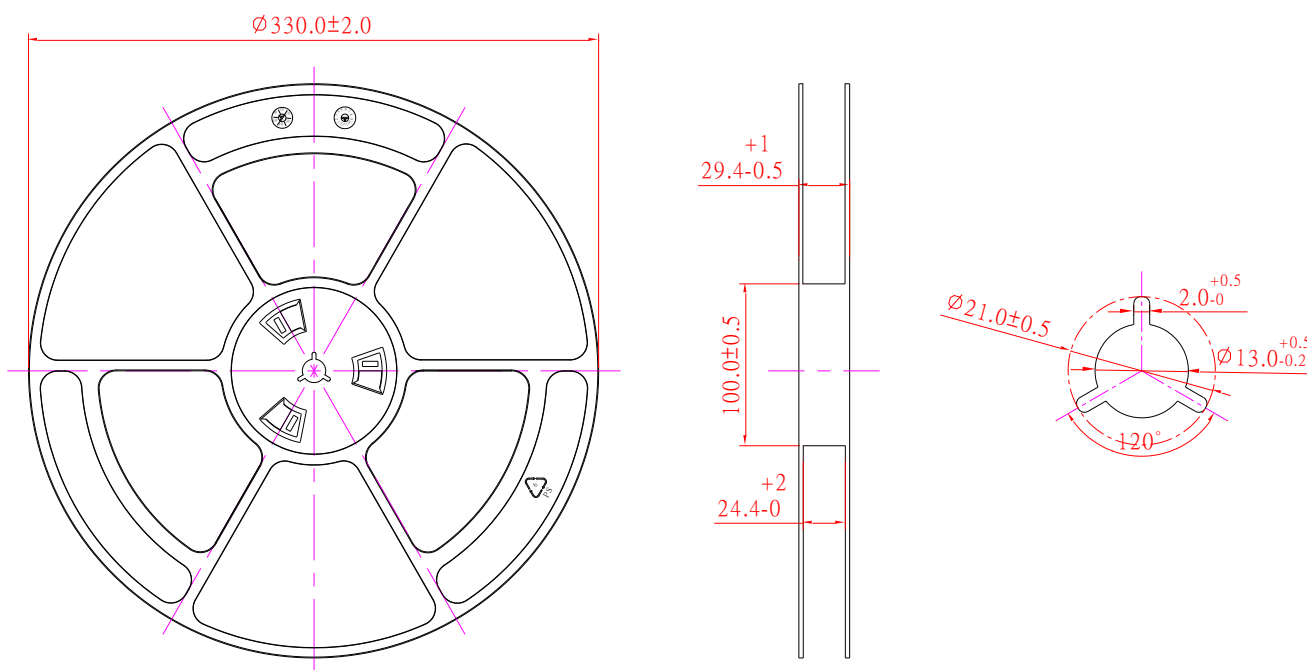
2. Number of reflow process shall be less than 2 times, and cooling process to normal temperature is required between the first and the second soldering process.

RECOMMENDED SOLDERING PATTERN



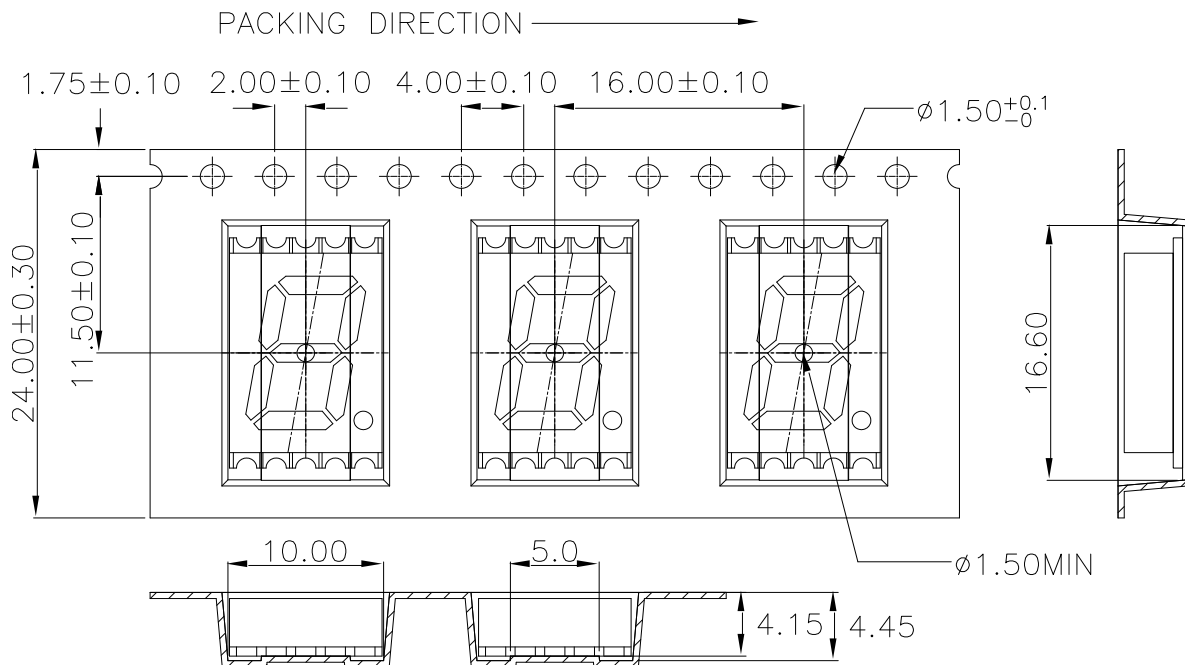
Note: All dimensions are in millimeters.

PACKING REEL DIMENSIONS



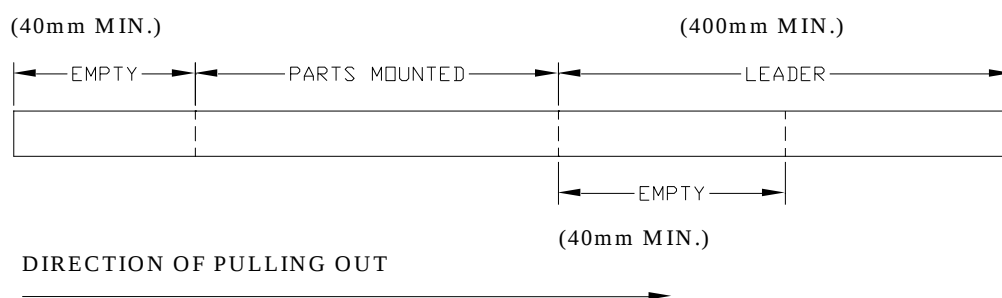
PACKING CARRIER DIMENSIONS

1. Taping parts:



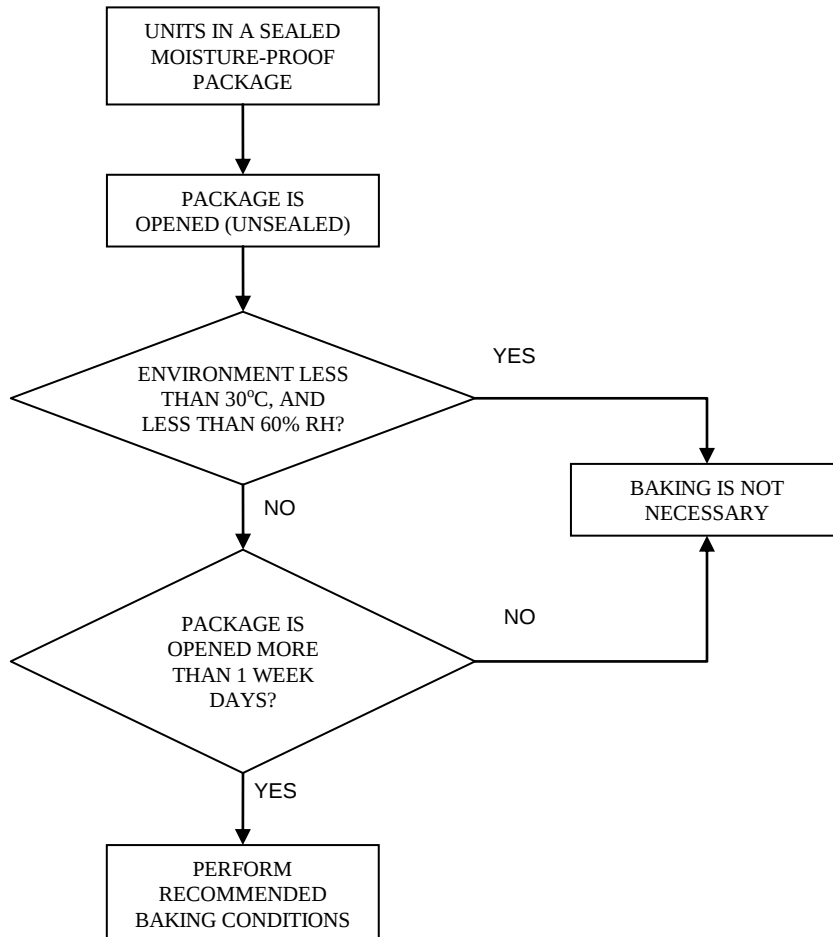
10 sprocket hole pitch cumulative tolerance ± 0.20 .
Carrier camber is within 1 mm in 250 mm.
Thickness : 0.40 ± 0.05 mm.
All dimensions meet EIA-481-C requirements.

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.