



LED Display

Product Data Sheet

LTS-4812CKS-PM

Spec No.: DS30-2012-0108

Effective Date: 11/21/2012

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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LED DISPLAY

LTS-4812CKS-PM
(For EGO)
DATA SHEET

<u>ITEM</u>	<u>Description</u>	<u>By</u>	<u>DATE</u>
1	New Spec.	Reo Lin	2012/10/29

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)**

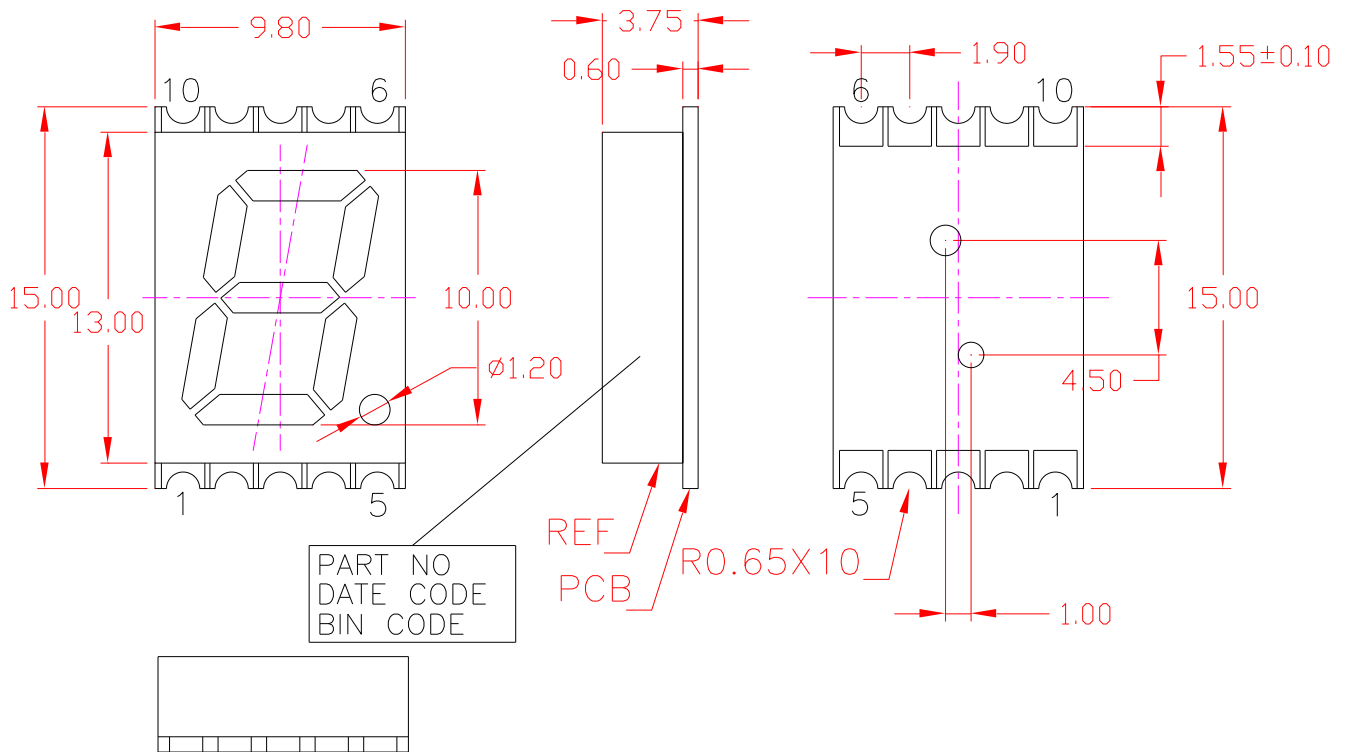
DESCRIPTION

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

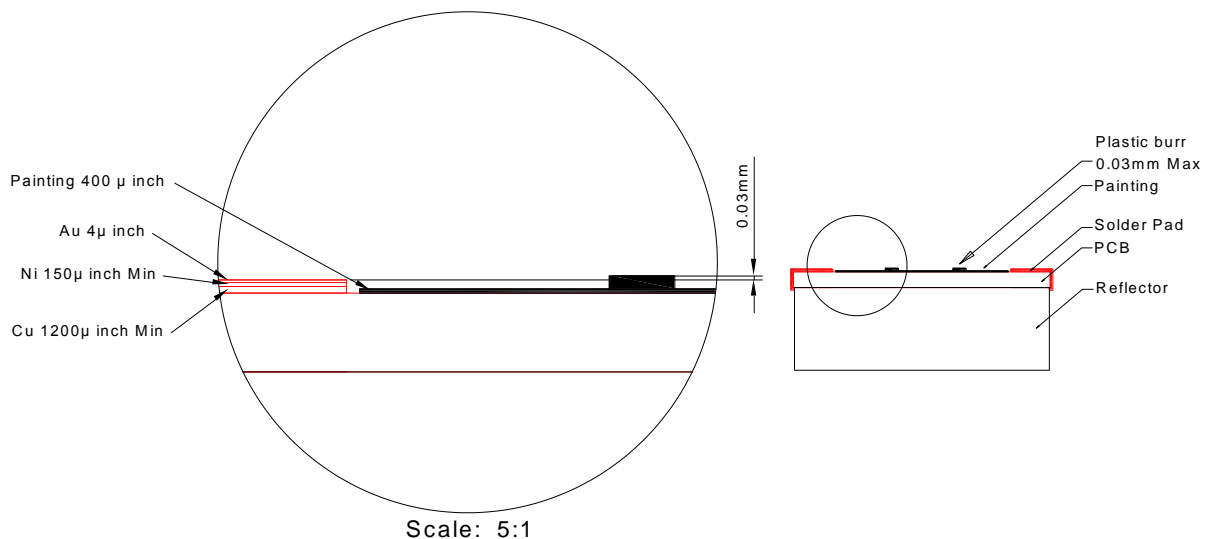
DEVICE

PART NO.	DESCRIPTION
AllnGaP Yellow	Common Anode
LTS-4812CKS-PM	

PACKAGE DIMENSIONS



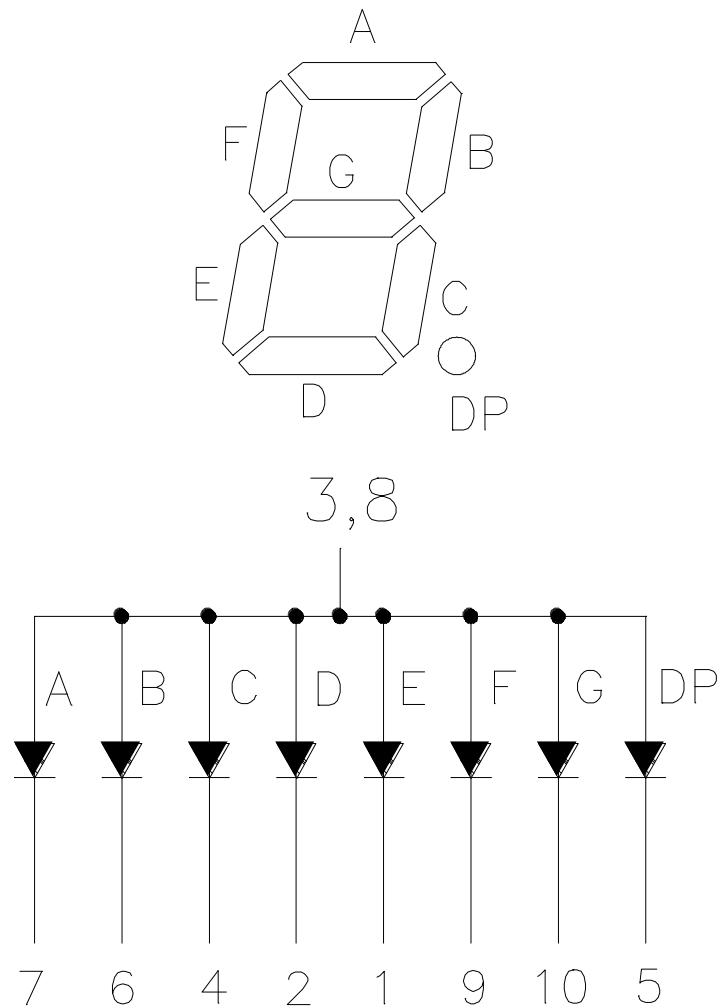
Solder Pad Vs Painting Diagram



NOTES:

1. Plastic pins' burr max. 0.03 mm.
2. All dimensions are in millimeters. Tolerances are ± 0.25 mm (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
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)	90	mA
Continuous Forward Current Per Segment	25	mA
Forward Current Derating from 25 °C	0.27	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	Iv	1301	2750	3401	μcd	IF=1mA
			30250			IF=10mA
Peak Emission Wavelength	λp		588		nm	IF=20mA
Spectral Line Half-Width	Δλ		15		nm	IF=20mA
Dominant Wavelength	λd	582.1	589	590	nm	IF=20mA
Forward Voltage Per Segment	VF	1.6	2.05	2.6	V	IF=20mA
Reverse Current Per Segment ⁽²⁾	IR			100	uA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=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 $\leq 2.5\%$

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

(Only one BIN for each reel)

Luminous Intensity		Unit : μ cd @1mA
Rank	Min.	Max.
J	1301	2100
K	2101	3400
L	3401	5400

Tolerance on each Intensity bin is +/-15%

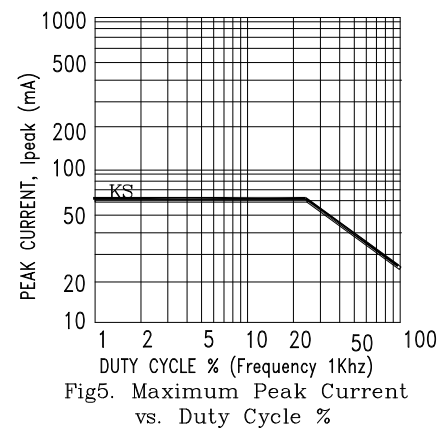
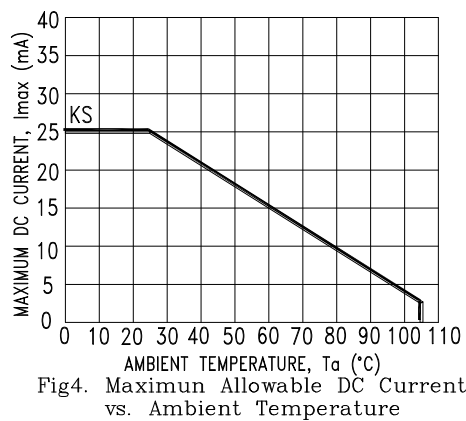
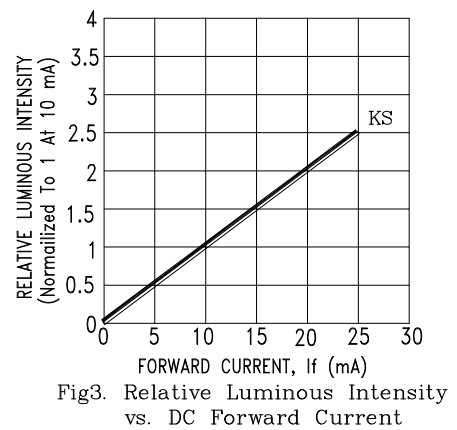
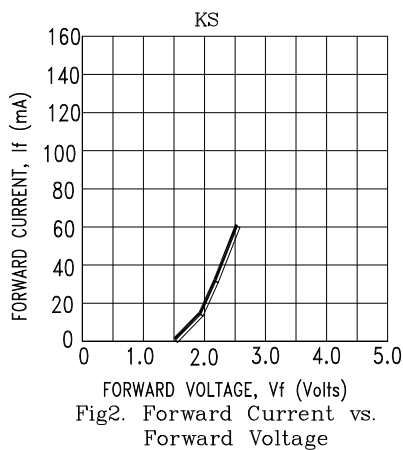
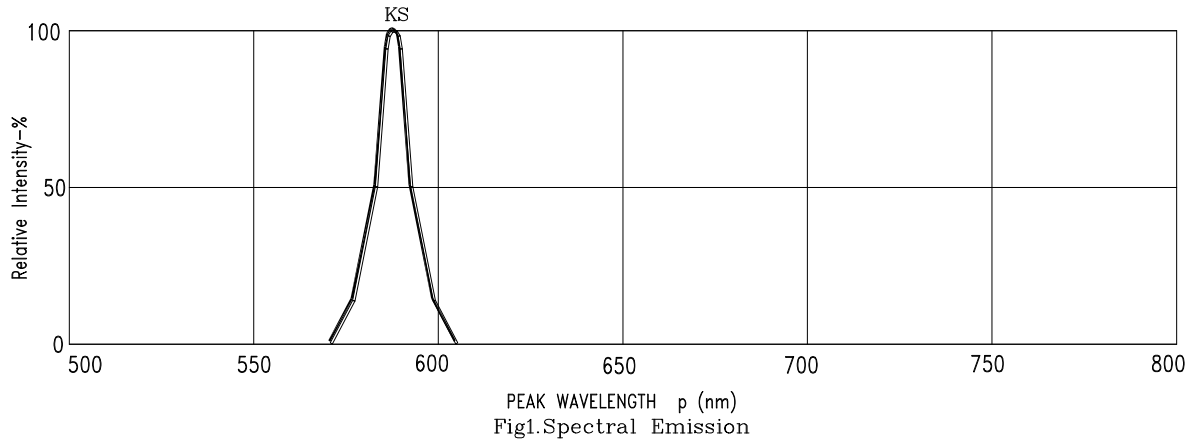
HUE TABLE (unit:nm)

Hue grade		Unit : nm @20mA
Rank	Min.	Max.
0	582.1	584.0
1	584.1	586.0
2	586.1	588.0
3	588.1	590.0

Tolerance for each Dominate Wavelength is +/- 1 nm

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

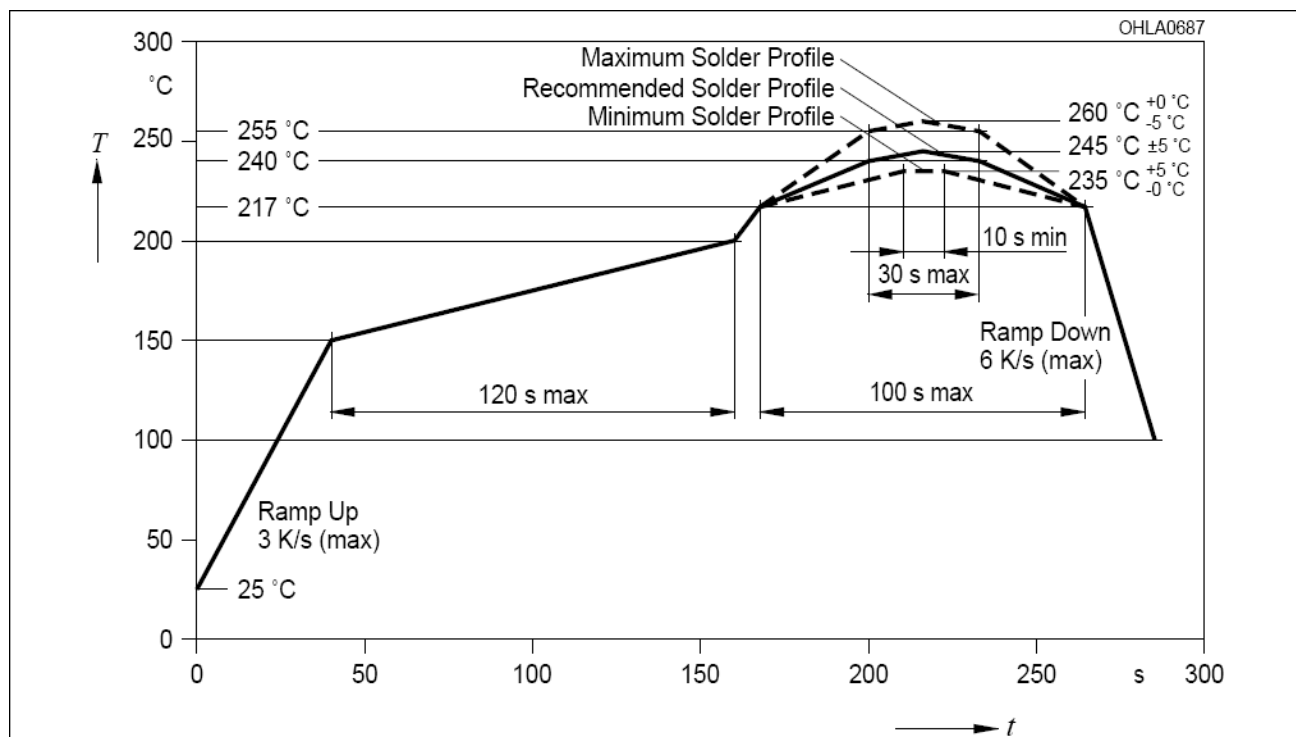
(25°C Ambient Temperature Unless Otherwise Noted)



NOTE : KS=AlInGaP YELLOW

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)



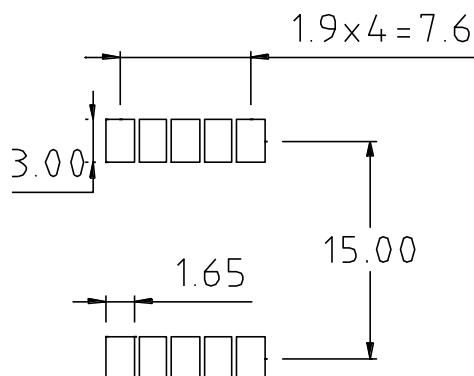
Note:

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.		

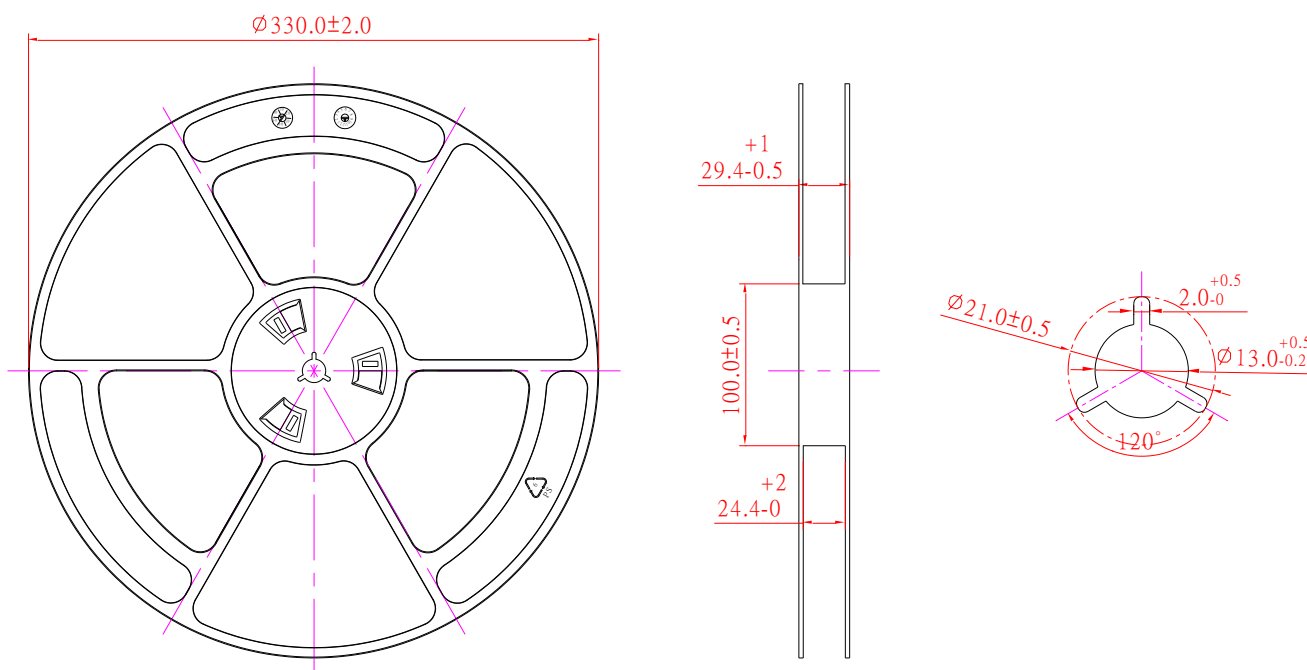
2. Number of reflow process shall be less than 2 times, and cooling process to normal temperature is required between the first and the second soldering process.

RECOMMENDED SOLDERING PATTERN



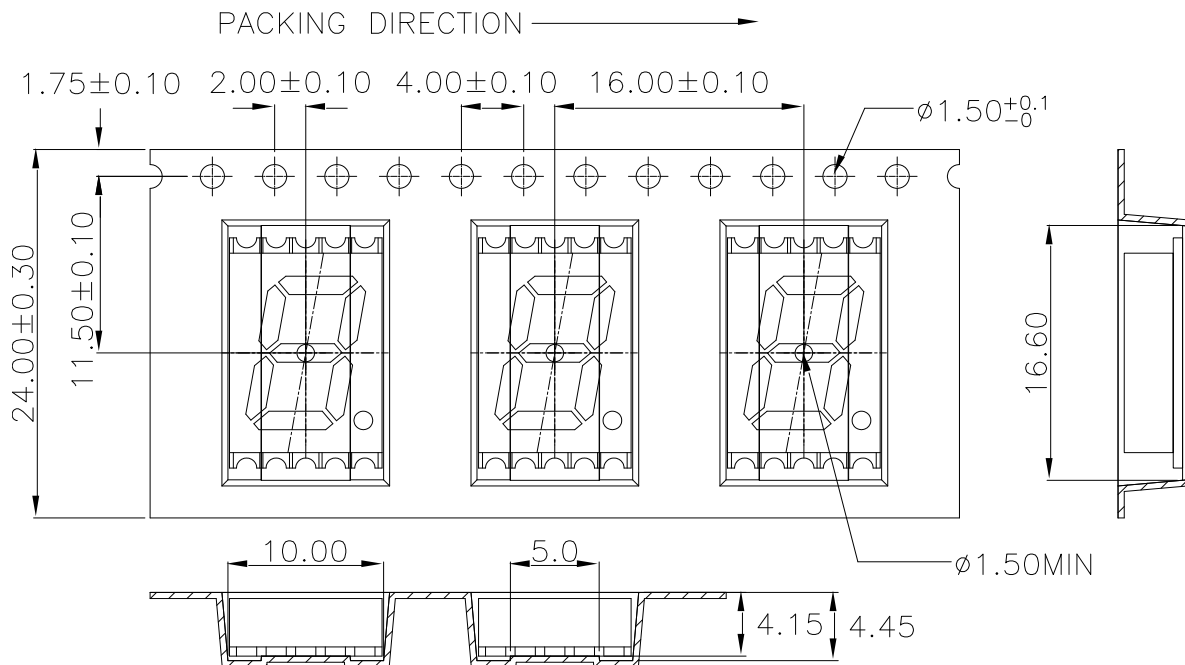
Note: All dimensions are in millimeters.

PACKING REEL DIMENSIONS



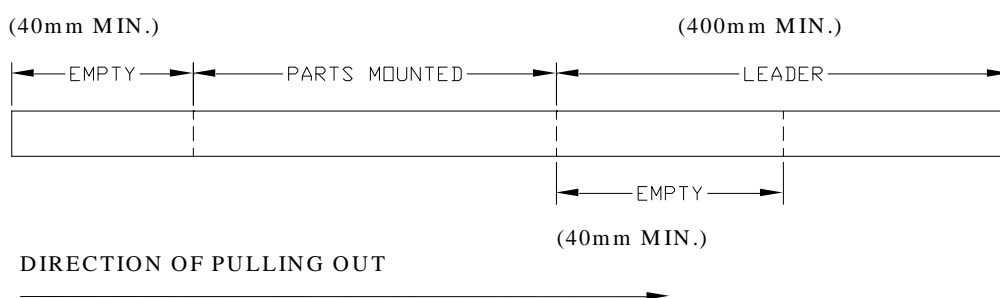
PACKING CARRIER DIMENSIONS

1. Taping parts:



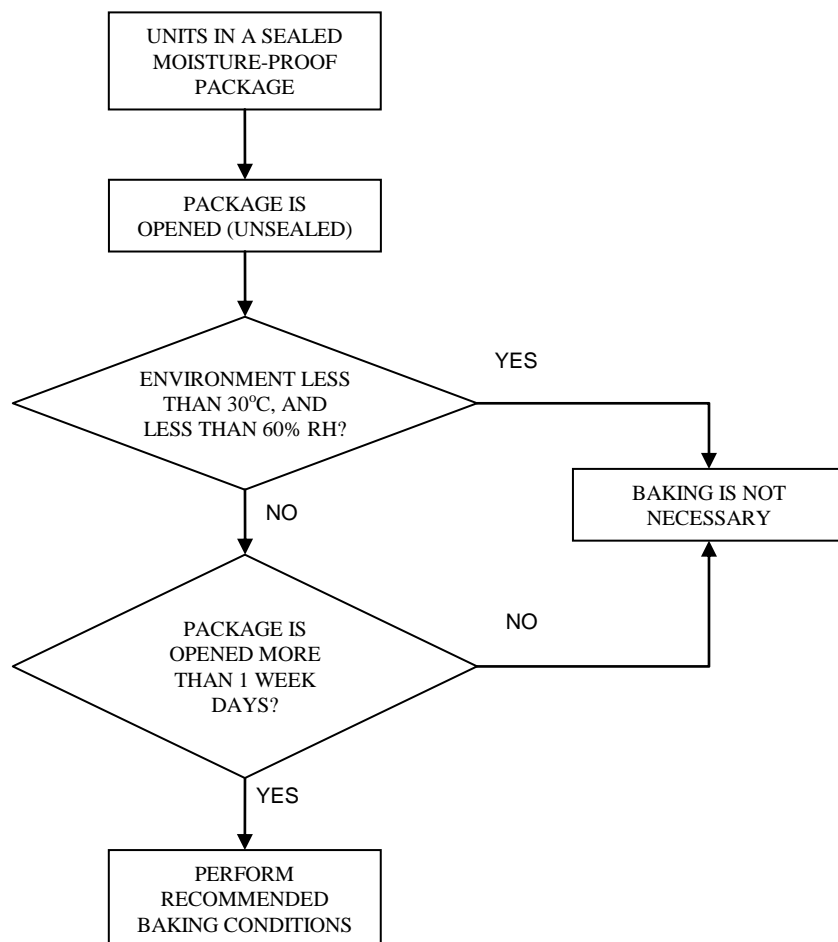
10 sprocket hole pitch cumulative tolerance ± 0.20 .
Carrier camber is within 1 mm in 250 mm.
Thickness : 0.40 ± 0.05 mm.
All dimensions meet EIA-481-C requirements.

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.