LITEON®
OPTOELECTRONICS

LED Display
Product Data Sheet
LTD-5435CKG-P

Spec No. :DS30-2012-0025
Effective Date: 02/11/2020
Revision: A

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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LED DISPLAY

LTD-5435CKG-P
DATA SHEET

ITEM	Description	By	DATE YYYY/MM/DD
1	New Spec	Reo Lin	2011/11/24
2	Modify PACKAGE DIMENSIONS	Reo Lin	2011/12/26
3	Add Bin table and Hue table in Page 8/13	Reo Lin	2012/03/01
4	Revised PACKING CARRIER DIMENSIONS in Page 12/13	Reo Lin	2012/05/10
Above data for PD and Customer tracking only			
A	Add “DIRECTION OF PULLING OUT” in page 12/13 Remove Dim.:2.0 MIN in page 12/13	Supornrat K.	2020/02/05

FEATURES

∗0.56 inch (14.22 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
∗**LEAD FREE PACKAGE (ACCORDING TO ROHS)**

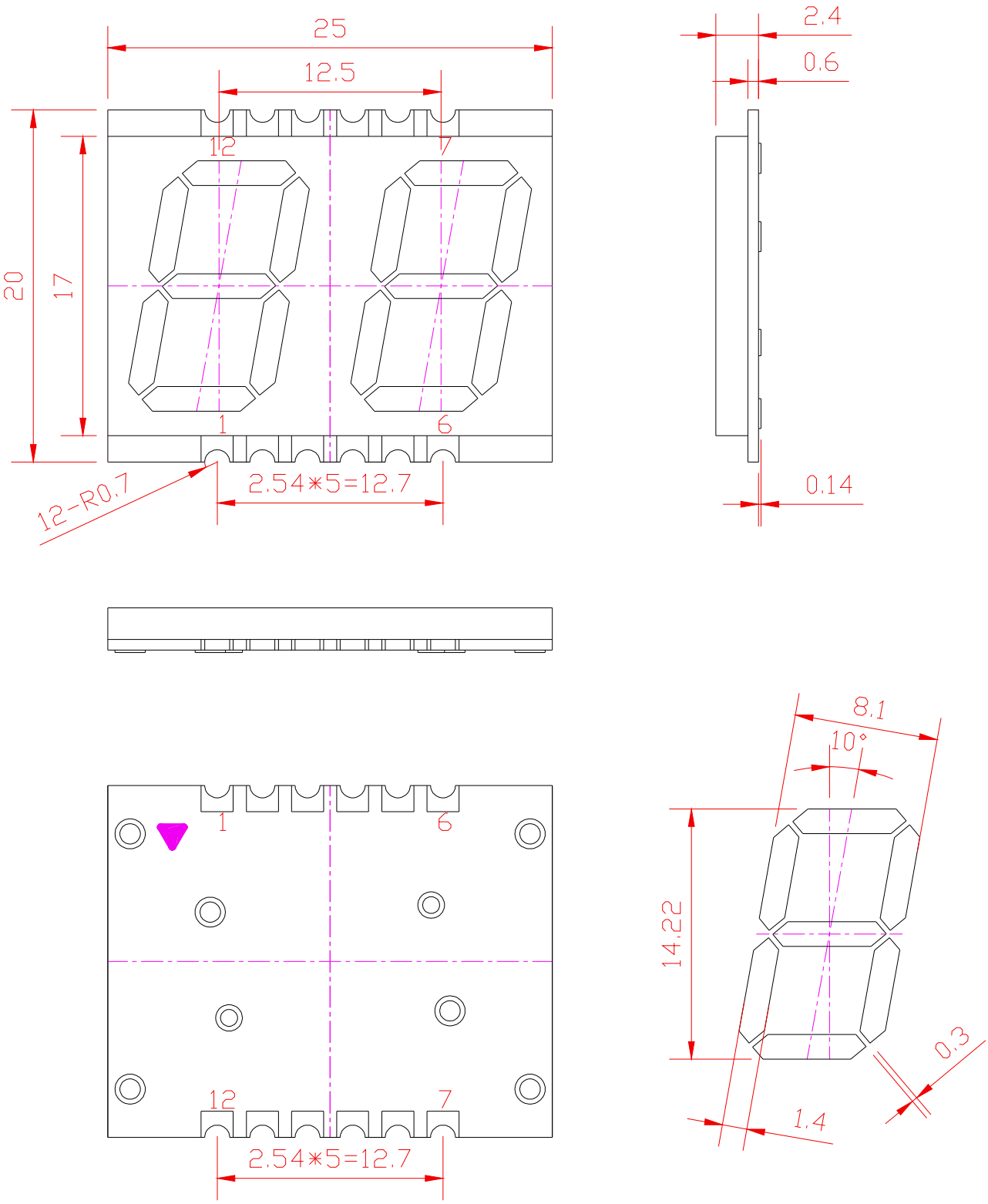
DESCRIPTION

The LTD-5435CKG-P is a 0.56 inch (14.22 mm) digit height dual digit SMD display. The devices utilize AlInGaP Green LED chips, which are made from AlInGaP on a non-transparent GaAs substrate. The display has Gray face and white segments, and suitable for reverse mount assembly.

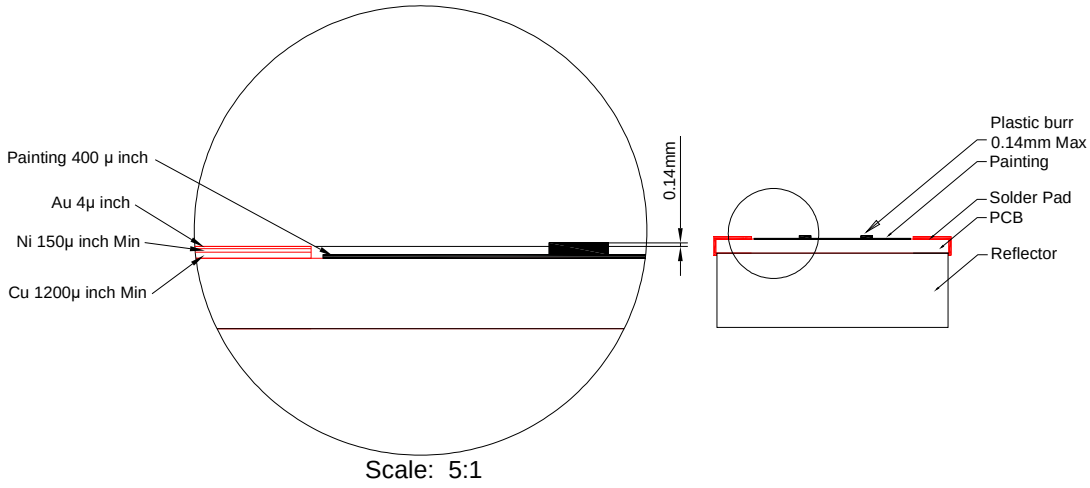
DEVICE

PART NO.	DESCRIPTION
AlInGaP green LTD-5435CKG-P	Multiplex Common Anode

PACKAGE DIMENSIONS



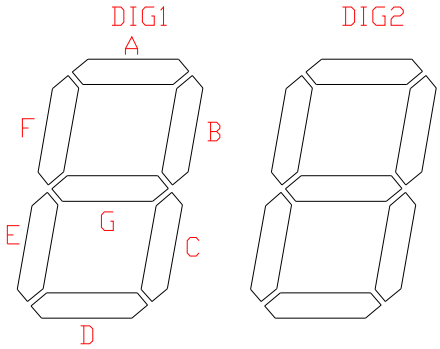
Solder Pad Vs Painting Diagram

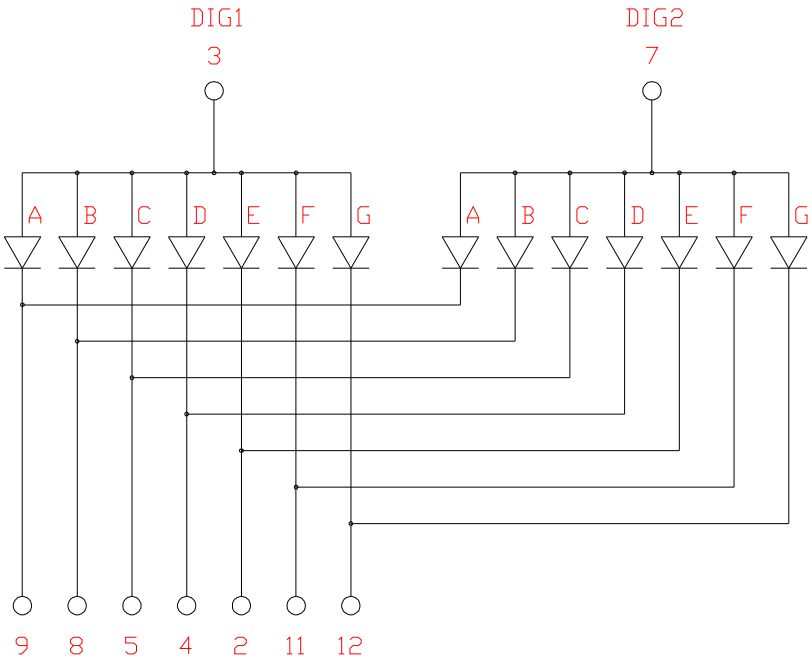


NOTES:

1. Plastic pins' burr maximum 0.14 mm, warping of PCB maximum 0.06 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
1	No Connection
2	Cathode E
3	Common Anode Digit 1
4	Cathode D
5	Cathode C
6	Cathode L1 , L2
7	Common Anode Digit 2
8	Cathode B
9	Cathode A
10	No Connection
11	Cathode F
12	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	-40˚C to +105˚C	
Storage Temperature Range	-40°C to +105˚C	

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta = 25°C

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V	14000	26000		μcd	I_F=10mA
Peak Emission Wavelength	λp		571		nm	I_F=20mA
Spectral Line Half-Width	Δλ		15		nm	I_F=20mA
Dominant Wavelength	λd	568		572	nm	I_F=20mA
Forward Voltage Per Segment	V_F		2.0	2.6	V	I_F=20mA
Reverse Current Per Segment(2)	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

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%

BIN TABLE

ucd/seg-10mA

Bin Grade	P	Q	R
Range	13701 ~ 21820	21821 ~ 34700	34701 ~ 55170

The luminous intensity tolerance is ±15%

HUE TABLE

Hue grade	**5**	**6**
Range(nm)	568.1	570.1
If=20mA	570	572

Tolerance for each Dominate Wavelength is +/- 1 nm

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

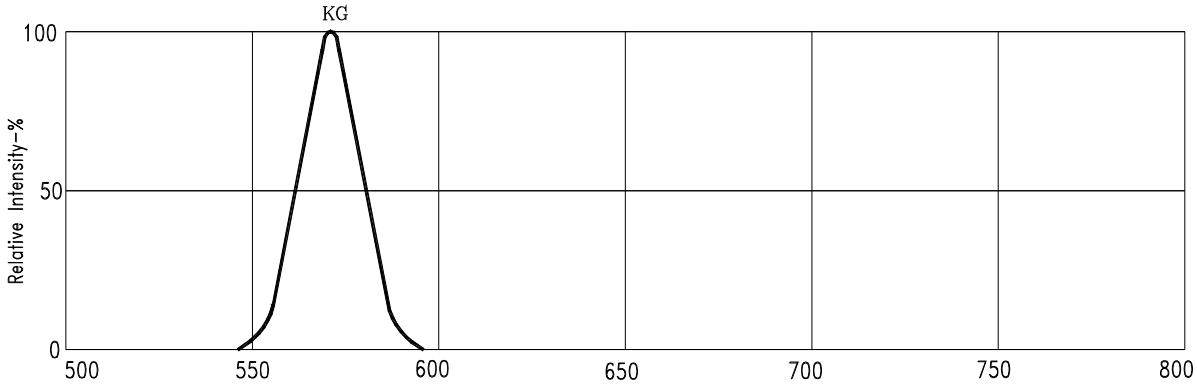


Fig1.Spectral Emission

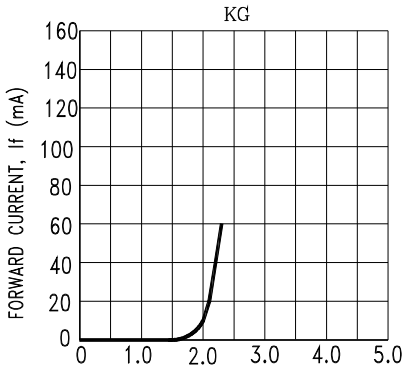


Fig2. Forward Current vs. Forward Voltage

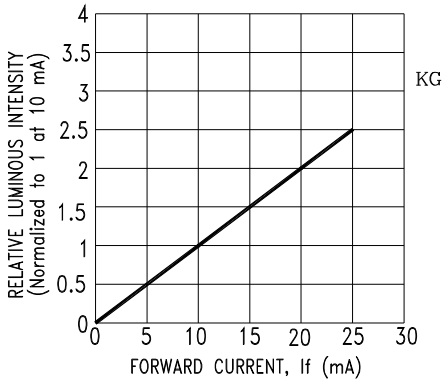


Fig3. Relative Luminous Intensity vs. DC Forward Current

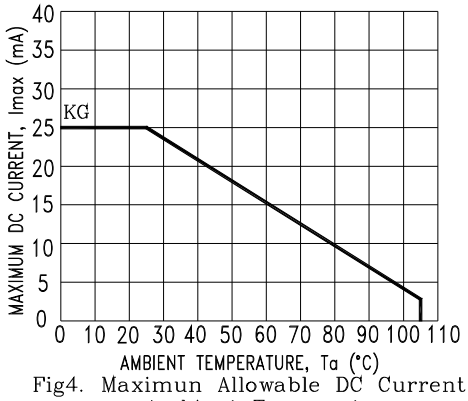


Fig4. Maximun Allowable DC Current vs. Ambient Temperature

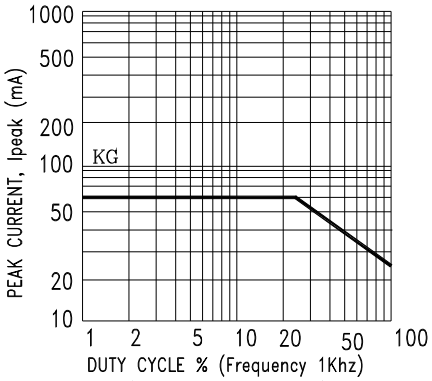
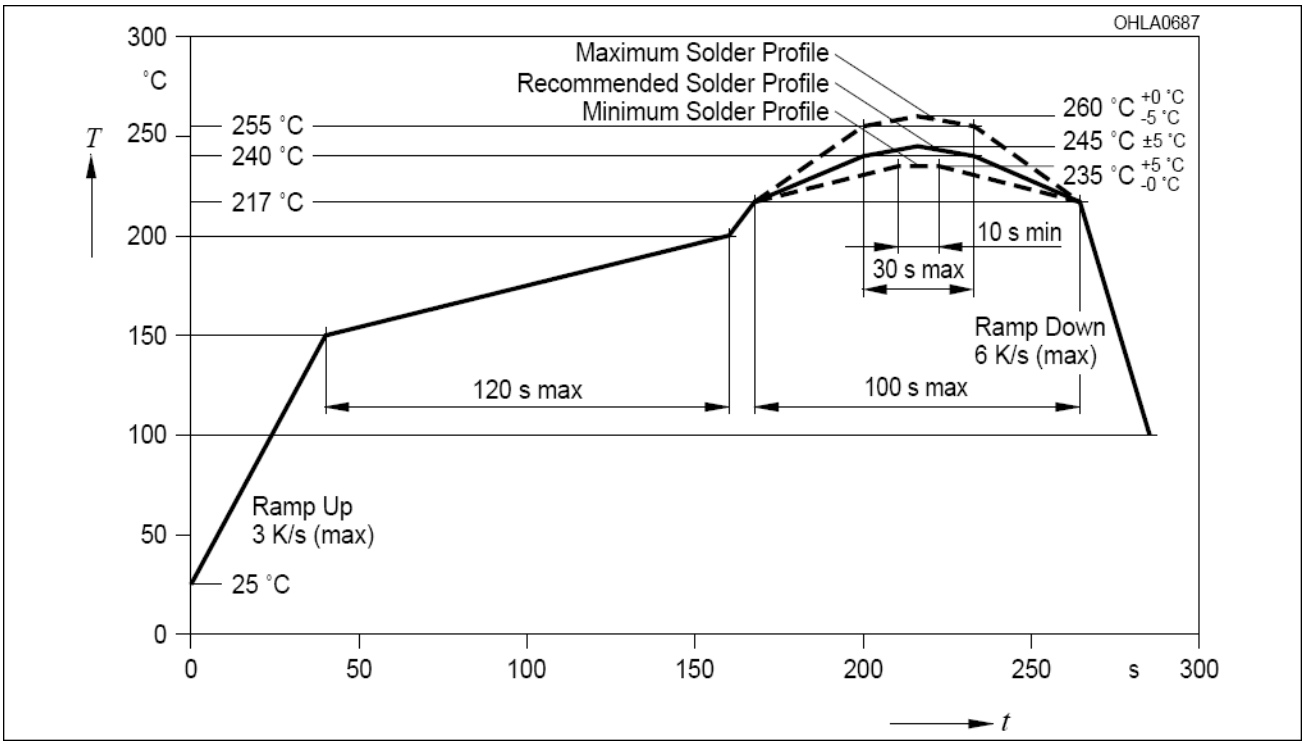


Fig5. Maximum Peak Current vs. Duty Cycle %

NOTE : KG=AlInGaP Green

SMT SOLDERING INSTRUCTION

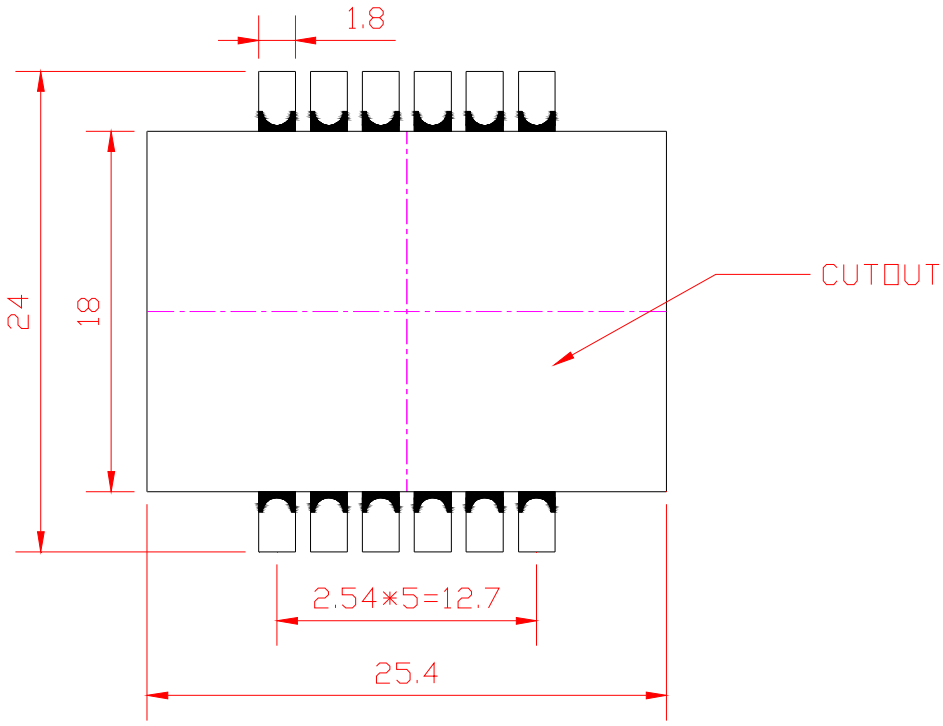


Note:
1. Recommended soldering condition:

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

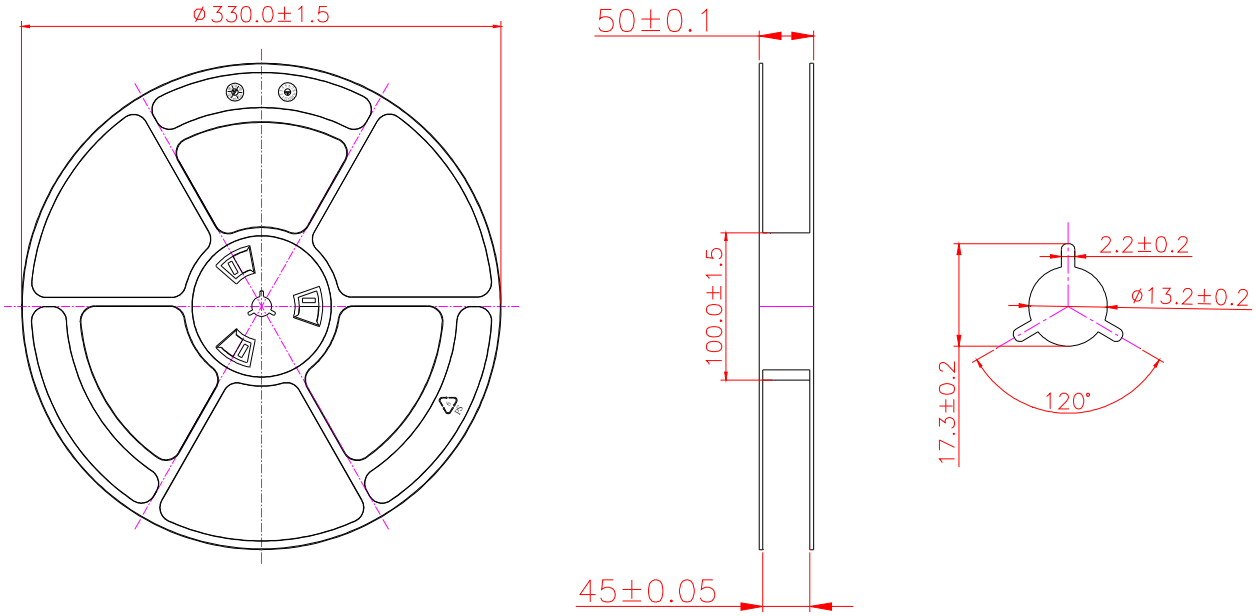
2. Number of reflow process shall be less than 2 times, and cooling process to normal temperature is required between the first and the second soldering process.

RECOMMENDED SOLDERING PATTERN (UNIT: MM)



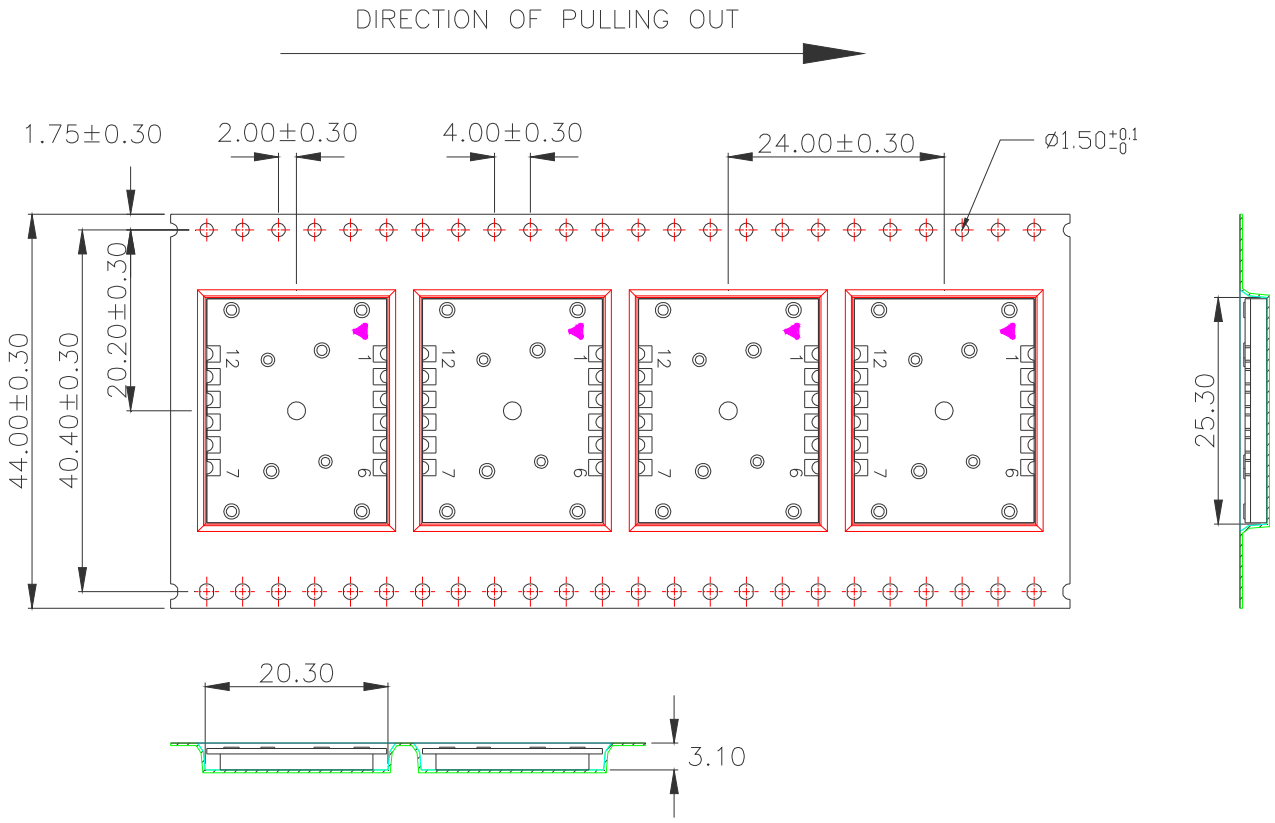
Note: All dimensions are in millimeters.

PACKING REEL DIMENSIONS



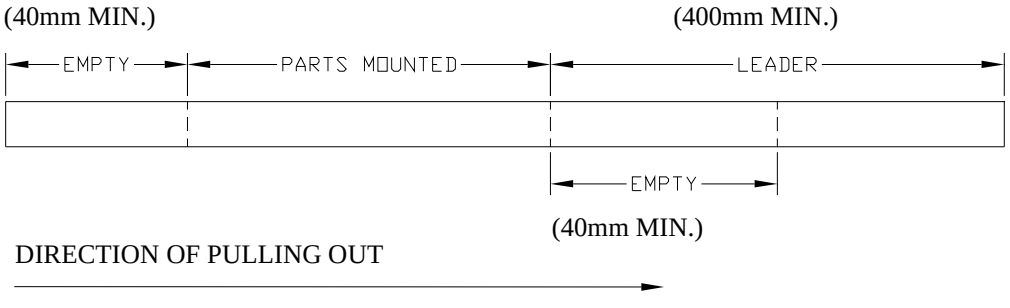
PACKING CARRIER DIMENSIONS

1. Taping parts:



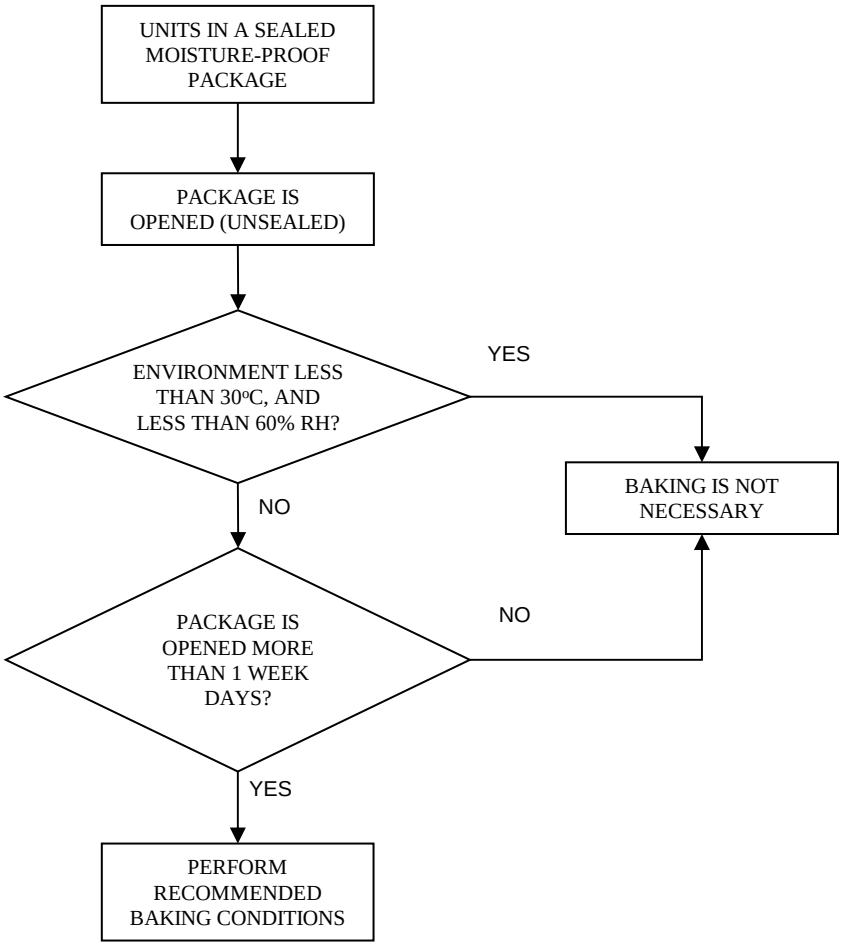
1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30±0.05mm.
6. Component load per 13" reel : 650 pcs.

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.