

**LED DISPLAY****LTP-305G**  
**DATA SHEET**

| Rev | Description                                                                             | By                         |
|-----|-----------------------------------------------------------------------------------------|----------------------------|
| -   | NPPR Original Spec                                                                      | Erin Cheng<br>07/20/2004   |
| A   | Revise height of package from 3.05 ±0.5mm to 3.50 ±0.5mm<br>Add more the product's spec | Phanomkorn J<br>02/15/2012 |
|     |                                                                                         |                            |
|     |                                                                                         |                            |
|     |                                                                                         |                            |
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|                   |               |
|-------------------|---------------|
| Spec No.          | DS30-2004-145 |
| Date              | 02/15/2012    |
| Revision No.      | A             |
| Page No.          | 0 OF 5        |
| Customer Approval |               |
| Date              |               |

## **FEATURES**

- \* 0.3 inch (7.62 mm) MATRIX HEIGHT
- \* LOW POWER REQUIREMENT
- \* SINGLE PLANE, WIDE VIEWING ANGLE
- \* SOLID STATE RELIABILITY
- \* 5X7 ARRAY WITH X-Y SELECT
- \* COMPATIBLE WITH USASCLL AND EBCDIC CODES
- \* STACKABLE HORIZONTALLY
- \* CATEGORIZED FOR LUMINOUS INTENSITY
- \* LEAD-FREE PACKAGE (ACCORDING TO ROHS)

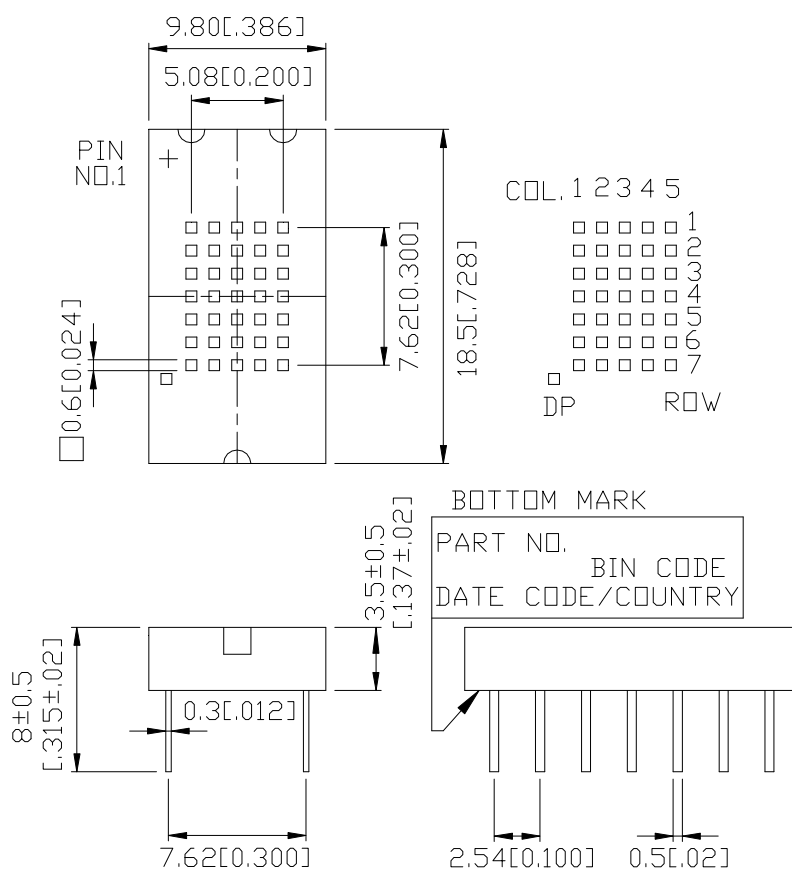
## **DESCRIPTION**

The LTP-305G is a 0.3 inch (7.62 mm) matrix height 5x7 dot matrix display. This device uses GREEN LED chips (GaP epi on GaP substrate). The display has green package.

## **DEVICE**

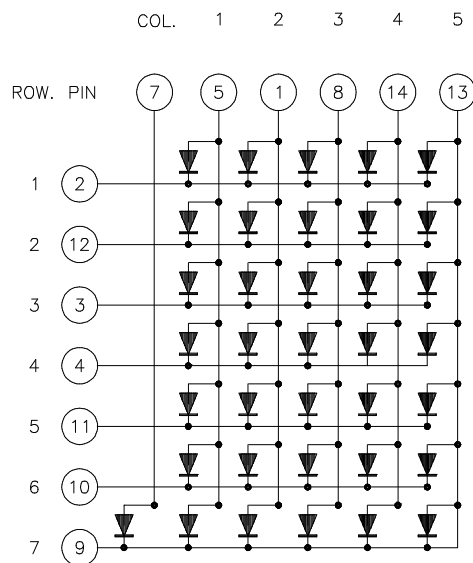
| PART NO. | DESCRIPTION                     |
|----------|---------------------------------|
| GREEN    | ANODE COLUMN                    |
| LTP-305G | CATHODE ROW<br>LT. HAND DECIMAL |

## PACKAGE DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm (0.01") unless otherwise noted.

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

| <b>No</b> | <b>CONNECTION</b>   |
|-----------|---------------------|
| 1         | ANODE COLUMN 2      |
| 2         | CATHODE ROW 1       |
| 3         | CATHODE ROW 3       |
| 4         | CATHODE ROW 4       |
| 5         | ANODE COLUMN 1      |
| 6         | NO PIN              |
| 7         | ANODE DECIMAL POINT |
| 8         | ANODE COLUMN 3      |
| 9         | CATHODE ROW 7       |
| 10        | CATHODE ROW 6       |
| 11        | CATHODE ROW 5       |
| 12        | CATHODE ROW 2       |
| 13        | ANODE COLUMN 5      |
| 14        | ANODE COLUMN 4      |

## ABSOLUTE MAXIMUM RATING

| PARAMETER                                                                                                                                                              | MAXIMUM RATING                           | UNIT               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------|
| Average Power Dissipation Per Dot                                                                                                                                      | 36                                       | mW                 |
| Peak Forward Current Per Dot<br>(Frequency 1Khz, 10% duty cycle)                                                                                                       | 75*                                      | mA                 |
| Average Forward Current Per Dot                                                                                                                                        | 10                                       | mA                 |
| Forward Current Derating From 25 <sup>0</sup> C                                                                                                                        | 0.14                                     | mA/ <sup>0</sup> C |
| Reverse Voltage Per Dot                                                                                                                                                | 5                                        | V                  |
| Operating Temperature Range                                                                                                                                            | -40 <sup>0</sup> C to +85 <sup>0</sup> C |                    |
| Storage Temperature Range                                                                                                                                              | -40 <sup>0</sup> C to +85 <sup>0</sup> C |                    |
| Soldering Conditions : 1/16 inch below seating plane for 3 seconds at 260 <sup>0</sup> C<br>or of temperature unit (during assembly) not over max. temperature rating. |                                          |                    |

\* see figure 5 to establish pulsed condition

## ELECTRICAL / OPTICAL CHARACTERISTICS AT T<sub>A</sub> = 25°C

| PARAMETER                                                 | SYMBOL           | MIN. | TYP. | MAX.  | UNIT | TEST CONDITION                       |
|-----------------------------------------------------------|------------------|------|------|-------|------|--------------------------------------|
| Average Luminous Intensity Per Dot                        | I <sub>v</sub>   | 630  | 1600 |       | μcd  | I <sub>P</sub> = 80mA ,<br>1/16Duty  |
| Peak Emission Wavelength                                  | λ <sub>p</sub>   |      | 565  |       | nm   | I <sub>F</sub> = 20mA                |
| Spectral Line Half-Width                                  | Δλ               |      | 30   |       | nm   | I <sub>F</sub> = 20mA                |
| Dominant Wavelength                                       | λ <sub>d</sub>   |      | 569  |       | nm   | I <sub>F</sub> = 20mA                |
| Forward Voltage Per Dot                                   | V <sub>F</sub>   |      | 2.1  | 2.6   | V    | I <sub>F</sub> = 20mA                |
| Reverse Current Per Dot                                   | I <sub>R</sub>   |      |      | 100   | μA   | V <sub>R</sub> = 5V                  |
| Luminous Intensity Matching Ratio<br>(Similar Light Area) | I <sub>v-m</sub> |      |      | 2 : 1 |      | I <sub>P</sub> = 80mA ,<br>1/16 Duty |

Note: Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

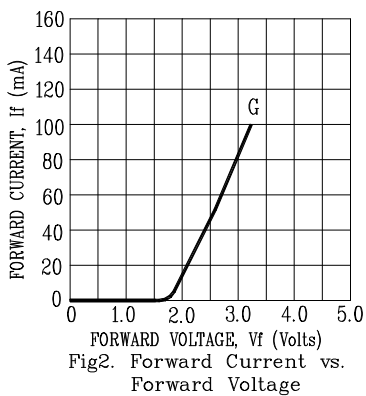
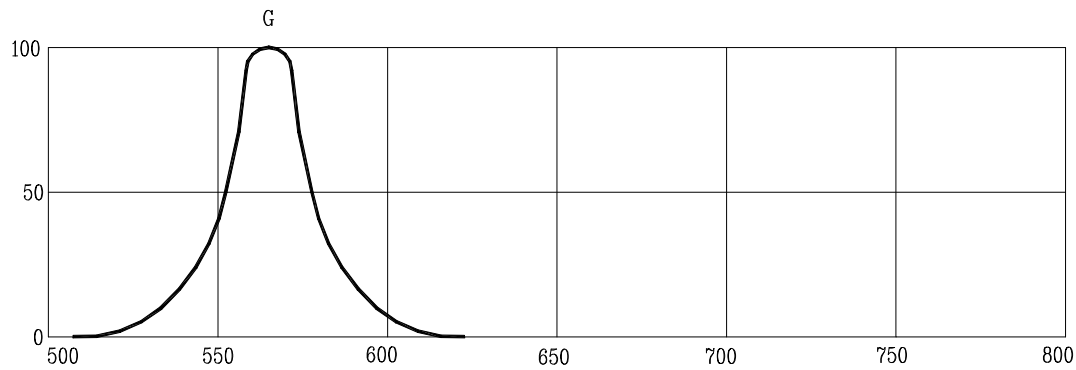


Fig2. Forward Current vs. Forward Voltage

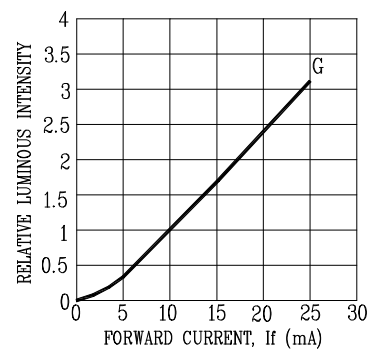


Fig3. Relative Luminous Intensity vs. DC Forward Current

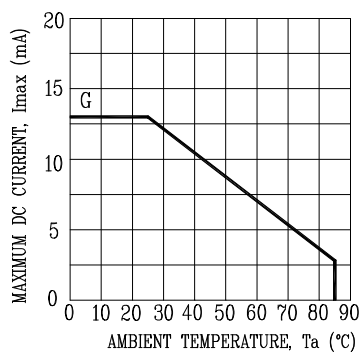


Fig4. Maximum Allowable DC Current vs. Ambient Temperature

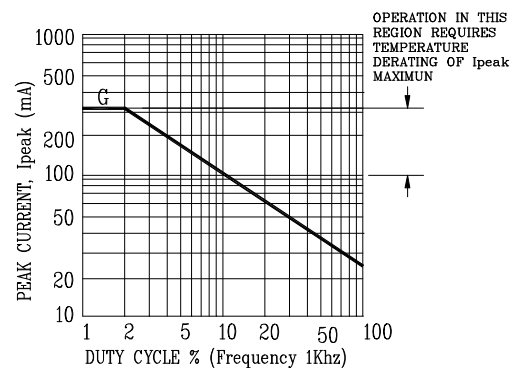


Fig5. Maximum Peak Current vs. Duty Cycle %

NOTE: G=GREEN