

## **FEATURES**

- \* 0.52 inch (13.2 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).**

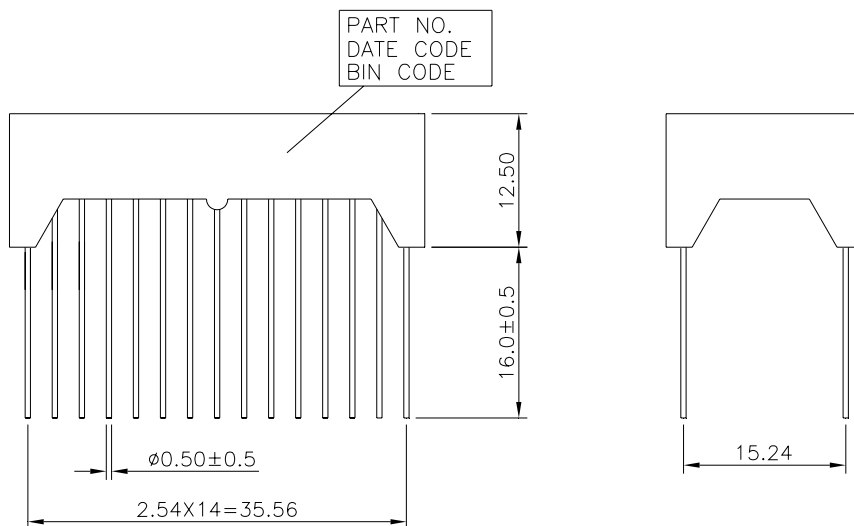
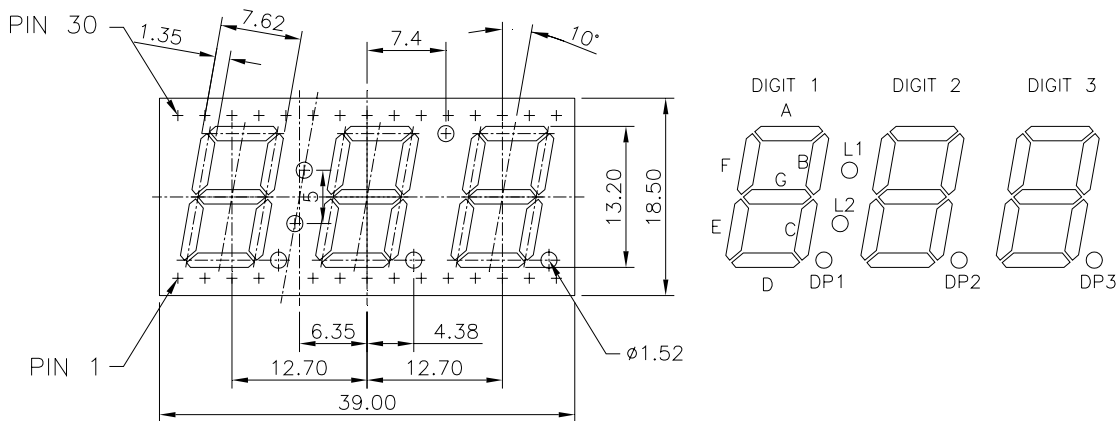
## **DESCRIPTION**

The LTC-5854BKD-J is a 0.52inch (13.2mm) digit height LED display. This device uses AlInGaP Hyper Red LED chips (AlInGaP epi on GaAs substrate). The display has a black face and red segments.

## **DEVICE**

| <b>PART NO.</b>   | <b>DESCRIPTION</b> |
|-------------------|--------------------|
| AlInGaP Hyper Red | Common Anode       |
| LTC-5854BKD-J     |                    |

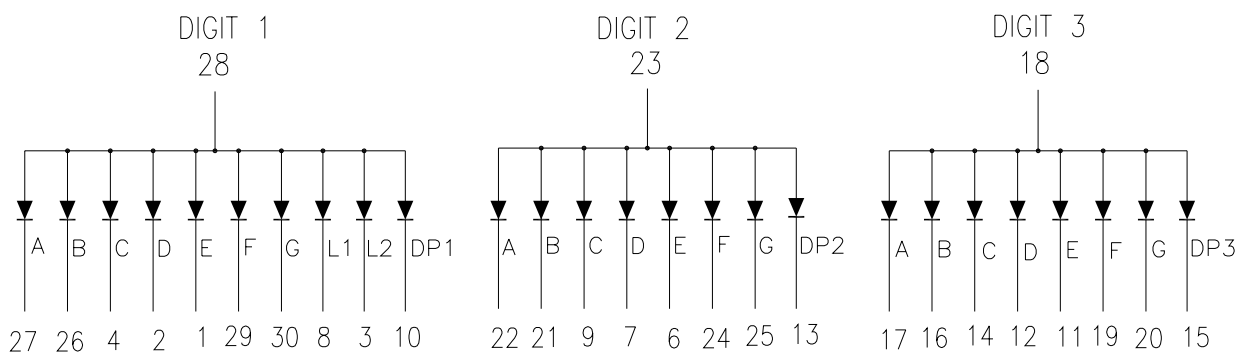
## PACKAGE DIMENSIONS



NOTES: 1. All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm (0.01“) unless otherwise noted.

2. Pin tip's shift tolerance is  $\pm 0.4\text{mm}$ .

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

| <b>NO</b> | <b>CONNECTION</b>     | <b>NO</b> | <b>CONNECTION</b>      |
|-----------|-----------------------|-----------|------------------------|
| 1         | CATHODE E (DIGIT 1)   | 16        | CATHODE B (DIGIT 3)    |
| 2         | CATHODE D (DIGIT 1)   | 17        | CATHODE A (DIGIT 3)    |
| 3         | CATHODE L2 (DIGIT 1)  | 18        | COMMON ANODE (DIGIT 3) |
| 4         | CATHODE C (DIGIT 1)   | 19        | CATHODE F (DIGIT 3)    |
| 5         | NO PIN                | 20        | CATHODE G (DIGIT 3)    |
| 6         | CATHODE E (DIGIT 2)   | 21        | CATHODE B (DIGIT 2)    |
| 7         | CATHODE D (DIGIT 2)   | 22        | CATHODE A (DIGIT 2)    |
| 8         | CATHODE L1 (DIGIT 1)  | 23        | COMMON ANODE (DIGIT 2) |
| 9         | CATHODE C (DIGIT 2)   | 24        | CATHODE F (DIGIT 2)    |
| 10        | CATHODE DP1 (DIGIT 1) | 25        | CATHODE G (DIGIT 2)    |
| 11        | CATHODE E (DIGIT 3)   | 26        | CATHODE B (DIGIT 1)    |
| 12        | CATHODE D (DIGIT 3)   | 27        | CATHODE A (DIGIT 1)    |
| 13        | CATHODE DP2 (DIGIT 2) | 28        | COMMON ANODE (DIGIT 1) |
| 14        | CATHODE C (DIGIT 3)   | 29        | CATHODE F (DIGIT 1)    |
| 15        | CATHODE DP3 (DIGIT 3) | 30        | CATHODE G (DIGIT 1)    |

**ABSOLUTE MAXIMUM RATING AT Ta=25°C**

| PARAMETER   | MAXIMUM RATING  | UNIT  |
|---|-----------------|-------|
| Power Dissipation Per Segment   | 70              | mW    |
| Peak Forward Current Per Segment<br>(Frequency 1Khz, 10% duty cycle )   | 90              | mA    |
| Continuous Forward Current Per Segment  | 25              | mA    |
| Derating Linear From 25°C Per Segment   | 0.33            | mA/°C |
| Reverse Voltage Per Segment   | 5               | V     |
| Operating Temperature Range   | -35°C to +105°C |       |
| Storage Temperature Range   | -35°C to +105°C |       |
| Soldering Conditions : 1/16 inch below seating plane for 3 seconds at 260 <sup>0</sup> C.,<br>or temperature of unit (during assembly) not over max. temperature rating above |                 |       |

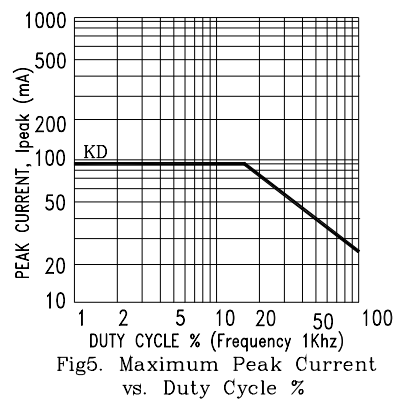
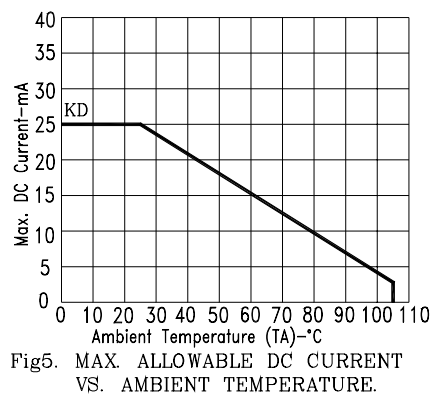
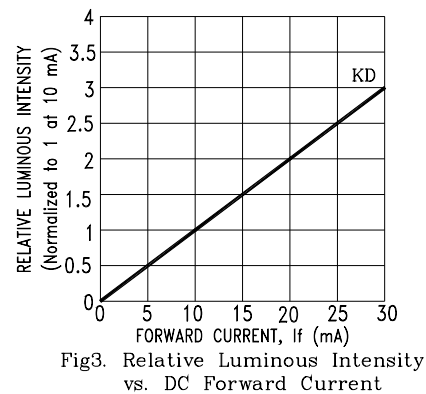
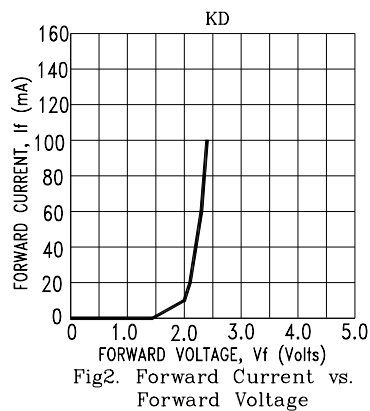
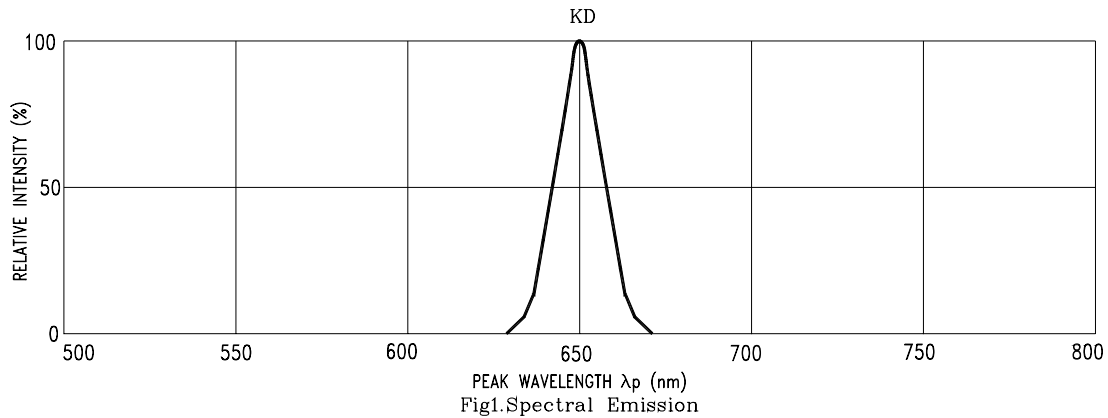
**ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C**

| PARAMETER   | SYMBOL            | MIN. | TYP. | MAX. | UNIT | TEST CONDITION       |
|---|-------------------|------|------|------|------|----------------------|
| Average Luminous Intensity                                | I <sub>v</sub>    | 320  | 1050 |      | μcd  | I <sub>F</sub> =1mA  |
| Peak Emission Wavelength                                  | λ <sub>p</sub>    |      | 650  |      | nm   | I <sub>F</sub> =20mA |
| Spectral Line Half-Width                                  | Δλ                |      | 20   |      | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength                                       | λ <sub>d</sub>    |      | 639  |      | nm   | I <sub>F</sub> =20mA |
| Forward Voltage Per Segment                               | V <sub>F</sub>    |      | 2.1  | 2.6  | V    | I <sub>F</sub> =20mA |
| Reverse Current Per Segment                               | I <sub>R</sub>    |      |      | 100  | μA   | V <sub>R</sub> =5V   |
| Luminous Intensity Matching Ratio<br>(Similar Light Area) | I <sub>v</sub> -m |      |      | 2:1  |      | I <sub>F</sub> =1mA  |

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)



NOTE : KD=AlInGaP HYPER RED