LITEON®
OPTOELECTRONICS

# LED Display

## Product Data Sheet

## LTD-6930HR

**Spec No.: DS-30-97-186**

Effective Date: 05/18/2000

Revision: -

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

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## 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.

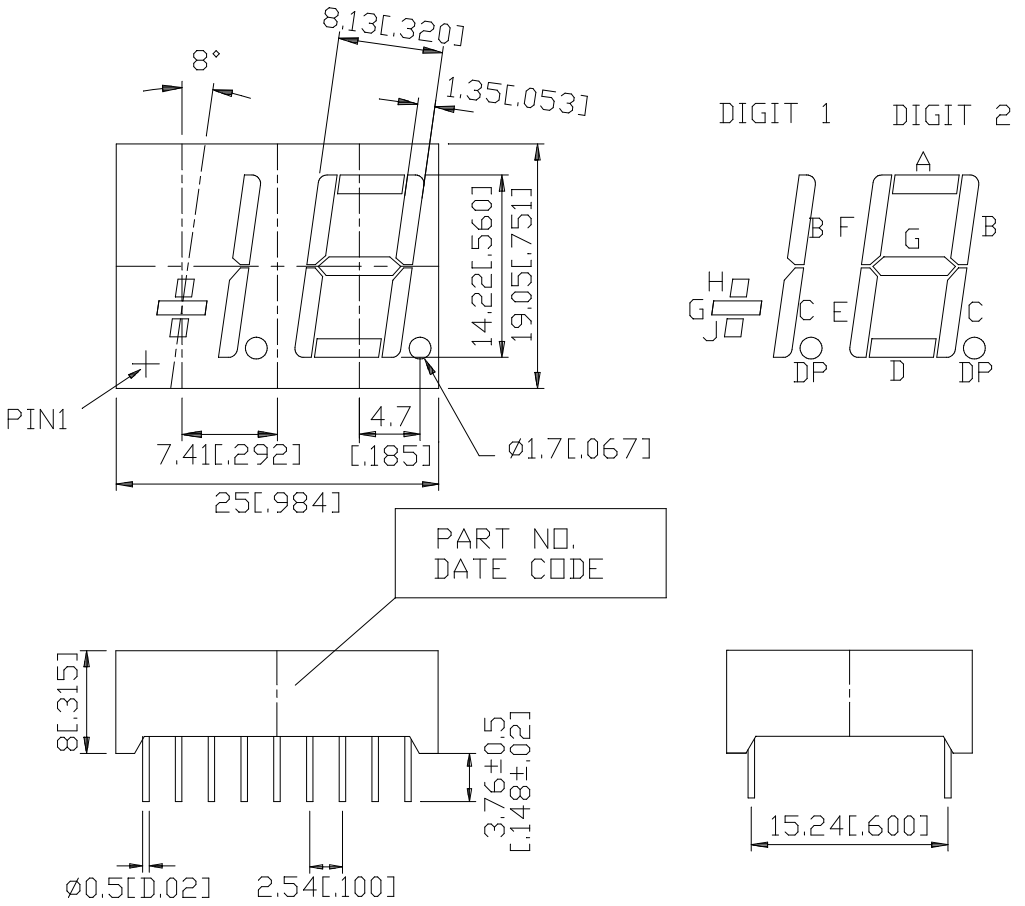
## DESCRIPTION

The LTD-6930HR is a 0.56 inch (14.22 mm) digit height LED display. This device utilizes high efficiency red LED chips, which are made from GaAsP on a transparent GaP substrate, and has a red face and red segments.

## DEVICE

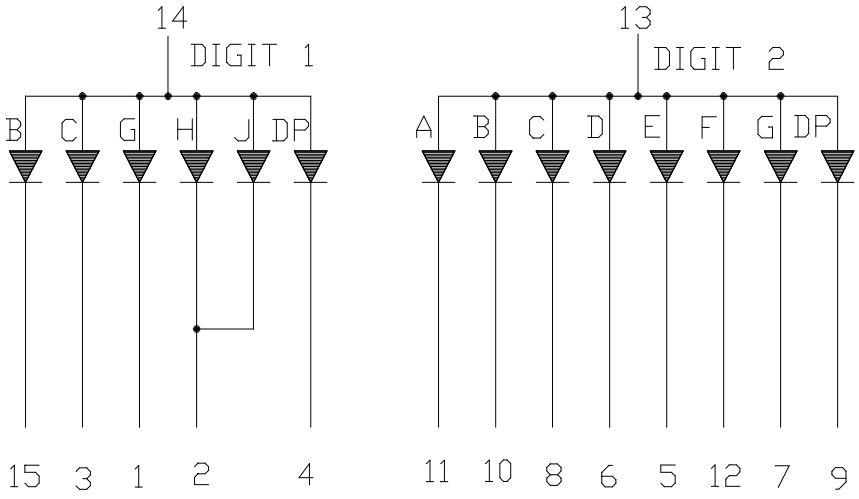
| PART NO. | DESCRIPTION |
|---|---|
| Hi-Eff. Red | Common Anode |
| LTD-6930HR | ±1.8 Overflow |

## PACKAGE DIMENSIONS




NOTES: All dimensions are in millimeters. Tolerances are± 0.25 mm (0.01“) unless otherwise noted.

## INTERNAL CIRCUIT DIAGRAM



## PIN CONNECTION

| NO. | CONNECTION |
|---|---|
| 1 | CATHODE G (DIGIT 1) |
| 2 | CATHODE J. H (DIGIT 1) |
| 3 | CATHODE C (DIGIT 1) |
| 4 | CATHODE D.P. (DIGIT 1) |
| 5 | CATHODE E (DIGIT 2) |
| 6 | CATHODE D (DIGIT 2) |
| 7 | CATHODE G (DIGIT 2) |
| 8 | CATHODE C (DIGIT 2) |
| 9 | CATHODE D.P. (DIGIT 2) |
| 10 | CATHODE B (DIGIT 2) |
| 11 | CATHODE A (DIGIT 2) |
| 12 | CATHODE F (DIGIT 2) |
| 13 | COMMON ANODE (DIGIT 2) |
| 14 | COMMON ANODE (DIGIT 1) |
| 15 | CATHODE B (DIGIT 1) |
| 16 | NO CONNECTION |
| 17 | NO CONNECTION |
| 18 | NO CONNECTION |

## ABSOLUTE MAXIMUM RATING AT Ta=25°C

| PARAMETER | MAXIMUM RATING | UNIT |
|---|---|---|
| Power Dissipation Per Segment | 75 | mW |
| Peak Forward Current Per Segment ( 1/10 Duty Cycle, 0.1ms Pulse Width ) | 100 | mA |
| Continuous Forward Current Per Segment<br>Derating Linear From 25℃ Per Segment | 25<br>0.33 | mA<br>mA/℃ |
| Reverse Voltage Per Segment | 5 | V |
| Operating Temperature Range | -35℃ to +85℃ | |
| Storage Temperature Range | -35℃ to +85℃ | |
| Solder Temperature: max 260℃ for max 3sec at 1.6mm below seating plane. | | |

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

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITION |
|---|---|---|---|---|---|---|
| Average Luminous Intensity | $I_V$ | 800 | 2400 | | μcd | $I_F$=10mA |
| Peak Emission Wavelength | λp | | 635 | | nm | $I_F$=20mA |
| Spectral Line Half-Width | Δλ | | 40 | | nm | $I_F$=20mA |
| Dominant Wavelength | λd | | 623 | | nm | $I_F$=20mA |
| Forward Voltage Per Segment | $V_F$ | | 2.0 | 2.6 | V | $I_F$=20mA |
| Reverse Current Per Segment | $I_R$ | | | 100 | μA | $V_R$=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.

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

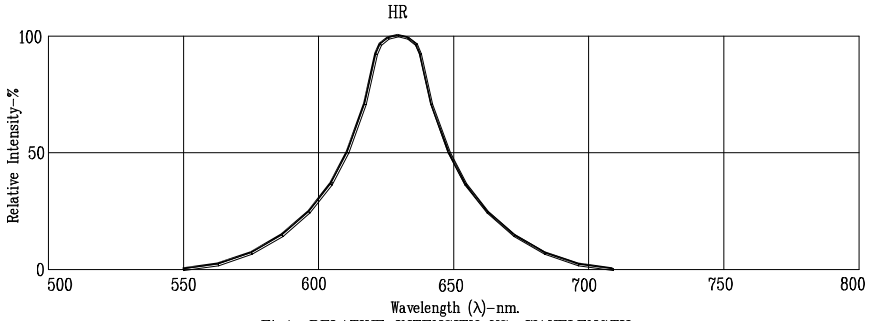


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

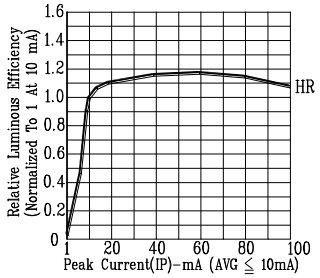


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

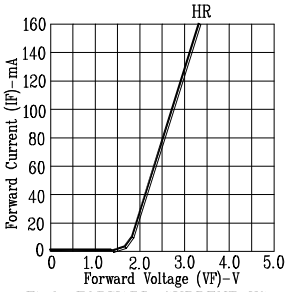


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

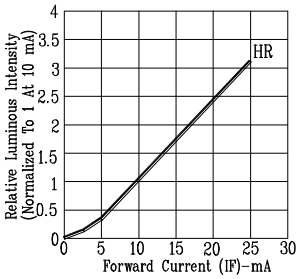


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

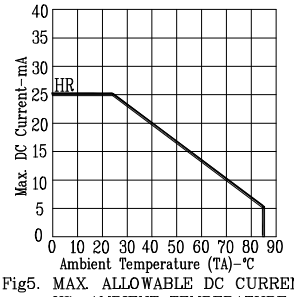


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

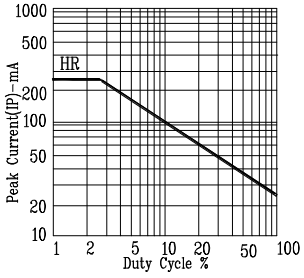


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: HR=HI.-EFF.RED