



# **LED Display**

## **Product Data Sheet**

### **LTC-3710HR**

Spec No.: DS-30-96-182

Effective Date: 01/09/2010

Revision: A

**LITE-ON DCC**

**RELEASE**

**BNS-OD-FC001/A4**

**LITE-ON Technology Corp. / Optoelectronics**

No.90,Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C.

Tel: 886-2-2222-6181 Fax: 886-2-2221-1948 / 886-2-2221-0660

<http://www.liteon.com/opto>

**FEATURES**

- \* 0.3 INCH (7.6 mm) DIGIT HEIGHT.
- \* CONTINUOUS UNIFORM SEGMENTS.
- \* LOW POWER REQUIREMENT.
- \* EXCELLENT CHARACTERS APPEARANCE.
- \* HIGH BRIGHTNESS & HIGH CONTRAST.
- \* WIDE VIEWING ANGLE.
- \* SOLID STATE RELIABILITY.

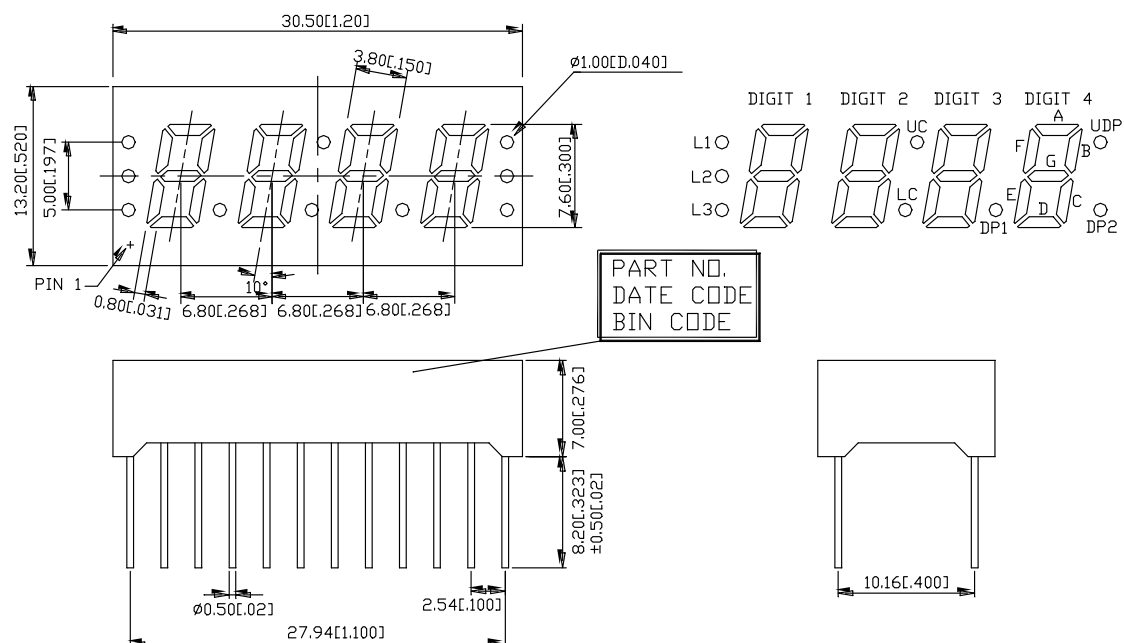
**DESCRIPTION**

The LTC-3710HR is a 0.3 inch (7.6 mm) height quadruple digit display. The device utilizes high-efficiency red LED chips, which are made from GaAsP on a transparent GaP substrate. High efficiency red displays have red face and red segments.

**DEVICE**

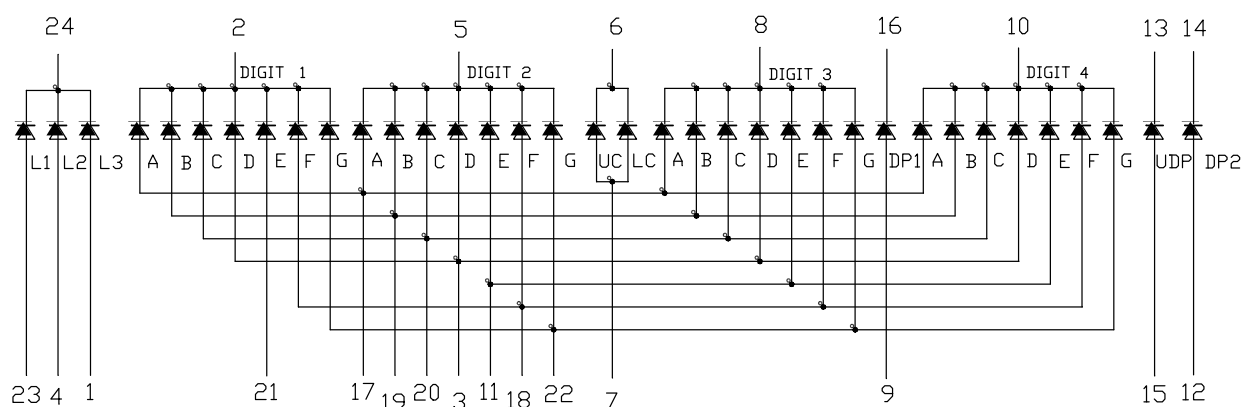
| PART NO.    | DESCRIPTION                                  |
|-------------|----------------------------------------------|
| Hi-Eff. Red | Multiplex Common Cathode<br>Rt. Hand Decimal |
| LTC-3710HR  |                                              |

# **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>      | <b>No</b> | <b>CONNECTION</b> |
|-----------|------------------------|-----------|-------------------|
| 1         | Anode L3               | 13        | Cathode UDP.      |
| 2         | Common Cathode Digit 1 | 14        | Cathode DP2.      |
| 3         | Anode D1,D2,D3,D4      | 15        | Anode UDP.        |
| 4         | Anode L2               | 16        | Cathode DP1       |
| 5         | Common Cathode Digit 2 | 17        | Anode A1,A2,A3,A4 |
| 6         | Cathode UC,LC          | 18        | Anode F1,F2,F3,F4 |
| 7         | Anode UC ,LC           | 19        | Anode B1,B2,B3,B4 |
| 8         | Common Cathode Digit 3 | 20        | Anode C1,C2,C3,C4 |
| 9         | Anode DP1              | 21        | Anode E1          |
| 10        | Common Cathode Digit 4 | 22        | Anode G1,G2,G3,G4 |
| 11        | Anode E2,E3,E4         | 23        | Anode L1          |
| 12        | Anode DP2              | 24        | Cathode L1,L2,L3  |

**ABSOLUTE MAXIMUM RATING AT T<sub>A</sub>=25°C**

| PARAMETER                                                                            | MAXIMUM RATING                            | UNIT               |
|--------------------------------------------------------------------------------------|-------------------------------------------|--------------------|
| Power Dissipation Per Segment                                                        | 75                                        | mW                 |
| Peak Forward Current Per Segment<br>( 1/10 Duty Cycle, 0.1ms Pulse Width )           | 100                                       | mA                 |
| Continuous Forward Current Per Segment                                               | 25                                        | mA                 |
| Derating Linear From 25 <sup>0</sup> C Per Segment                                   | 0.28                                      | mA/ <sup>0</sup> C |
| Reverse Voltage Per Segment                                                          | 5                                         | V                  |
| Operating Temperature Range                                                          | -35 <sup>0</sup> C to +105 <sup>0</sup> C |                    |
| Storage Temperature Range                                                            | -35 <sup>0</sup> C to +105 <sup>0</sup> C |                    |
| Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260 <sup>0</sup> C |                                           |                    |

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

| PARAMETER                         | SYMBOL            | MIN. | TYP. | MAX. | UNIT | TEST CONDITION       |
|-----------------------------------|-------------------|------|------|------|------|----------------------|
| Average Luminous Intensity        | I <sub>V</sub>    | 800  | 2000 |      | μcd  | I <sub>F</sub> =10mA |
| Peak Emission Wavelength          | λ <sub>p</sub>    |      | 635  |      | nm   | I <sub>F</sub> =20mA |
| Spectral Line Half-Width          | Δλ                |      | 40   |      | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength               | λ <sub>d</sub>    |      | 623  |      | nm   | I <sub>F</sub> =20mA |
| Forward Voltage Per Segment       | V <sub>F</sub>    |      | 2.0  | 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 | I <sub>V</sub> -m |      |      | 2:1  |      | I <sub>F</sub> =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 CHARACTERISTICS  
CURVES ( 25°C Ambient Temperature Unless Otherwise Note)**

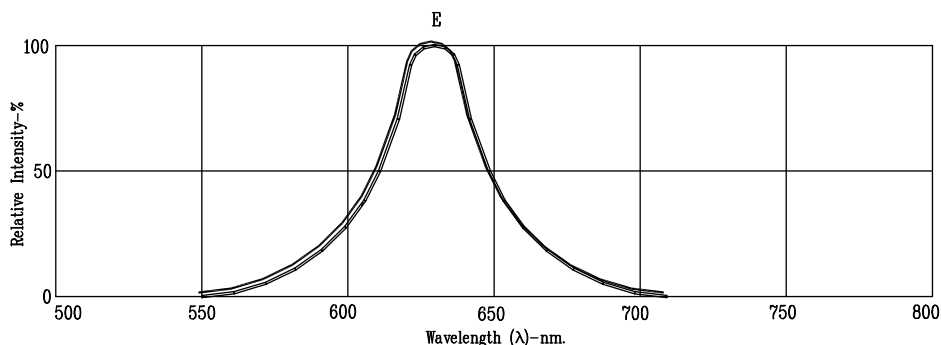


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

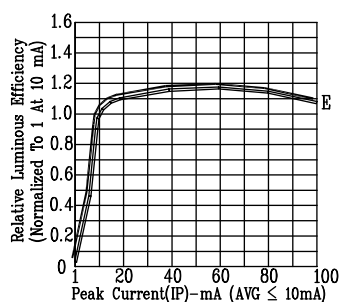


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

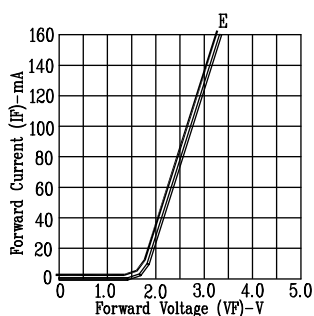


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

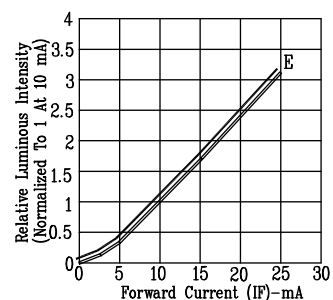


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

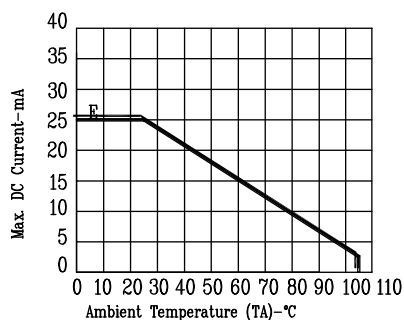


Fig8. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

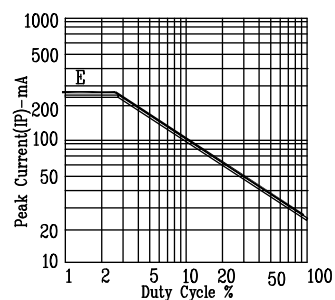


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: E=RED ORANGE