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Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation, and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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FEATURES<br>* 0.56 inch ( 14.22 mm ) DIGIT HEIGHT<br>* EXCELLENT SEGMENT UNIFORMITY<br>* LOW POWER REQUIREMENT<br>* HIGH BRIGHTNESS AND HIGH CONTRAST<br>* WIDE VIEWING ANGLE<br>* SOLID STATE RELIABILITY<br>* BINNED FOR LUMINOUS INTENSITY

## DESCRIPTION

The LSHD-5503 is a 0.56 inch ( 14.22 mm ) digit height single-digit display. This device uses AS-AlInGaP RED LED chips (AlInGaP epi on GaAs substrate). The display has light gray face and white segments.

## DEVICE

| PART NO. | DESCRIPTION |
| :---: | :---: |
| AlInGaP RED | Common Cathode |
| LSHD-5503 | Rt. Hand Decimal |

## Property of Lite-On Only

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



PIN CONNECTION

| No. | CONNECTION |
| :---: | :---: |
| 1 | Anode E |
| 2 | Anode D |
| 3 | Common Cathode |
| 4 | Anode C |
| 5 | Anode DP |
| 6 | Anode B |
| 7 | Anode A |
| 8 | Common Cathode |
| 9 | Anode F |
| 10 | Anode G |

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ABSOLUTE MAXIMUM RATING AT $\mathbf{T a}=\mathbf{2 5}^{\mathbf{}} \mathbf{} \mathbf{C}$

| PARAMETER | MAXIMUM RATING | UNIT |
| :--- | :---: | :---: |
| Power Dissipation Per Segment | 70 | mW |
| Peak Forward Current Per Segment <br> (Frequency 1Khz, 15\% duty cycle) | 90 | mA |
| Continuous Forward Current Per Segment | 25 | mA |
| Forward Current Derating from $25^{\circ} \mathrm{C}$ | 0.28 | $\mathrm{~mA} /{ }^{\circ} \mathrm{C}$ |
| Operating Temperature Range | $-35^{\circ} \mathrm{C}$ to $+105^{\circ} \mathrm{C}$ |  |
| Storage Temperature Range | $-35^{\circ} \mathrm{C}$ to $+105^{\circ} \mathrm{C}$ |  |
| Soldering Conditions : $1 / 16$ inch below seating plane for 5 seconds at $260^{\circ} \mathrm{C}$ |  |  |

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta $=\mathbf{2 5}^{\boldsymbol{\circ}} \mathbf{C}$

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | TEST <br> CONDITION |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Average Luminous Intensity Per Segment | Iv | 320 <br> 5400 | 1300 <br> 17000 |  | $\mu \mathrm{~cd}$ | $\mathrm{IF}=1 \mathrm{~mA}$ <br> $\mathrm{IF}=10 \mathrm{~mA}$ |
| Peak Emission Wavelength | $\lambda \mathrm{p}$ |  | 632 |  | nm | $\mathrm{IF}=20 \mathrm{~mA}$ |
| Spectral Line Half-Width | $\Delta \lambda$ |  | 20 |  | nm | $\mathrm{IF}_{\mathrm{F}}=20 \mathrm{~mA}$ |
| Dominant Wavelength | $\lambda \mathrm{d}$ |  | 624 |  | nm | $\mathrm{IF}=20 \mathrm{~mA}$ |
| Forward Voltage Per Segment | VF |  | 2.1 | 2.6 | V | $\mathrm{IF}=20 \mathrm{~mA}$ |
| Reverse Current Per Segment | IR |  |  | 100 | $\mu \mathrm{~A}$ | $\mathrm{~V}_{\mathrm{R}}=5 \mathrm{~V}$ |
| Luminous Intensity Matching Ratio | $\mathrm{Iv}-\mathrm{m}$ |  |  | $2: 1$ |  | $\mathrm{IF}_{\mathrm{F}}=1 \mathrm{~mA}$ |

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.

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## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

( $25^{\circ} \mathrm{C}$ Ambient Temperature Unless Otherwise Noted)




Fig3. Relative Luminous Intensity
vs. DC Forward Current


Fig5. Maximum Peak Current
vs. Duty Cycle \%

NOTE : JE=AlInGaP RED

