



# LED Display Product Data Sheet LTD-5221AJF

Spec No.: DS30-2000-146

Effective Date: 08/11/2000

Revision: -

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

**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.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.

**DESCRIPTION**

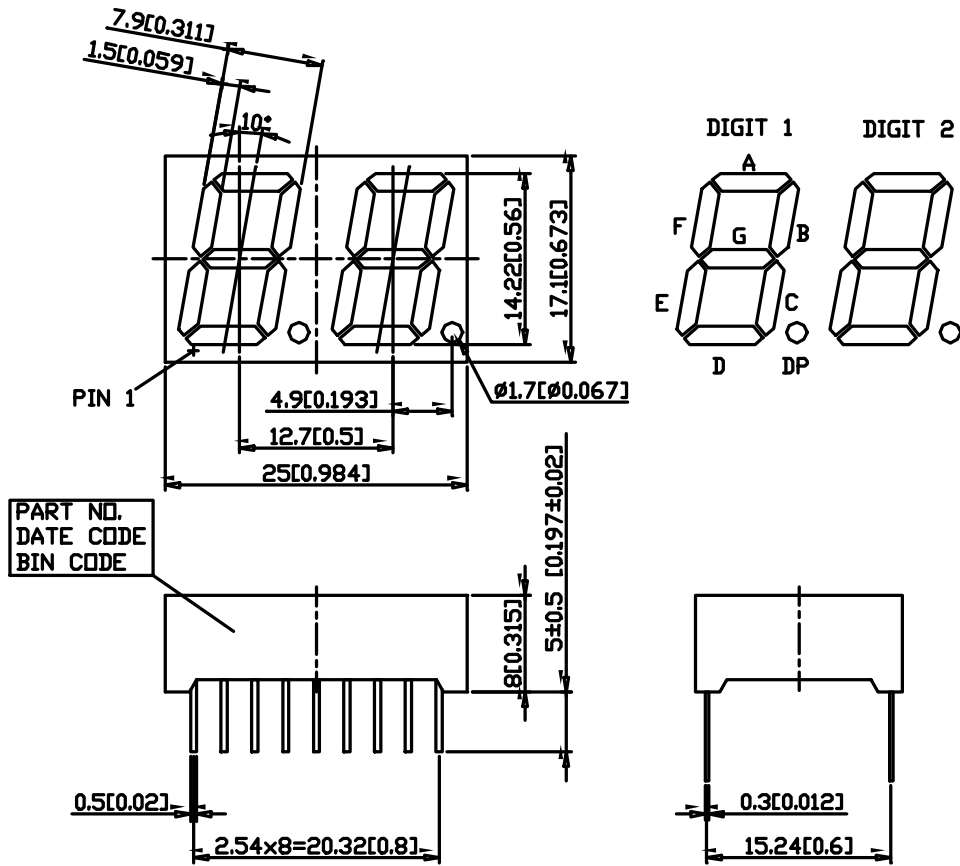
The LTD-5221AJF is a 0.56 inch (14.22 mm) height digit display. The device utilizes AlInGaP yellow orange LED chips which are made from AlInGaP on a non-transparent GaAs substrate, and have light gray face and white segment color.

This low current seven-segment display is designed to perform under low power consumption. It is tested and selected for its excellent low current characteristics. It can be driven in low current condition and the segments are matched. This driving current as low as 1mA per segment is applicable.

**DEVICE**

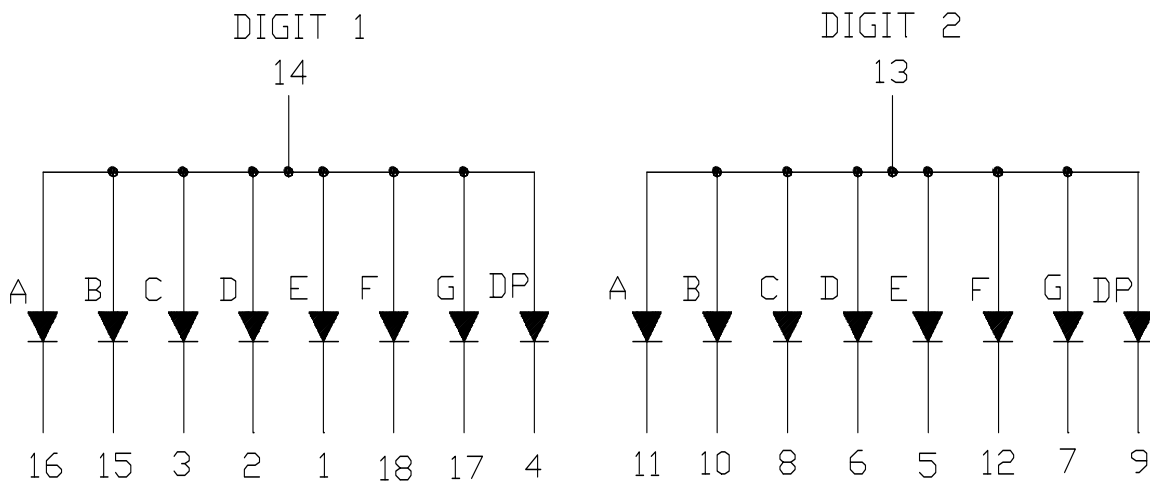
| <b>PART NO</b>        | <b>DESCRIPTION</b> |
|-----------------------|--------------------|
| AlInGaP YELLOW ORANGE | Common Anode       |
| LTD-5221AJF           | Rt. Hand Decimal   |

## PACKAGE DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerance is  $\pm 0.25\text{mm}(0.01\text{'})$  unless otherwise noted.

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

| <b>No</b> | <b>CONNECTION</b>      |
|-----------|------------------------|
| 1         | CATHODE E (DIGIT 1)    |
| 2         | CATHODE D (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        | CATHODE A (DIGIT 1)    |
| 17        | CATHODE G (DIGIT 1)    |
| 18        | CATHODE F (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>( 1/10 Duty Cycle, 0.1ms Pulse Width ) | 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 +85°C |       |
| Storage Temperature Range  | -35°C to +85°C |       |
| Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260°C    |                |       |

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

| PARAMETER                         | SYMBOL            | MIN. | TYP. | MAX. | UNIT | TEST CONDITION       |
|-----------------------------------|-------------------|------|------|------|------|----------------------|
| Average Luminous Intensity        | I <sub>v</sub>    | 320  | 700  |      | μ cd | I <sub>F</sub> =1mA  |
| Peak Emission Wavelength          | λ <sub>p</sub>    |      | 611  |      | nm   | I <sub>F</sub> =20mA |
| Spectral Line Half-Width          | Δ λ               |      | 17   |      | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength               | λ <sub>d</sub>    |      | 605  |      | nm   | I <sub>F</sub> =20mA |
| Forward Voltage. Per Segment      | V <sub>F</sub>    |      | 2.05 | 2.6  | V    | I <sub>F</sub> =20mA |
| Reverse Current, Per Segment      | I <sub>R</sub>    |      |      | 100  | μ A  | V <sub>R</sub> =5V   |
| Luminous Intensity Matching Ratio | 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 (Commission Internationale De L'Eclairage) eye-response curve.

## TIPIGSAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

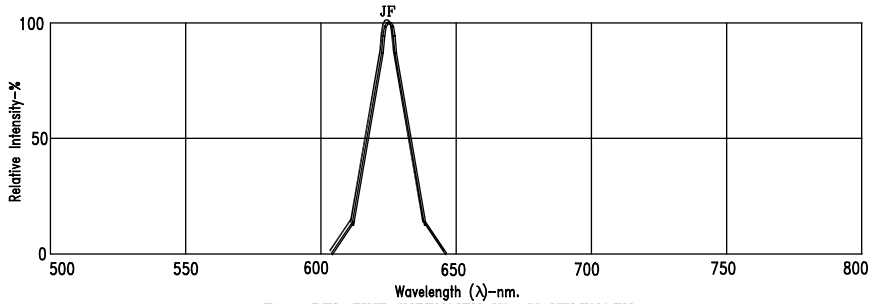


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

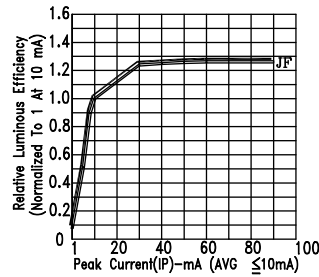


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

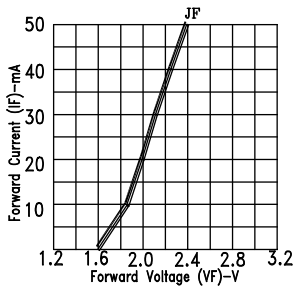


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

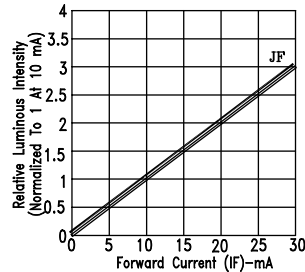


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

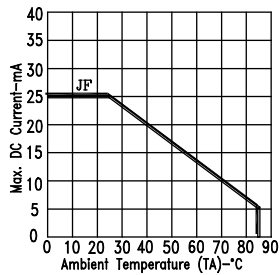


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

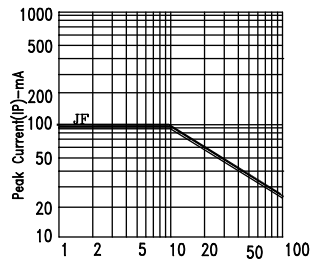


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE : JF=AlInGaP YELLOW ORANGE (REFRESH RATE 1KHz)