

**FEATURES**

- \* 2.0 inch (50.80 mm) MATRIX HEIGHT.
- \* LOW POWER REQUIREMENT.
- \* SINGLE PLANE, WIDE VIEWING ANGLE.
- \* SOLID STATE RELIABILITY.
- \* 5×7 ARRAY WITH X-Y SELECT.
- \* COMPATIBLE WITH USASCII AND EBCDIC CODES.
- \* STACKABLE HORIZONTALLY.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.

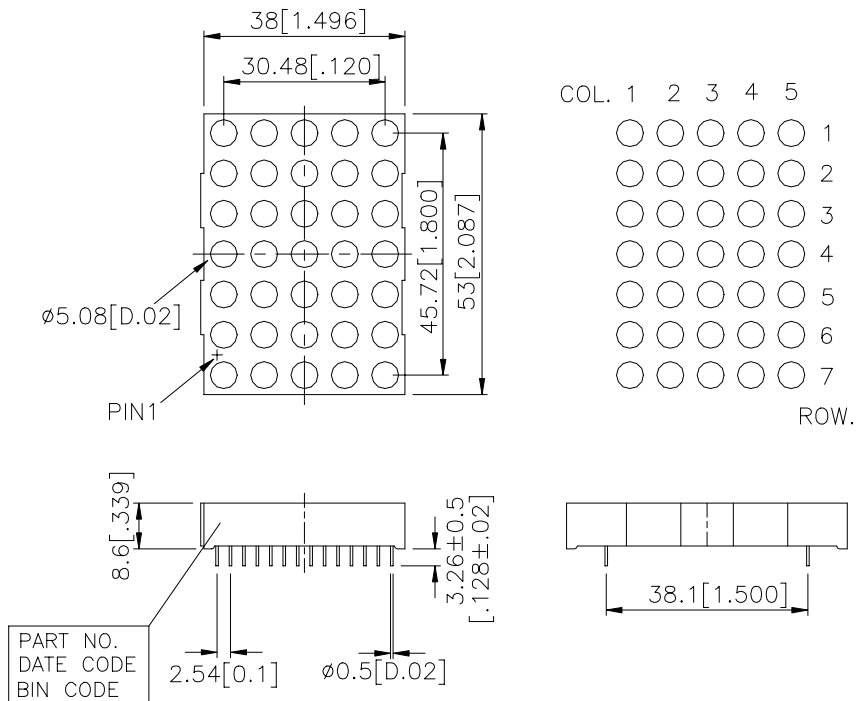
**DESCRIPTION**

The LTP-2757AA-04 series are 2.0 inch (50.80 mm) matrix height 5×7 dot matrix display. The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The AlGaAs-Red series devices utilize LED chips which are made from AlGaAs on a non-transparent GaAs substrate. The multicolor displays have black face and white dots.

**DEVICE**

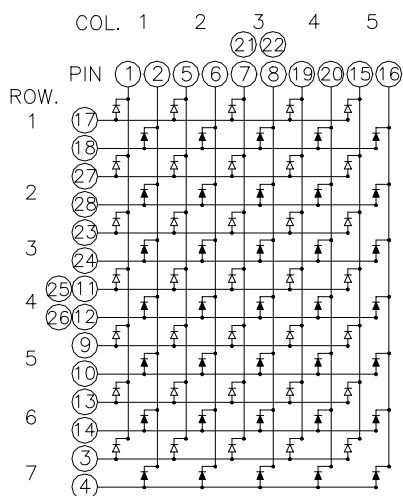
| <b>PART NO.</b> | <b>DESCRIPTION</b> |
|-----------------|--------------------|
| MULTI-COLOR     | CATHODE COLUMN     |
| LTP-2757AA-04   | ANODE ROW          |

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

| No. | CONNECTION                     | No. | CONNECTION                     |
|-----|--------------------------------|-----|--------------------------------|
| 1   | CATHODE COLUMN 1 GREEN         | 15  | CATHODE COLUMN 5 GREEN         |
| 2   | CATHODE COLUMN 1<br>AlGaAs RED | 16  | CATHODE COLUMN 5<br>AlGaAs RED |
| 3   | ANODE ROW 7 GREEN              | 17  | ANODE ROW 1 GREEN              |
| 4   | ANODE ROW 7<br>AlGaAs RED      | 18  | ANODE ROW 1<br>AlGaAs RED      |
| 5   | CATHODE COLUMN 2 GREEN         | 19  | CATHODE COLUMN 4 GREEN         |
| 6   | CATHODE COLUMN 2<br>AlGaAs RED | 20  | CATHODE COLUMN 4<br>AlGaAs RED |
| 7   | CATHODE COLUMN 3 GREEN         | 21  | CATHODE COLUMN 3 GREEN         |
| 8   | CATHODE COLUMN 3<br>AlGaAs RED | 22  | CATHODE COLUMN 3<br>AlGaAs RED |
| 9   | ANODE ROW 5 GREEN              | 23  | ANODE ROW 3 GREEN              |
| 10  | ANODE ROW 5<br>AlGaAs RED      | 24  | ANODE ROW 3<br>AlGaAs RED      |
| 11  | ANODE ROW 4 GREEN              | 25  | ANODE ROW 4 GREEN              |
| 12  | ANODE ROW 4<br>AlGaAs RED      | 26  | ANODE ROW 4<br>AlGaAs RED      |
| 13  | ANODE ROW 6 GREEN              | 27  | ANODE ROW 2 GREEN              |
| 14  | ANODE ROW 6<br>AlGaAs RED      | 28  | ANODE ROW 2<br>AlGaAs RED      |

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

| PARAMETER  | GREEN          | UNIT  |
|--|----------------|-------|
| Average Power Dissipation Per Dot  | 36             | mW    |
| Peak Forward Current Per Dot   | 100            | mA    |
| Average Forward Current Per Dot  | 13             | mA    |
| Derating Linear From 25°C Per Dot  | 0.17           | 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: max 260°C for max 3sec at 1.6mm[1/16inch] below seating plane. |                |       |

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

| PARAMETER                         | SYMBOL            | MIN. | TYP. | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|-------------------|------|------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>v</sub>    | 1780 | 4800 |      | μcd  | I <sub>p</sub> =80mA<br>1/16Duty |
| Peak Emission Wavelength          | λ <sub>p</sub>    |      | 565  |      | nm   | I <sub>F</sub> =20mA             |
| Spectral Line Half-Width          | Δλ                |      | 30   |      | nm   | I <sub>F</sub> =20mA             |
| Dominant Wavelength               | λ <sub>d</sub>    |      | 569  |      | nm   | I <sub>F</sub> =20mA             |
| Forward Voltage any Dot           | V <sub>F</sub>    |      | 2.1  | 2.6  | V    | I <sub>F</sub> =20mA             |
|                                   |                   |      | 3.0  | 3.7  |      | I <sub>F</sub> =80mA             |
| Reverse Current any Dot           | 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.

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

| PARAMETER  | AlGaAs RED     | UNIT  |
|--|----------------|-------|
| Average Power Dissipation Per Dot  | 36             | mW    |
| Peak Forward Current Per Dot   | 125            | mA    |
| Average Forward Current Per Dot  | 15             | mA    |
| Derating Linear From 25°C Per Dot  | 0.20           | 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: max 260°C for max 3sec at 1.6mm[1/16inch] below seating plane. |                |       |

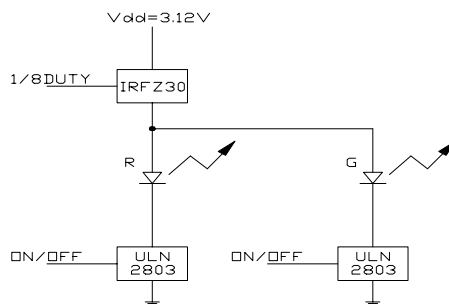
**LECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C**

AlGaAs RED

| PARAMETER                         | SYMBOL            | MIN. | TYP.  | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|-------------------|------|-------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>v</sub>    | 6300 | 12000 |      | μcd  | I <sub>p</sub> =80mA<br>1/16Duty |
| Peak Emission Wavelength          | λ <sub>p</sub>    |      | 660   |      | nm   | I <sub>F</sub> =20mA             |
| Spectral Line Half-Width          | Δλ                |      | 35    |      | nm   | I <sub>F</sub> =20mA             |
| Dominant Wavelength               | λ <sub>d</sub>    |      | 638   |      | nm   | I <sub>F</sub> =20mA             |
| Forward Voltage any Dot           | V <sub>F</sub>    |      | 1.8   | 2.4  | V    | I <sub>F</sub> =20mA             |
|                                   |                   |      | 2.0   | 3.1  |      | I <sub>F</sub> =80mA             |
| Reverse Current any Dot           | 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.

\* Binning Condition:



**TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES**

(25°C Ambient Temperature Unless Otherwise Noted)

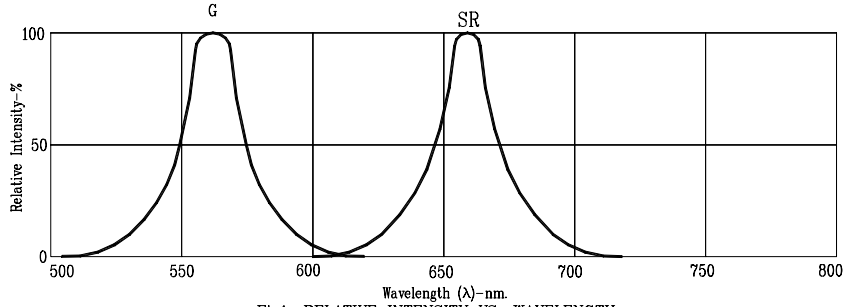


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

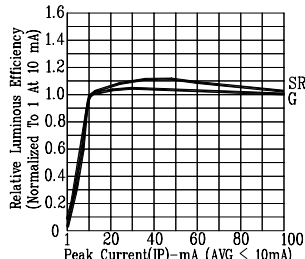


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

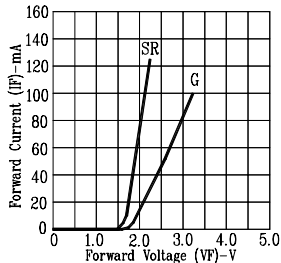


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

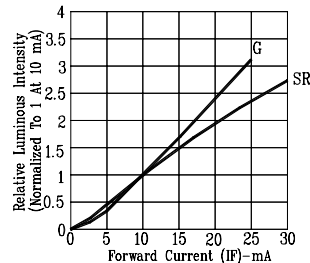


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

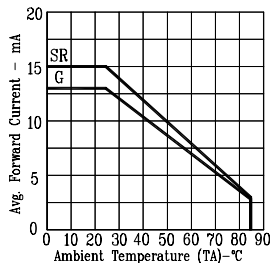


Fig5. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

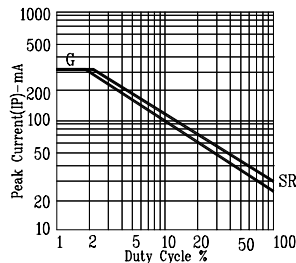


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN SR=AlGaAs RED