



# **LED Display**

## **Product Data Sheet**

### **LTP-7388M**

Spec No.: DS30-2000-046

Effective Date: 03/08/2003

Revision: -

**LITE-ON DCC**

**RELEASE**

**BNS-OD-FC001/A4**

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## FEATURES

- \* 0.764 inch (19.4 mm) MATRIX HEIGHT
- \* LOW POWER REQUIREMENT
- \* SINGLE PLANE, WIDE VIEWING ANGLE
- \* SOLID STATE RELIABILITY
- \* 8x8 ARRAY WITH X-Y SELECT
- \* COMPATIBLE WITH USASCII AND EBCDIC CODES
- \* STACKABLE HORIZONTALLY
- \* CATEGORIZED FOR LUMINOUS INTENSITY

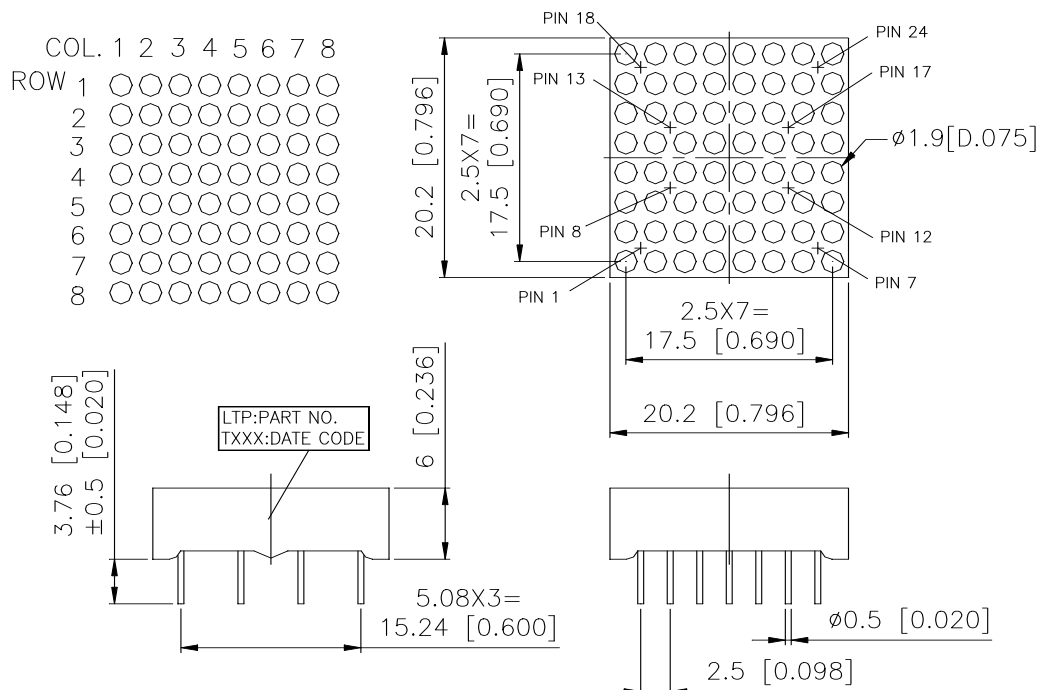
## DESCRIPTION

The LTP-7388M is a 0.764 inch (19.4 mm) matrix height 8x8 dot matrix display. This device uses AS-AlInGaP green and AS-AlInGaP super red LED chips (AlInGaP epi on a GaAs substrate). The display has black face and white dots.

## DEVICE

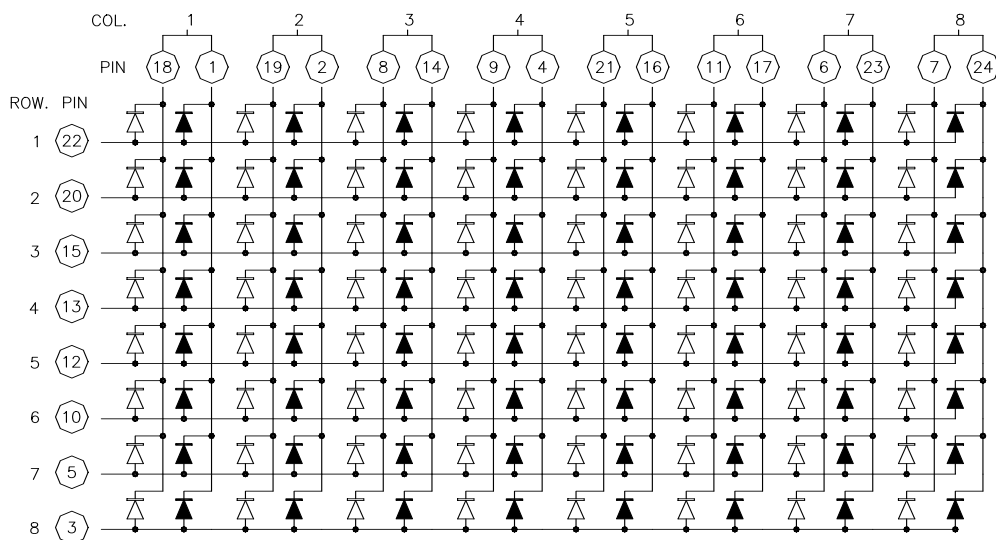
| PART NO.    | DESCRIPTION    |
|-------------|----------------|
| MULTI-COLOR | Cathode Column |
| LTP-7388M   | Anode Row      |

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



THE SIGN "▲" STANDS FOR RED COLOR.

THE SIGN "△" STANDS FOR GREEN COLOR.

**PIN CONNECTION**

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

**ABSOLUTE MAXIMUM RATING**

| PARAMETER                                                                                | AlInGaP GREEN  | AlInGaP SUPER RED | UNIT  |
|------------------------------------------------------------------------------------------|----------------|-------------------|-------|
| Average Power Dissipation Per Dot                                                        | 70             | 70                | mW    |
| Peak Forward Current Per Dot<br>( Frequency 1Khz, 10% duty cycle)                        | 60             | 90                | mA    |
| Average Forward Current Per Dot                                                          | 25             | 25                | mA    |
| Forward Current Derating from 25 <sup>0</sup> C                                          | 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 |                   |       |
| Soldering Conditions : 1/16 inch below seating plane for 3 seconds at 260 <sup>0</sup> C |                |                   |       |

## ELECTRICAL / OPTICAL CHARACTERISTICS

### AlInGaP GREEN

| PARAMETER                          | SYMBOL            | MIN. | TYP. | MAX. | UNIT              | TEST CONDITION       |
|------------------------------------|-------------------|------|------|------|-------------------|----------------------|
| Average Luminous Intensity per Dot | I <sub>v</sub>    | 4300 | 6200 |      | ucd               | I <sub>p</sub> =48mA |
| Average Luminous Intensity         |                   | 674  | 972  |      | cd/m <sup>2</sup> | 1/16Duty             |
| Peak Emission Wavelength           | λ <sub>p</sub>    |      | 571  |      | nm                | I <sub>F</sub> =20mA |
| Spectral Line Half-Width           | Δλ                |      | 15   |      | nm                | I <sub>F</sub> =20mA |
| Dominant Wavelength                | λ <sub>d</sub>    |      | 572  |      | nm                | I <sub>F</sub> =20mA |
| Forward Voltage any Dot            | V <sub>F</sub>    |      | 2.1  | 2.6  | V                 | I <sub>F</sub> =20mA |
| 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> =3mA  |

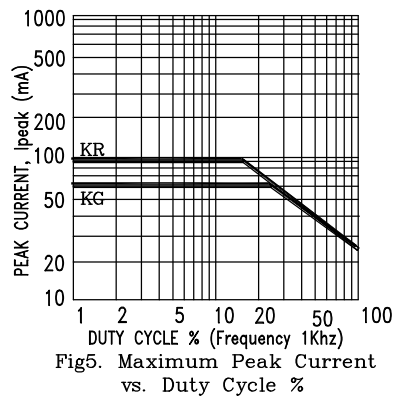
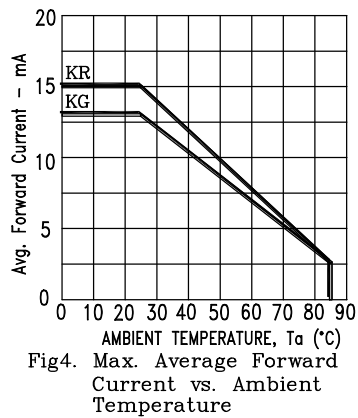
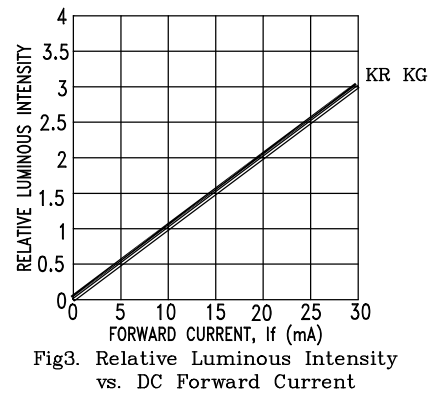
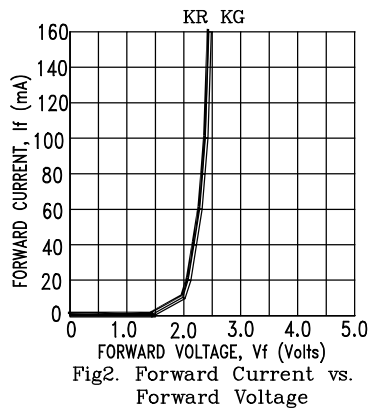
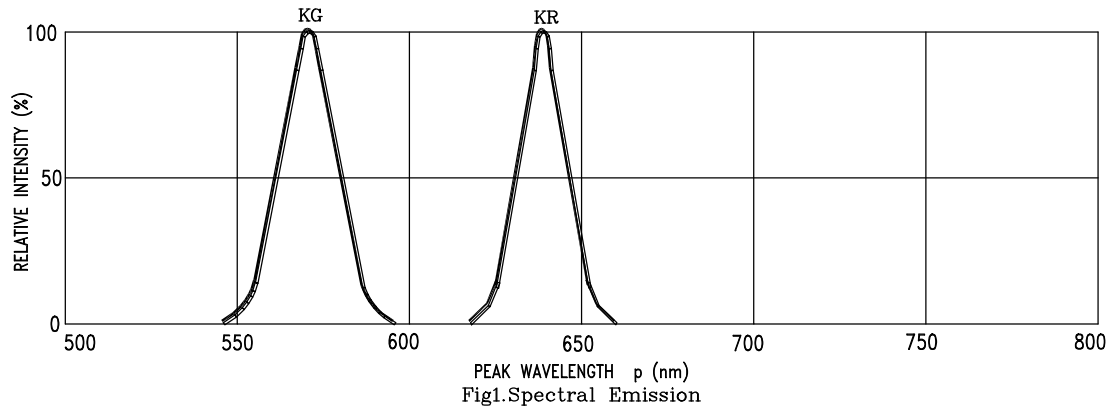
## ELECTRICAL / OPTICAL CHARACTERISTICS

### AlInGaP SUPER RED

| PARAMETER                          | SYMBOL            | MIN. | TYP. | MAX. | UNIT              | TEST CONDITION       |
|------------------------------------|-------------------|------|------|------|-------------------|----------------------|
| Average Luminous Intensity per Dot | I <sub>v</sub>    | 2100 | 4000 |      | ucd               | I <sub>p</sub> =48mA |
| Average Luminous Intensity         |                   | 329  | 627  |      | cd/m <sup>2</sup> | 1/16Duty             |
| Peak Emission Wavelength           | λ <sub>p</sub>    |      | 639  |      | nm                | I <sub>F</sub> =20mA |
| Spectral Line Half-Width           | Δλ                |      | 20   |      | nm                | I <sub>F</sub> =20mA |
| Dominant Wavelength                | λ <sub>d</sub>    |      | 631  |      | nm                | I <sub>F</sub> =20mA |
| Forward Voltage any Dot            | V <sub>F</sub>    |      | 2.0  | 2.6  | V                 | I <sub>F</sub> =20mA |
| 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> =3mA  |

Note: Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission International De L'Eclairage) eye-response curve.

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES



NOTE: KR=AlInGaP SUPER RED KG=AlInGaP GREEN