## FEATURES

＊2.0 inch (50.8 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.

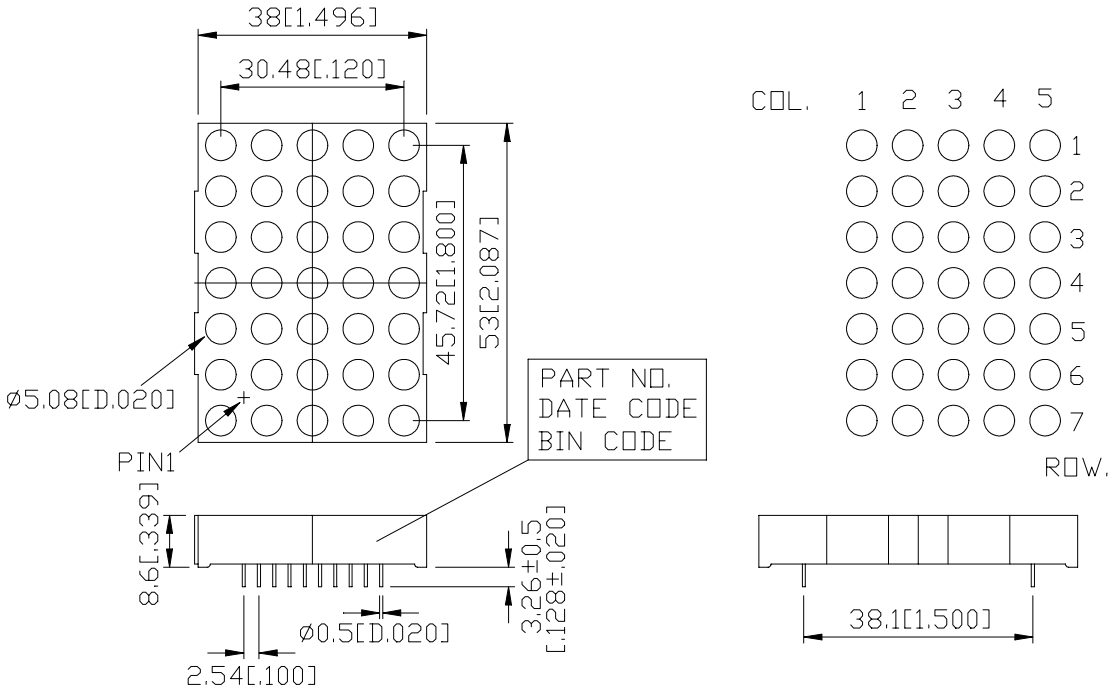
## DESCRIPTION

The LTP-2N57M is a 2.0 inch (50.8 mm) matrix height 5 ×7 dot matrix display. This device is multi-color applicable display. The green LED chips, which are made from GaP on GaP substrate. The red orange LED chips, which are made from GaAsP on GaP substrate. The device has gray face and white dot color.

## DEVICE

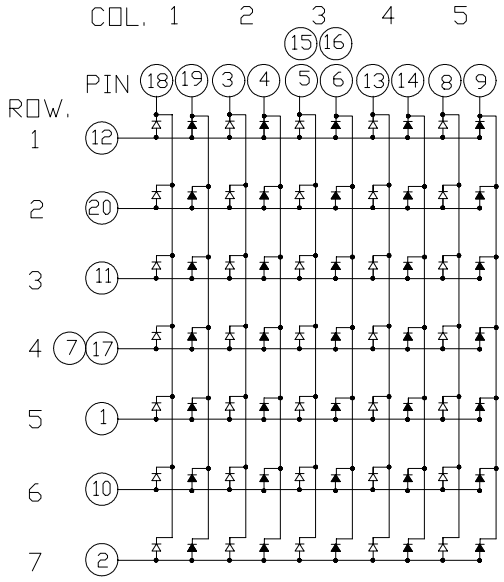
| PART NO. | DESCRIPTION |
|---|---|
| MULTI-COLOR | Anode Row |
| LTP-2N57M | Cathode Column |

## PACKAGE DIMENSIONS




NOTES: All dimensions are in millimeters. Tolerances are ± 0.25 mm (0.01“) unless otherwise noted.

## INTERNAL CIRCUIT DIAGRAM




NOTES: 1.The sign " " stands for red orange chips
2.The sign " " stands for green chips

## PIN CONNECTION

| NO | CONNECTION | NO | CONNECTION |
|---|---|---|---|
| 1 | ANODE ROW 5 | 11 | ANODE ROW 3 |
| 2 | ANODE ROW 7 | 12 | ANODE ROW 1 |
| 3 | CATHODE COLUMN 2 GREEN | 13 | CATHODE COLUMN 4 GREEN |
| 4 | CATHODE COLUMN 2 RED ORANGE | 14 | CATHODE COLUMN 4 RED ORANGE |
| 5 | CATHODE COLUMN 3 GREEN | 15 | CATHODE COLUMN 3 GREEN |
| 6 | CATHODE COLUMN 3 RED ORANGE | 16 | CATHODE COLUMN 3 RED ORANGE |
| 7 | ANODE ROW 4 | 17 | ANODE ROW 4 |
| 8 | CATHODE COLUMN 3 GREEN | 18 | CATHODE COLUMN 1 GREEN |
| 9 | CATHODE COLUMN 3 RED ORANGE | 19 | CATHODE COLUMN 1 RED ORANGE |
| 10 | ANODE ROW 6 | 20 | ANODE ROW 2 |

## 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℃ Per Dot | 0.17 | mA/℃ |
| Reverse Voltage Per Dot | 5 | V |
| Operating Temperature Range | -35℃ to +85℃ | |
| Storage Temperature Range | -35℃ to +85℃ | |
| Solder Temperature: max 260℃ 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 | $I_V$ | 1780 | 4000 | | μcd | $I_p$=80mA 1/16Duty |
| Peak Emission Wavelength | λp | | 565 | | nm | $I_F$=20mA |
| Spectral Line Half-Width | Δλ | | 30 | | nm | $I_F$=20mA |
| Dominant Wavelength | λd | | 569 | | nm | $I_F$=20mA |
| Forward Voltage any Dot | $V_F$ | | 2.1 | 2.6 | V | $I_F$=20mA |
| | | | 3.0 | 3.7 | | $I_F$=80mA |
| Reverse Current any Dot | $I_R$ | | | 100 | μA | $V_R$=5V |
| Luminous Intensity Matching Ratio | $I_V$-m | | | 2:1 | | $I_p$=80mA 1/16Duty |

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

## ABSOLUTE MAXIMUM RATING AT Ta=25°C

| PARAMETER | RED ORANGE | 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℃ Per Dot | 0.17 | mA/℃ |
| Reverse Voltage Per Dot | 5 | V |
| Operating Temperature Range | -35℃ to +85℃ | |
| Storage Temperature Range | -35℃ to +85℃ | |
| Solder Temperature: max 260℃ for max 3sec at 1.6mm[1/16inch] below seating plane. | | |

## ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

**RED ORANGE**

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITION |
|---|---|---|---|---|---|---|
| Average Luminous Intensity | $I_V$ | 1780 | 4000 | | μcd | $I_p$=80mA 1/16Duty |
| Peak Emission Wavelength | λp | | 630 | | nm | $I_F$=20mA |
| Spectral Line Half-Width | Δλ | | 40 | | nm | $I_F$=20mA |
| Dominant Wavelength | λd | | 621 | | nm | $I_F$=20mA |
| Forward Voltage any Dot | $V_F$ | | 2.0 | 2.6 | V | $I_F$=20mA |
| | | | 2.6 | 3.4 | | $I_F$=80mA |
| Reverse Current any Dot | $I_R$ | | | 100 | μA | $V_R$=5V |
| Luminous Intensity Matching Ratio | $I_V$-m | | | 2:1 | | $I_p$=80mA 1/16Duty |

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

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

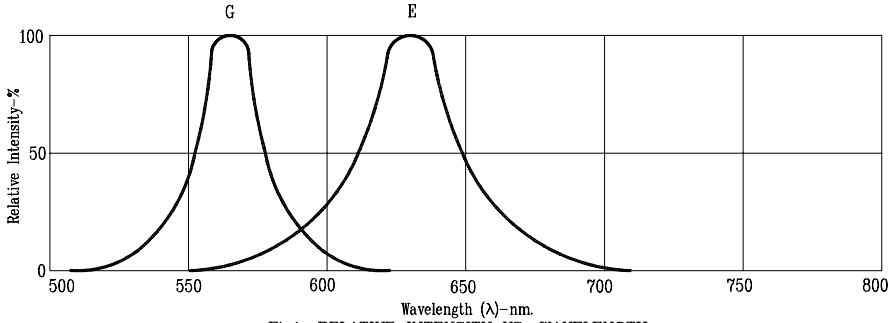


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

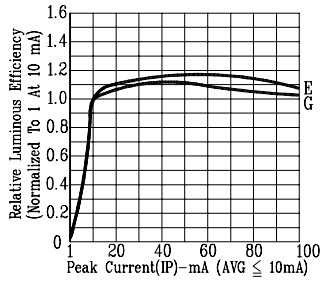


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

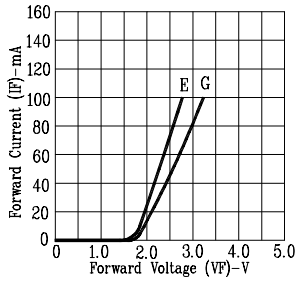


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

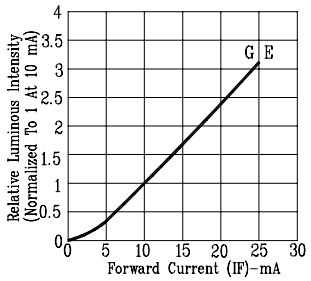


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

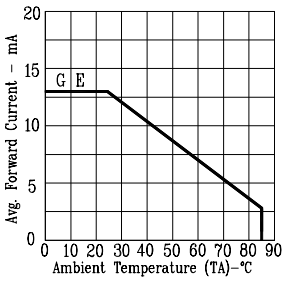


Fig5. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

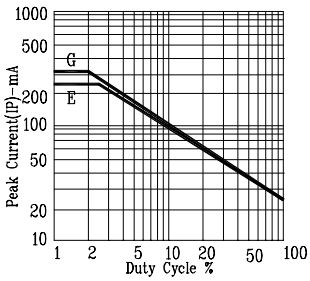


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN E=RED ORANGE