



0.3" 5 × 7 Single Color Dot Matrix LED Displays

LTP-305 Series

Features

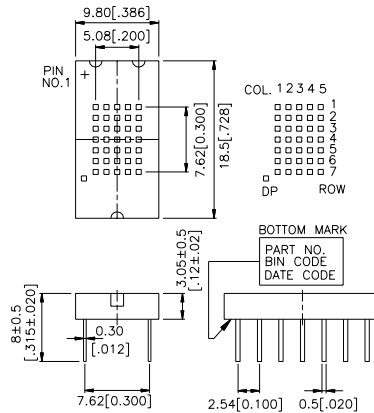
- 0.3 inch (7.62mm) matrix height.
- Choices of three bright colors-yellow/green/high efficiency red.
- Single plane, wide viewing angle.
- Solid state reliability.
- 36 light emitting diodes.
- Low power requirements.
- 5 × 7 array with X-Y select and decimal point.
- Compatible with usascII and ebcidc codes.
- Categorized for luminous intensity
- Easy mounting on P.C. board or sockets.

Description

The LTP-305 series are 0.3 inch (7.62mm) matrix height 5 × 7 dot matrix displays. Yellow display have yellow package. Green displays have green package. High efficiency red displays have red package.

The red series devices utilize LED chips which are made from GaAsP on a GaAs substrate. The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The yellow and high efficiency red series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate.

Package Dimensions



Notes : All dimensions are in millimeters(inches).
Tolerance : ± 0.25mm (0.010") unless otherwise noted.

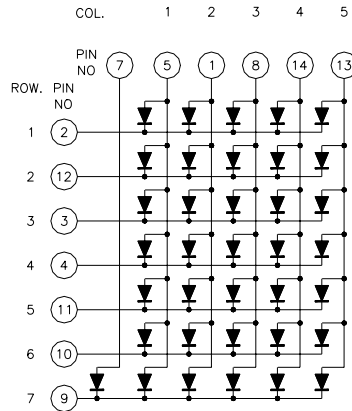
Devices

| Part No. | | | Description |
|----------|----------|--------------|---|
| Yellow | Green | Hi. Eff. Red | |
| LTP-305Y | LTP-305G | LTP305HR | Anode Column, Cathode Row; Lt. Hand Decimal |

Pin Connection

| Pin No. | Connection | Pin No. | Connection |
|---------|-----------------------|---------|----------------|
| 1 | Anode Column 2 | 8 | Anode Column 3 |
| 2 | Cathode Row 1 | 9 | Cathode Row 7 |
| 3 | Cathode Row 3 | 10 | Cathode Row 6 |
| 4 | Cathode Row 4 | 11 | Cathode Row 5 |
| 5 | Anode Column 1 | 12 | Cathode Row 2 |
| 6 | No Pin | 13 | Anode Column 5 |
| 7 | Anode Decimal (Point) | 14 | Anode Column 4 |

Internal Circuit Diagram



Absolute Maximum Ratings at Ta=25°C

| Parameter | Yellow | Green | Hi. Eff. Red | Unit |
|---|----------------|------------|--------------|-------------|
| Average Power Dissipation Per Dot | 22 | 26 | 26 | mW |
| Peak Forward Current Per Dot | 60 | 75 | 75 | mA |
| Average Forward Current Per Dot Derating Linear from 25°C Per Dot | 8 0.08 | 10 0.14 | 10 0.14 | mA mA/°C |
| Reverse Voltage Per Dot | 5 | 5 | 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

LTP-305Y

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|-----------------------------------|------------------|------|------|------|------|-----------------------------------|
| Average Luminous Intensity | I _v | 630 | 1600 | | μ cd | I _p =80mA 1/16 Duty |
| Peak Emission Wavelength | λ _P | | 585 | | nm | I _f =20mA |
| Spectral Line Half-Width | Δλ | | 35 | | nm | I _f =20mA |
| Dominant Wavelength | λ _d | | 588 | | nm | I _f =20mA |
| Forward Voltage, any Dot | V _F | | 2.1 | 2.6 | V | I _f =20mA |
| | | | 3.0 | 3.7 | V | I _f =80mA |
| Reverse Current, any Dot | I _R | | | 100 | μ A | V _R =5V |
| Luminous Intensity Matching Ratio | I _{v-m} | | | 2:1 | | I _f =10mA |

LTP-305G

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|-----------------------------------|------------------|------|------|------|------|-----------------------------------|
| Average Luminous Intensity | I _v | 630 | 1600 | | μ cd | I _p =80mA 1/16 Duty |
| Peak Emission Wavelength | λ _P | | 565 | | nm | I _f =20mA |
| Spectral Line Half-Width | Δλ | | 30 | | nm | I _f =20mA |
| Dominant Wavelength | λ _d | | 569 | | nm | I _f =20mA |
| Forward Voltage, any Dot | V _F | | 2.1 | 2.6 | V | I _f =20mA |
| | | | 3.0 | 3.7 | V | I _f =80mA |
| Reverse Current, any Dot | I _R | | | 100 | μ A | V _R =5V |
| Luminous Intensity Matching Ratio | I _{v-m} | | | 2:1 | | I _f =10mA |

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|-----------------------------------|-------------------|------|------|------|------|-----------------------------------|
| Average Luminous Intensity | I _v | 630 | 1600 | | μ cd | I _F =80mA 1/16 Duty |
| Peak Emission Wavelength | λ _P | | 635 | | nm | I _F =20mA |
| Spectral Line Half-Width | Δλ | | 40 | | nm | I _F =20mA |
| Dominant Wavelength | λ _d | | 623 | | nm | I _F =20mA |
| Forward Voltage, any Dot | V _F | | 2.0 | 2.6 | V | I _F =20mA |
| | | | 2.6 | 3.4 | V | I _F =80mA |
| Reverse Current, any Dot | I _R | | | 100 | μ A | V _R =5V |
| Luminous Intensity Matching Ratio | I _v -m | | | 2:1 | | I _F =10mA |

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

Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

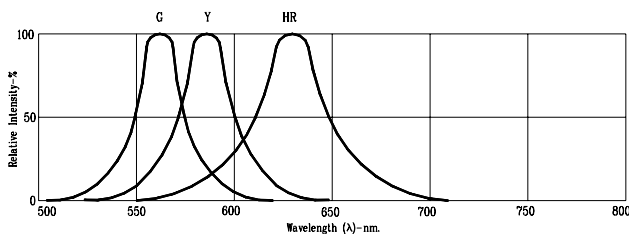


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

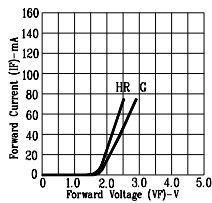


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

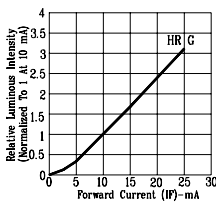


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

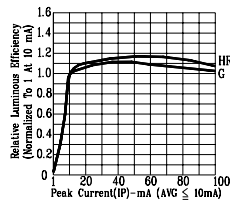


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

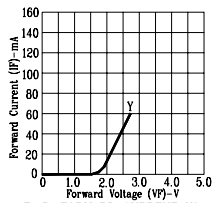


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

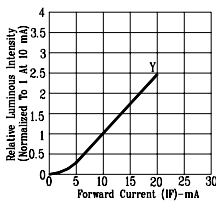


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

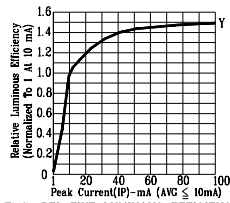


Fig7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

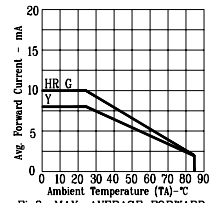


Fig8. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

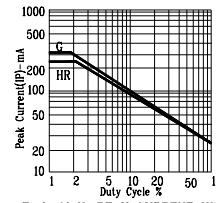


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

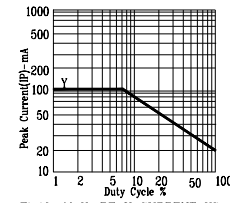


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN HR=HI.-EFF.RED Y=YELLOW (REFRESH RATE 1KHz)