



# 7.62 $\phi$ 5 $\times$ 7 Single Color & Multicolor Dot Matrix LED Displays

LTP-3057A/3157A Series  
3257AA/3357AA

## Features

- 3.0 inch (76.2mm) matrix height.
- Low power requirement.
- Single plane, wide viewing angle.
- 5  $\times$  7 array with X-Y select.
- Compatible with usascII and ebcidc codes.
- Stackable vertically and horizontally.
- Choices of two matrix orientation. Cathode row or cathode column.
- Easy mounting on P.C. board.
- Categorized for luminous intensity.
- Single color displays have the choices of four bright colors-green/yellow/red orange/AlGaAs red.
- Multicolor displays are applicable to three bright colors : green, red orange and yellow (green and red orange mixed)

## Description

The LTP-3X57A series are 3.0 inch (76.2mm)matrix height 5  $\times$  7 dot matrix displays.

The LTP-3257AA/3357AA are multicolor applicable displays. The multicolor displays have gray face and white dots.

The LTP-3057A/3157A series are single color displays. The green, yellow, red orange and AlGaAs red displays have gray face and white dots.

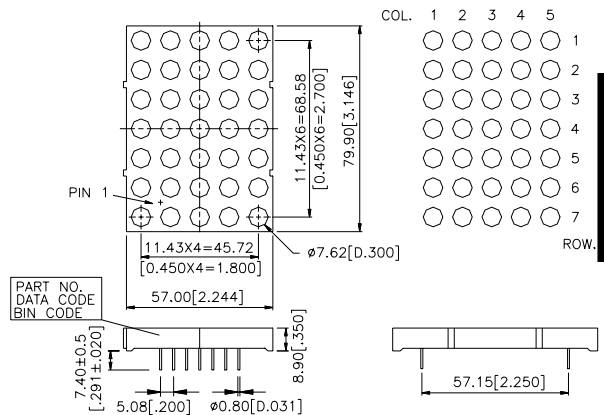
The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate.

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

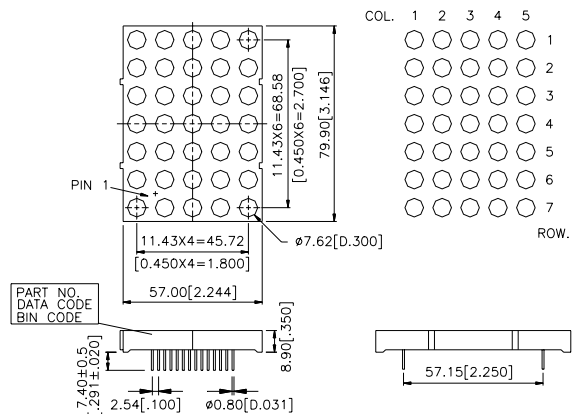
The AlGaAs red series devices utilize LED chips which are made from AlGaAs on a non-transparent GaAs substrate.

## Package Dimensions

A. LTP-3057A/3157A



B. LTP-3257AA/3357AA



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

## Devices

Part No. LTP-					Description	Package Dimension	Internal Circuit Diagram
Green	Yellow	Red Orange	AlGaAs Red	Multi Color			
3057AG	3057AY	3057AE	3057AC	—	Anode Column, Cathode Row	A	A
3157AG	3157AY	3157AE	3157AC	—	Cathode Column, Anode Row	A	B
—	—	—	—	3257AA	Anode Column, Cathode Row	B	C
—	—	—	—	3357AA	Cathode Column, Anode Row	B	D

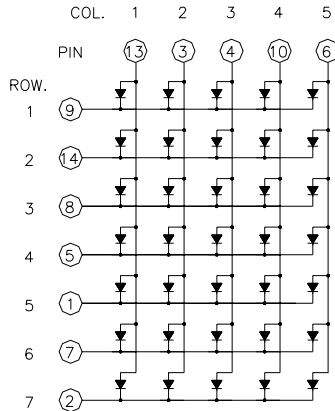
## Pin Connection

Pin No.	Connection	
	LTP-3157A	LTP-3057A
1	Anode Row 5	Cathode Row 5
2	Anode Row 7	Cathode Row 7
3	Cathode Column 2	Anode Column 2
4	Cathode Column 3	Anode Column 3
5	Anode Row 4	Cathode Row 4
6	Cathode Column 5	Anode Column 5
7	Anode Row 6	Cathode Row 6
8	Anode Row 3	Cathode Row 3
9	Anode Row 1	Cathode Row 1
10	Cathode Column 4	Anode Column 4
11	No Connection	No Connection
12	No Connection	No Connection
13	Cathode Column 1	Anode Column 1
14	Anode Row 2	Cathode Row 2

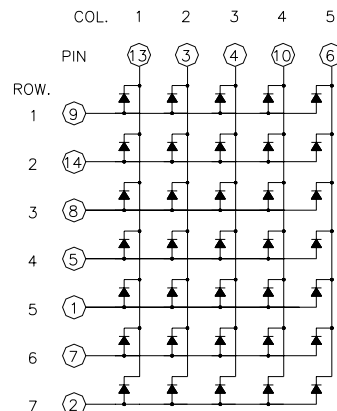
Pin No.	Connection	
	LTP-3257AA	LTP-3357AA
1	Anode Column 1 Green	Cathode Column 1 Green
2	Anode Column 1 Red Orange	Cathode Column 1 Red Orange
3	Cathode Row 7 Green	Anode Row 7 Green
4	Cathode Row 7 Red Orange	Anode Row 7 Red Orange
5	Anode Column 2 Green	Cathode Column 2 Green
6	Anode Column 2 Red Orange	Cathode Column 2 Red Orange
7	Anode Column 3 Green	Cathode Column 3 Green
8	Anode Column 3 Red Orange	Cathode Column 3 Red Orange
9	Cathode Row 5 Green	Anode Row 5 Green
10	Cathode Row 5 Red Orange	Anode Row 5 Red Orange
11	Cathode Row 4 Green	Anode Row 4 Green
12	Cathode Row 4 Red Orange	Anode Row 4 Red Orange
13	Cathode Row 6 Green	Anode Row 6 Green
14	Cathode Row 6 Red Orange	Anode Row 6 Red Orange
15	Anode Column 5 Green	Cathode Column 5 Green
16	Anode Column 5 Red Orange	Cathode Column 5 Red Orange
17	Cathode Row 1 Green	Anode Row 1 Green
18	Cathode Row 1 Red Orange	Anode Row 1 Red Orange
19	Anode Column 4 Green	Cathode Column 4 Green
20	Anode Column 4 Red Orange	Cathode Column 4 Red Orange
21	Anode Column 3 Green	Cathode Column 3 Green
22	Anode Column 3 Red Orange	Cathode Column 3 Red Orange
23	Cathode Row 3 Green	Anode Row 3 Green
24	Cathode Row 3 Red Orange	Anode Row 3 Red Orange
25	Cathode Row 4 Green	Anode Row 4 Green
26	Cathode Row 4 Red Orange	Anode Row 4 Red Orange
27	Cathode Row 2 Green	Anode Row 2 Green
28	Cathode Row 2 Red Orange	Anode Row 2 Red Orange

# Internal Circuit Diagrams

A. LTP-3057A

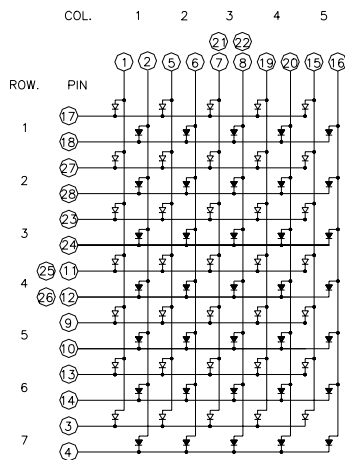


B. LTP-3157A

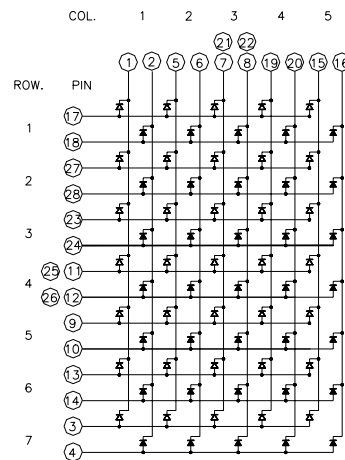


Notes : The Sign "➡➡" stands for two chips in series.

C. LTP-3257AA



D. LTP-3357AA



Notes : The Sign "↗" stands for Green color chips. (Two Chips In Series).  
 The Sign "➡➡" stands for Red Orange color chips. (Two Chips In Series)

## Absolute Maximum Ratings at Ta=25°C

Parameter	Green	Yellow	Red Orange	AlGaAs Red	Unit
Average Power Dissipation Per Dot	64	60	64	64	mW
Peak Forward Current Per Dot	90	80	90	110	mA
Average Forward Current Per Dot Derating Linear from 25°C Per Dot	11 0.15	8 0.08	11 0.15	14 0.19	mA mA/°C
Reverse Voltage Per Dot	10	10	10	10	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-3057AG/3157AG & LTP-3257AA/3357AA (Green)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	3000	9600		μ cd	I <sub>p</sub> =80mA 1/16 Duty
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>		4.2	5.2	V	I <sub>f</sub> =20mA
			6.0	7.4	V	I <sub>f</sub> =80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> =10V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>			2:1		I <sub>f</sub> =10mA

LTP-3057AY/3157AY

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	3000	9600		μ cd	I <sub>p</sub> =80mA 1/16 Duty
Peak Emission Wavelength	λ <sub>P</sub>		585		nm	I <sub>f</sub> =20mA
Spectral Line Half-Width	Δλ		35		nm	I <sub>f</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		588		nm	I <sub>f</sub> =20mA
Forward Voltage, any Dot	V <sub>F</sub>		4.2	5.2	V	I <sub>f</sub> =20mA
			6.0	7.4	V	I <sub>f</sub> =80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> =10V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>			2:1		I <sub>f</sub> =10mA

LTP-3057AE/3157AE & LTP-3257AA/3357AA (Red Orange)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	3000	9600		μ cd	I <sub>p</sub> =80mA 1/16 Duty
Peak Emission Wavelength	λ <sub>P</sub>		630		nm	I <sub>f</sub> =20mA
Spectral Line Half-Width	Δλ		40		nm	I <sub>f</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		621		nm	I <sub>f</sub> =20mA
Forward Voltage, any Dot	V <sub>F</sub>		4	5.2	V	I <sub>f</sub> =20mA
			5.2	6.8	V	I <sub>f</sub> =80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> =10V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>			2:1		I <sub>f</sub> =10mA

LTP-3057AC/3157AC

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	11500	20000		μ cd	I <sub>p</sub> =80mA 1/16 Duty
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>		3.6	4.8	V	I <sub>f</sub> =20mA
			4	5.4	V	I <sub>f</sub> =80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> =10V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>			2:1		I <sub>f</sub> =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)

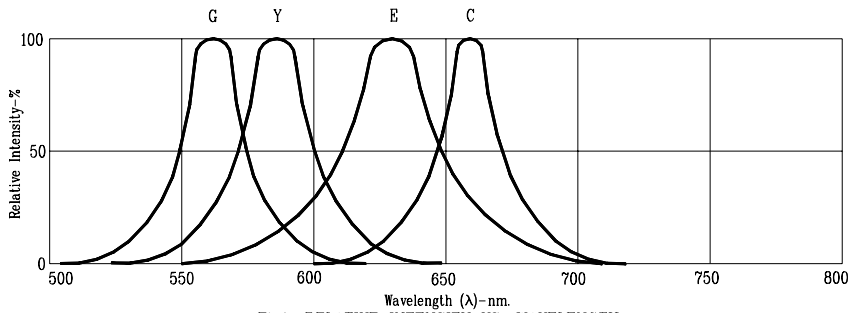


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

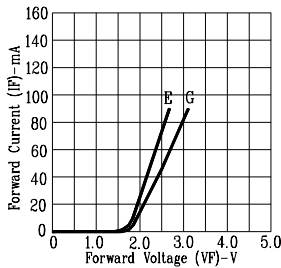


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

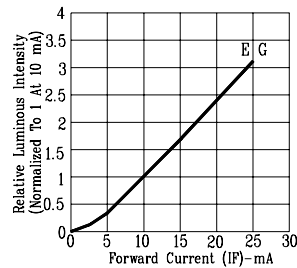


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

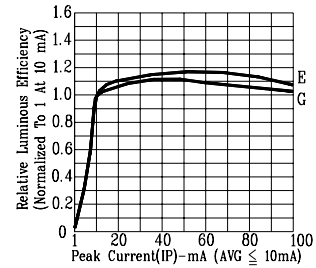


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

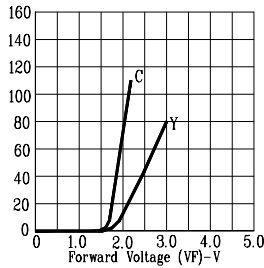


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

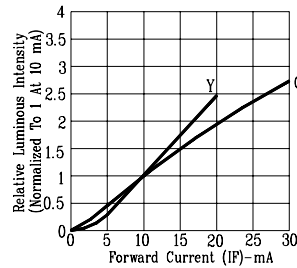


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

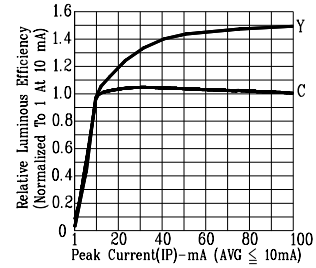


Fig7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

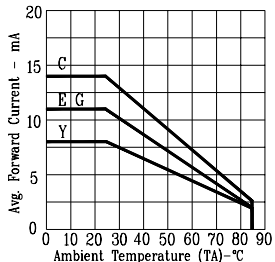


Fig8. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

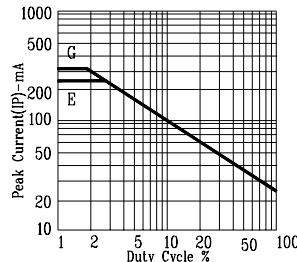


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

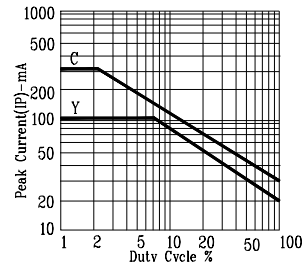


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN E=RED ORANGE C=AlGaAs RED Y=YELLOW

(REFRESH RATE 1KHz)