3 ϕ 5 × 7 Single Color & Multicolor Dot Matrix LED Displays

LTP-1257AA/1357AA
1457A/1557A Series

Features

- 1.2 inch (30.42mm) matrix height.
- Low power requirement.
- Single plane, wide viewing angle.
- Solid state reliability.
- 5 × 7array with X-Y select
- Compatible with usascll and ebcdic codes.
- Stackable 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-1X57A series are 1.2 inch (30.42mm)matrix height 5 × 7 dot matrix displays.

The LTP-1257AA/1357AA are multicolor applicable displays. The multicolor displays have gray face and white dots.

The LTP-1457A/1557A series are single color displays. The green, yellow, red orange and AlGaAs red displays have gray face and white dots.

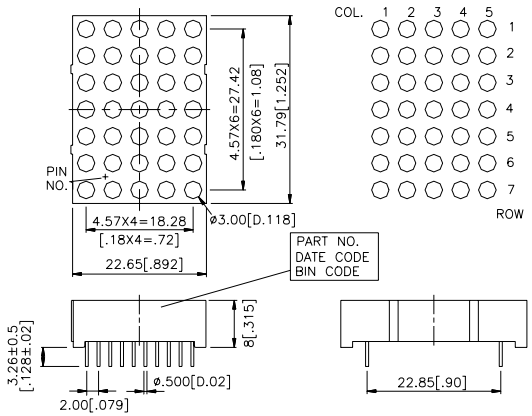
The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate.

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

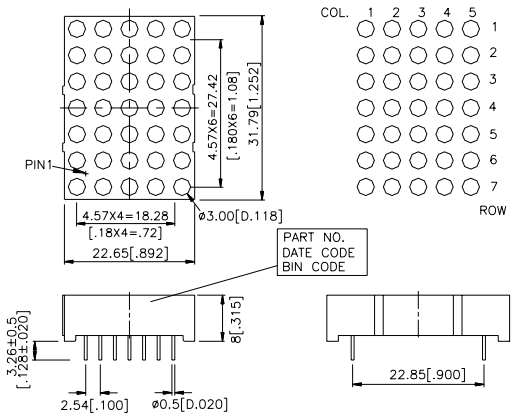
The AlGaAs red series devices utilize LED chips which are made from AlGaAs on a non-transparent GaAs substrate.

Package Dimensions

A. LTP-1257AA/1357AA



B. LTP-1457A/1557A



Notes : All dimensions are in millimeters(inches).
Tolerance : ± 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			
–	–	–	–	1257AA	Anode Column, Cathode Row	A	A
–	–	–	–	1357AA	Cathode Column, Anode Row	A	B
1457AG	1457AY	1457AE	1457AC	–	Anode Column, Cathode Row	B	C
1557AG	1557AY	1557AE	1557AC	–	Cathode Column, Anode Row	B	D

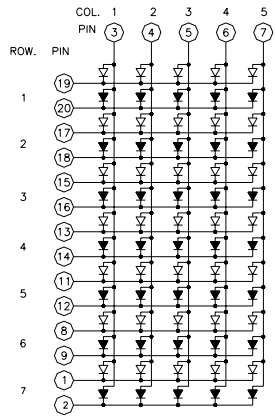
Pin Connection

Pin No.	Connection			
	LTP-1257AA	LTP-1357AA	LTP-1457A	LTP-1557A
1	Cathode Row 7 Green	Anode Row 7 Green	Cathode Row 5	Anode Row 5
2	Cathode Row 7 Red Orange	Anode Row 7 Red Orange	Cathode Row 7	Anode Row 7
3	Anode Column 1	Cathode Column 1	Anode Column 2	Cathode Column 2
4	Anode Column 2	Cathode Column 2	Anode Column 3*1	Cathode Column 3*1
5	Anode Column 3	Cathode Column 3	Cathode Row 4*2	Anode Row 4*2
6	Anode Column 4	Cathode Column 4	Anode Column 5	Cathode Column 5
7	Anode Column 5	Cathode Column 5	Cathode Row 6	Anode Row 6
8	Cathode Row 6 Green	Anode Row 6 Green	Cathode Row 3	Anode Row 3
9	Cathode Row 6 Red Orange	Anode Row 6 Red Orange	Cathode Row 1	Anode Row 1
10	No Connection	No Connection	Anode Column 4	Cathode Column 4
11	Cathode Row 5 Green	Anode Row 5 Green	Anode Column 3*1	Cathode Column 3*1
12	Cathode Row 5 Red Orange	Anode Row 5 Red Orange	Cathode Row 4*2	Anode Row 4*2
13	Cathode Row 4 Green	Anode Row 4 Green	Anode Column 1	Cathode Column 1
14	Cathode Row 4 Red Orange	Anode Row 4 Red Orange	Cathode Row 2	Anode Row 2
15	Cathode Row 3 Green	Anode Row 3 Green		
16	Cathode Row 3 Red Orange	Anode Row 3 Red Orange		
17	Cathode Row 2 Green	Anode Row 2 Green		
18	Cathode Row 2 Red Orange	Anode Row 2 Red Orange		
19	Cathode Row 1 Green	Anode Row 1 Green		
20	Cathode Row 1 Red Orange	Anode Row 1 Red Orange		

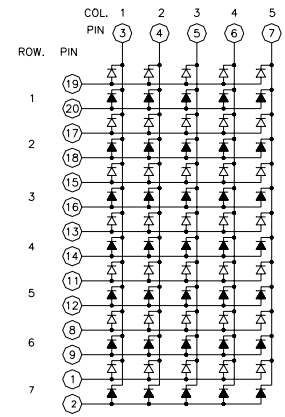
Notes : 1. Pin 4 & 11 are internally connected.
2. Pin 5 & 12 are internally connected.

Internal Circuit Diagrams

A. LTP-1257AA

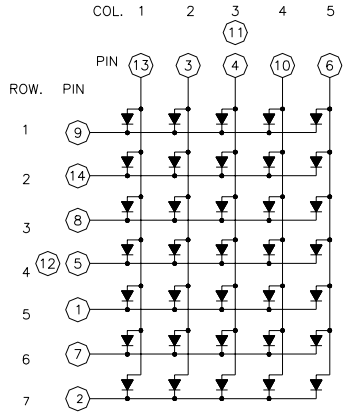


B. LTP-1357AA

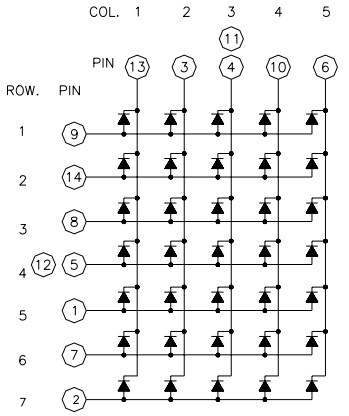


Note : The sign" ▷| "stands for Green color chips
The sign" ▶| "stands for Red Orange color chips

C. LTP-1457A



D. LTP-1557A



DISPLAYS

Absolute Maximum Ratings at Ta=25℃

Parameter	Green	Yellow	Red Orange	AlGaAs Red	Unit
Average Power Dissipation Per Dot	36	32	36	36	mW
Peak Forward Current Per Dot	100	80	100	125	mA
Average Forward Current Per Dot Derating Linear from 25℃ Per Dot	13 0.17	10 0.12	13 0.17	15 0.20	mA mA/℃
Reverse Voltage Per Dot	5	5	5	5	V
Operating Temperature Range	-35℃ to +85℃				
Storage Temperature Range	-35℃ to +85℃				
Solder Temperature 1/16 Inch Below Seating Plane for 3 Seconds at 260℃					

Electrical/Optical Characteristics at Ta=25℃

LTP-1257AA/1357AA(Green) & LTP-1457AG/1557AG

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_V	1780	4000		μcd	I_P=80mA 1/16 Duty
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	V	I_F=80mA
Reverse Current, any Dot	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

LTP-1457AY/1557AY

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_V	1780	4000		μcd	I_P=80mA 1/16 Duty
Peak Emission Wavelength	λP		585		nm	I_F=20mA
Spectral Line Half-Width	Δλ		35		nm	I_F=20mA
Dominant Wavelength	λd		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	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

LTP-1257AA/1357AA(Red Orange) & LTP-1457AE/1557AE

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_V	1780	4000		μ cd	I_P=80mA 1/16 Duty
Peak Emission Wavelength	λ P		630		nm	I_F=20mA
Spectral Line Half-Width	$\Delta\lambda$		40		nm	I_F=20mA
Dominant Wavelength	λ d		621		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

LTP-1457AC/1557AC

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_V	5400	12000		μ cd	I_P=80mA 1/16 Duty
Peak Emission Wavelength	λ P		660		nm	I_F=20mA
Spectral Line Half-Width	$\Delta\lambda$		35		nm	I_F=20mA
Dominant Wavelength	λ d		638		nm	I_F=20mA
Forward Voltage, any Dot	V_F		1.8	2.4	V	I_F=20mA
			2.0	2.7	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

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

Typical Electrical/Optical Characteristic Curves (25℃ Ambient Temperatrue Unless Otherwise Noted)

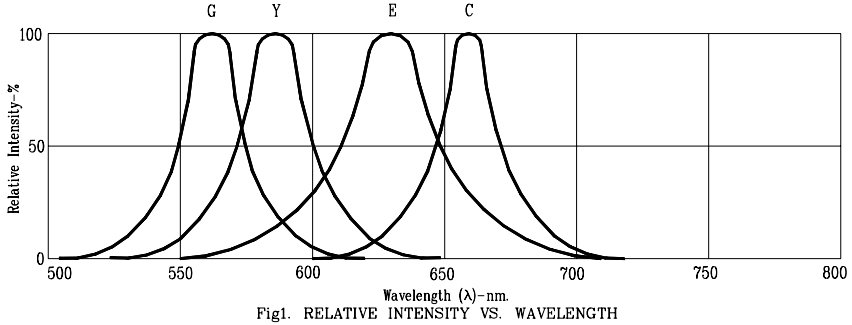


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

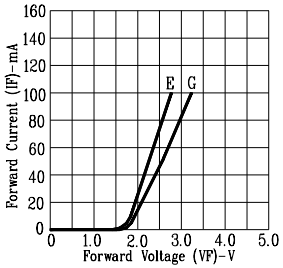


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

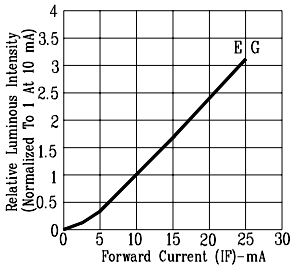


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

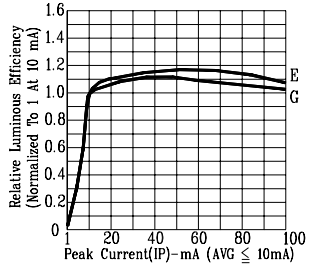


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

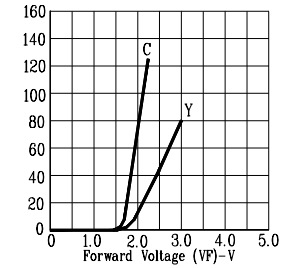


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

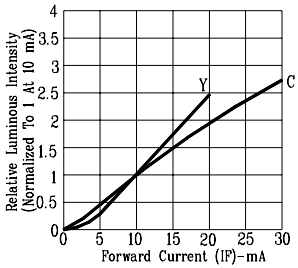


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

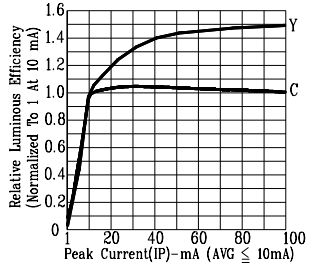


Fig7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

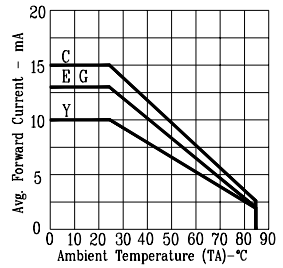


Fig8. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

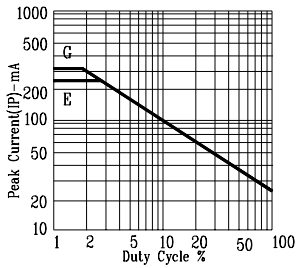


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

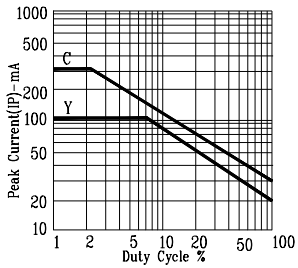


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN E=RED ORANGE C=AlGaAs RED Y=YELLOW (REFRESH RATE 1KHz)