

3 ϕ 5 $\times$ 7 Single Color & Multicolor Dot Matrix LED Displays

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

Features

- 1.2 inch (30.42mm) matrix height.
- Low power requirement.
- Single plane, wide viewing angle.
- Solid state reliability.
- 5 $\times$ 7 array with X-Y select
- Compatible with usascII and ebcidc codes.
- Stackable horizontally.
- Choices of two matrix orientation cathode row or anode 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 $\times$ 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.

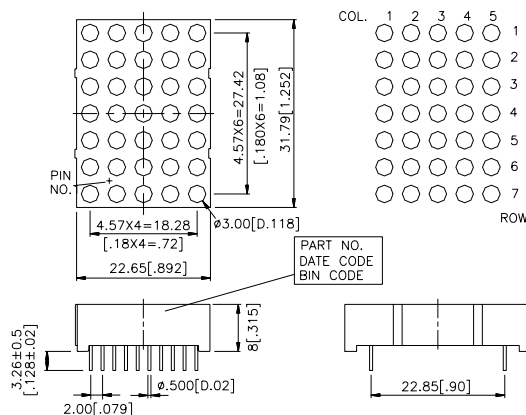
The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate.

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

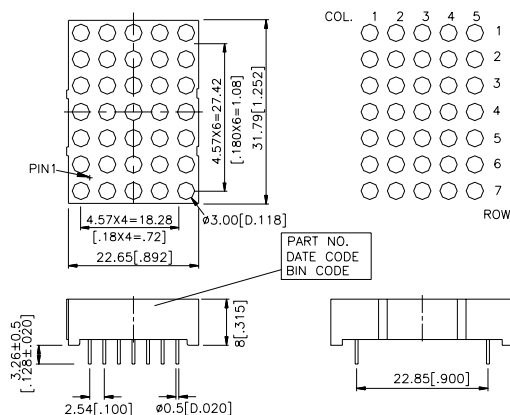
The AlGaAs red series devices utilize LED chips which are made from AlGaAs on a non-transparent GaAs substrate.

Package Dimensions

A. LTP-1257AA/1357AA



B. LTP-1457A/1557A



Notes : All dimensions are in millimeters(inches).
Tolerance : $\pm 0.25\text{mm}$ (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

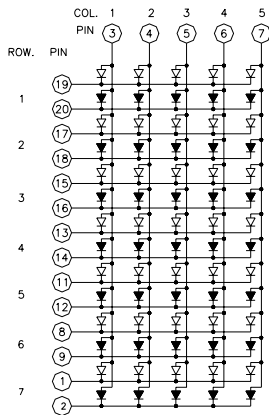
Pin Connection

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		

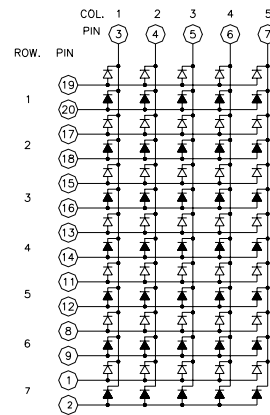
Notes : 1. Pin 4 & 11 are internally connected.
2. Pin 5 & 12 are internally connected.

Internal Circuit Diagrams

A. LTP-1257AA

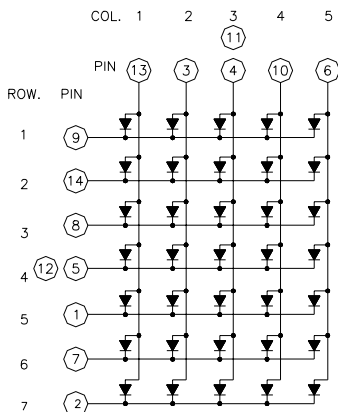


B. LTP-1357AA

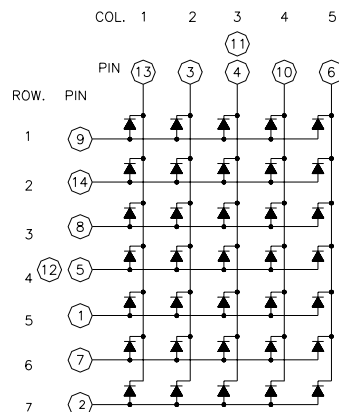


Note : The sign"  "stands for Green color chips
The sign"  "stands for Red Orange color chips

C. LTP-1457A



D. LTP-1557A



Absolute Maximum Ratings at Ta=25°C

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°C Per Dot	13 0.17	10 0.12	13 0.17	15 0.20	mA mA/°C
Reverse Voltage Per Dot	5	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-1257AA/1357AA(Green) & LTP-1457AG/1557AG

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_v	1780	4000		μ cd	$I_f=80mA$ 1/16 Duty
Peak Emission Wavelength	λ_P		565		nm	$I_f=20mA$
Spectral Line Half-Width	$\Delta\lambda$		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		$I_f=10mA$

LTP-1457AY/1557AY

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_v	1780	4000		μ cd	$I_f=80mA$ 1/16 Duty
Peak Emission Wavelength	λ_P		585		nm	$I_f=20mA$
Spectral Line Half-Width	$\Delta\lambda$		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-1257AA/1357AA(Red Orange) & LTP-1457AE/1557AE

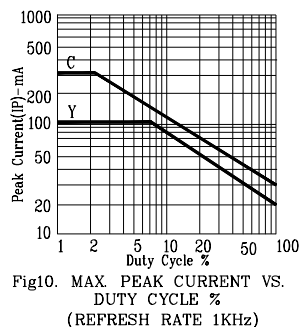
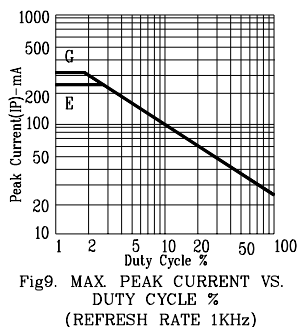
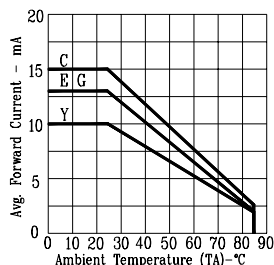
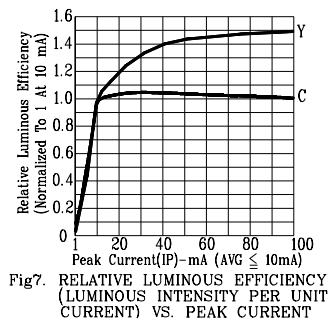
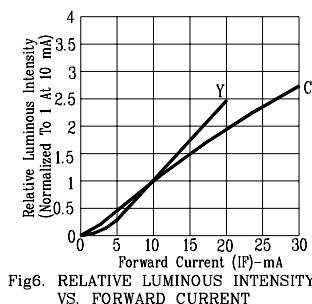
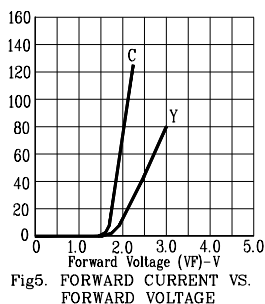
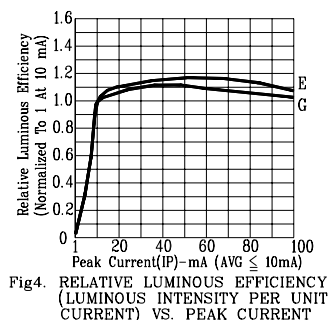
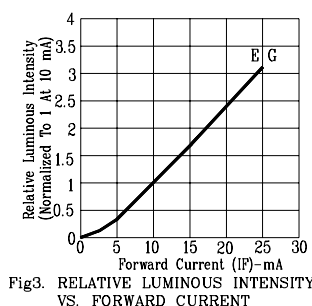
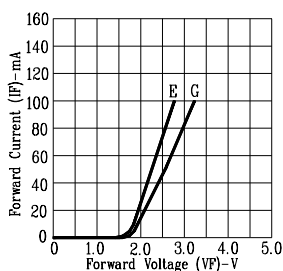
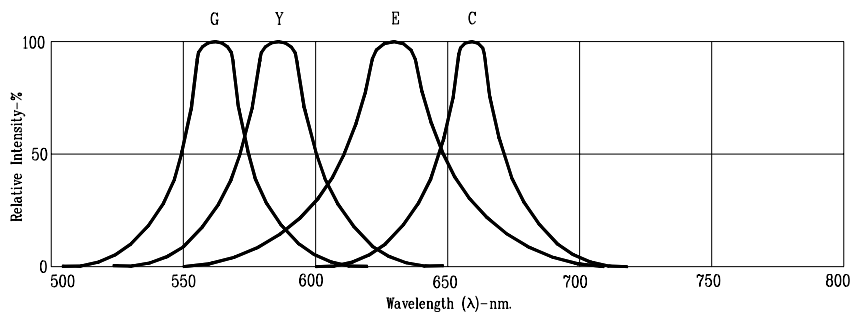
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_v	1780	4000		μ cd	$I_p=80mA$ 1/16 Duty
Peak Emission Wavelength	λ_P		630		nm	$I_f=20mA$
Spectral Line Half-Width	$\Delta\lambda$		40		nm	$I_f=20mA$
Dominant Wavelength	λ_d		621		nm	$I_f=20mA$
Forward Voltage, any Dot	V_F		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°C Ambient Temperature Unless Otherwise Noted)



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