

3 ϕ 5 $\times$ 8 Single Color & Multicolor Dot Matrix LED Displays

LTP-14058A/14158A Series
14858AA/14958AA

Features

- 1.4 inch (35.76mm) matrix height.
- Low power requirement.
- Single plane, wide viewing angle.
- Solid state reliability.
- 5 $\times$ 8 array with X-Y select
- Compatible with usascII and ebcII 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-14X58A series are 1.4 inch (35.76mm)matrix height 5X8 dot matrix displays.

The LTP-14858AA/14958AA are multicolor applicable displays.

The multicolor displays have gray face and white dots.

The LTP-14058A/14158A series are single color displays.

The green, yellow, red orange and AlGaAs red displays have gray face and white dots.

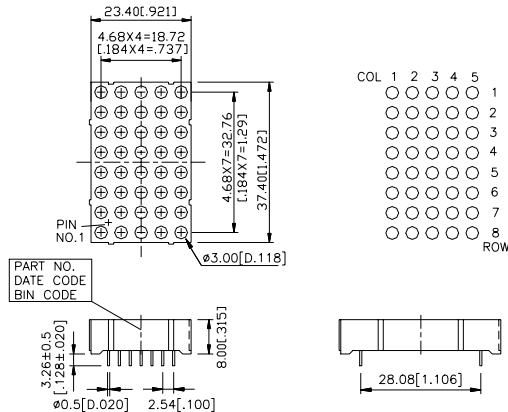
The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate.

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

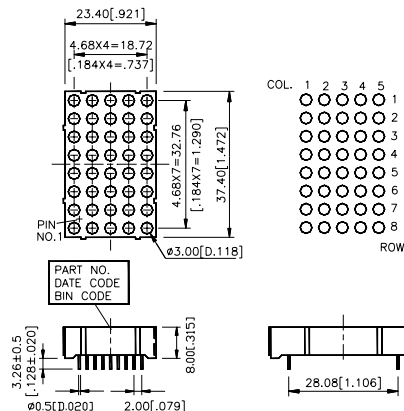
The AlGaAs red series devices utilize LED chips which are made from AlGaAs on a non-transparent GaAs substrate.

Package Dimensions

A. LTP-14058A/14158A



B. LTP-14858AA/14958AA



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			
14158AG	14158AY	14158AE	14158AC	—	Cathode Column, Anode Row	A	A
14058AG	14058AY	14058AE	14058AC	—	Anode Column, Cathode Row	A	B
—	—	—	—	14958AA	Cathode Column, Anode Row	B	C
—	—	—	—	14858AA	Anode Column, Cathode Row	B	D

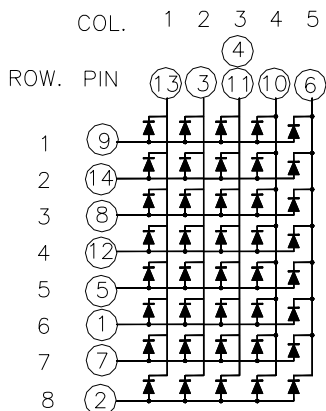
Pin Connection

Pin No.	Connection	
	LTP-14158	LTP-14058
1	Anode Row 6	Cathode Row 6
2	Anode Row 8	Cathode Row 8
3	Cathode Column 2	Anode Column 2
4	Cathode Column 3	Anode Column 3
5	Anode Row 5	Cathode Row 5
6	Cathode Column 5	Anode Column 5
7	Anode Row 7	Cathode Row 7
8	Anode Row 3	Cathode Row 3
9	Anode Row 1	Cathode Row 1
10	Cathode Column 4	Anode Column 4
11	Cathode Column 3	Anode Column 3
12	Anode Row 4	Cathode Row 4
13	Cathode Column 1	Anode Column 1
14	Anode Row 2	Cathode Row 2

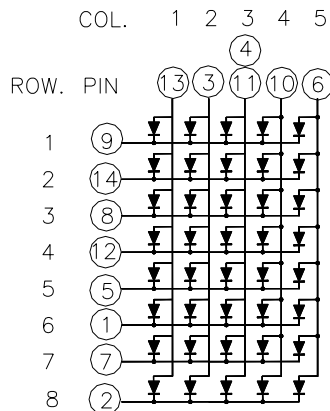
Pin No.	Connection	
	LTP-14958	LTP-14858
1	Cathode Column 1 Green	Anode Column 1 Green
2	Cathode Column 1 Red Orange	Anode Column 1 Red Orange
3	Cathode Column 2 Green	Anode Column 2 Green
4	Cathode Column 3 Green	Anode Column 3 Green
5	Anode Row 5	Cathode Row 5
6	Anode Row 7	Cathode Row 7
7	Anode Row 8	Cathode Row 8
8	Anode Row 6	Cathode Row 6
9	Cathode Column 5 Red Orange	Anode Column 5 Red Orange
10	Cathode Column 5 Green	Anode Column 5 Green
11	Cathode Column 4 Green	Anode Column 4 Green
12	Cathode Column 4 Red Orange	Anode Column 4 Red Orange
13	Cathode Column 3 Red Orange	Anode Column 3 Red Orange
14	Anode Row 3	Cathode Row 3
15	Anode Row 2	Cathode Row 2
16	Cathode Column 2 Red Orange	Anode Column 2 Red Orange
17	Anode Row 4	Cathode Row 4
18	Anode Row 1	Cathode Row 1

Internal Circuit Diagrams

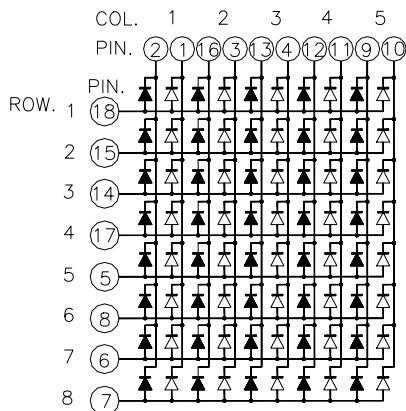
A. LTP-14158A



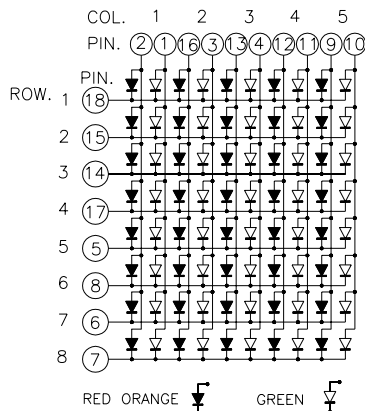
B. LTP-14058A



C. LTP-14958A



D. LTP-14858A



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-14058AG/14158AG & LTP-14858AA/14958AA(Green)

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		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

LTP-14058AY/14158AY

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		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-14058AE/14158AE & LTP-14858AA/14958AA(Red Orange)

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	Δλ		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-14058AC/14158AC

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	Δλ		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)

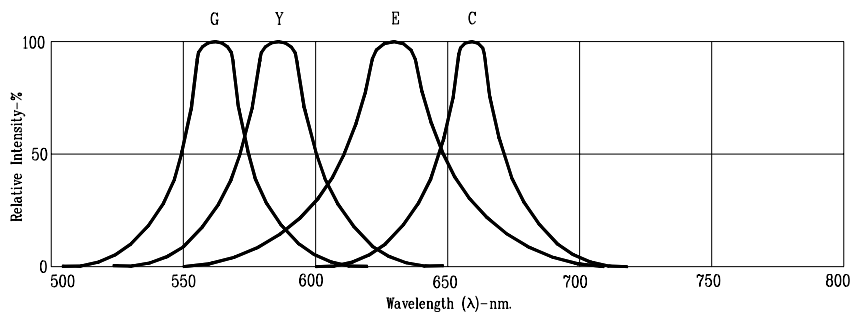


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

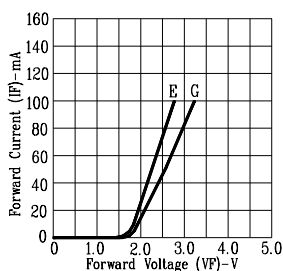


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

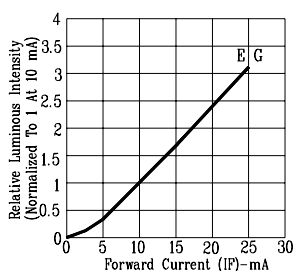


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

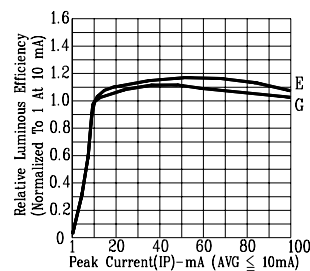


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

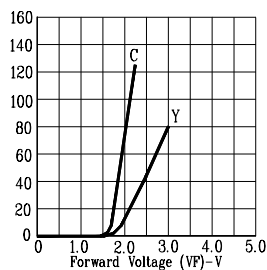


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

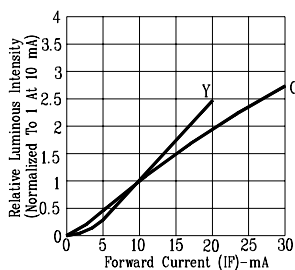


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

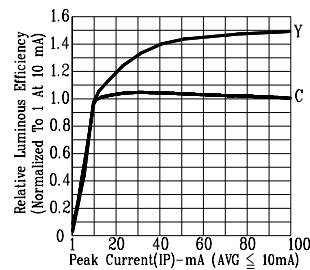


Fig7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

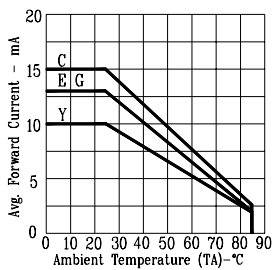


Fig8. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

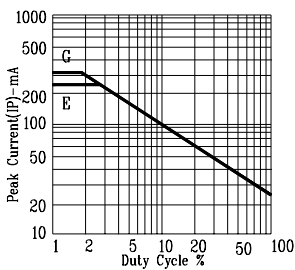


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

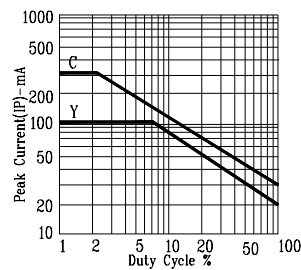


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

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