

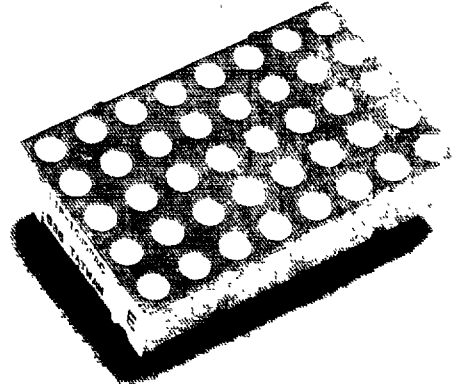


# LTP-14058A/14158A 14858AA/14958AA SERIES

3  $\phi$  5 x 8 SINGLE COLOR & MULTICOLOR  
DOT MATRIX LED DISPLAYS

## FEATURES

- 1.4 INCH (35.76mm) MATRIX HEIGHT
- LOW POWER REQUIREMENT
- HIGH CONTRAST
- HIGH BRIGHTNESS
- SINGLE PLANE, WIDE VIEWING ANGLE
- SOLID STATE RELIABILITY
- 5 x 8 ARRAY WITH X Y SELECT
- COMPATIBLE WITH USASCII AND EBCDIC CODES
- STACKABLE HORIZONTALLY
- CHOICE OF TWO MATRIX ORIENTATION  
CATHODE ROW OR CATHODE COLUMN
- EASY MOUNTING ON P.C. BOARD
- CATEGORIZED FOR LUMINOUS INTENSITY
- SINGLE COLOR DISPLAYS HAVE THE CHOICE OF  
THREE BRIGHT COLORS - GREEN ORANGE ULTRA  
BRIGHT RED
- MULTICOLOR DISPLAYS ARE APPLICABLE TO  
THREE BRIGHT COLORS - GREEN, ORANGE AND  
YELLOW (GREEN AND 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 dot color.

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

The green, ultra bright red and orange displays have gray face and white dot color.

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

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

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

## DEVICES

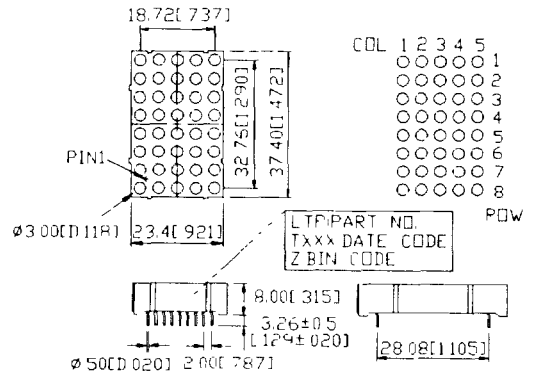
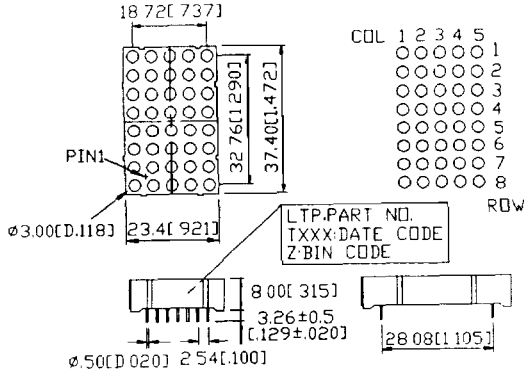
PART NO. LTP--				DESCRIPTION	PACKAGE DIMENSION	INTERNAL CIRCUIT DIAGRAM
GREEN	ORANGE	ULTRA BRIGHT RED	MULTI-COLOR			
14158AG	14158AE	14158AC	—	Anode Column, Cathode Row	A	A
14058AG	14058AE	14058AC	—	Cathode Column, Anode Row	A	B
—	—	—	14958AA	Anode Column, Cathode Row	B	C
—	—	—	14858AA	Cathode Column, Anode Row	B	D

DOT MATRIX  
LED DISPLAYS

# PACKAGE DIMENSIONS

A LTP-14058A/14158A

B LTP-14858AA/14958AA



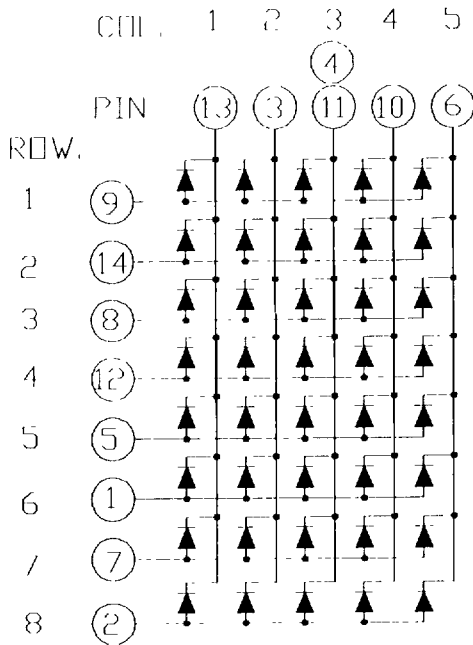
## PIN CONNECTION

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

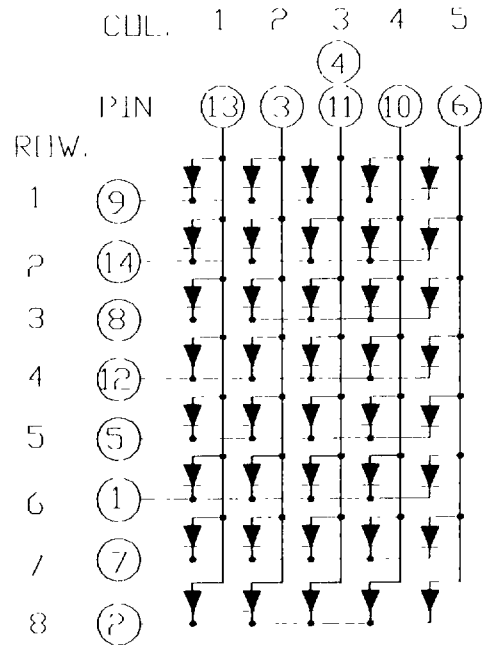
PIN NO.	CONNECTION	
	LTP-14958	LTP-14858
1	Cathode Col 1 GREEN	Anode Col 1 Green
2	Cathode Col 1 Orange	Anode Col 1 Orange
3	Cathode Col 2 Green	Anode Col 2 Green
4	Cathode Col 3 Green	Anode Col 3 Green
5	Anode Row 5	Cathode Row 5
6	Anode Row 7	Cathode Row 7
7	Anode Row 8	Cathode Row 8
8	Anode Row 6	Cathode Row 6
9	Cathode Col 5 Orange	Anode Col 5 Orange
10	Cathode Col 5 Green	Anode Col 5 Green
11	Cathode Col 4 Green	Anode Col 4 Green
12	Cathode Col 4 Orange	Anode Col 4 Orange
13	Cathode Col 3 Orange	Anode Col 3 Orange
14	Anode Row 3	Cathode Row 3
15	Anode Row 2	Cathode Row 2
16	Cathode Col 2 Orange	Anode Col 2 Orange
17	Anode Row 4	Cathode Row 4
18	Anode Row 1	Cathode Row 1

### INTERNAL CIRCUIT DIAGRAM

A. LTP-14158A

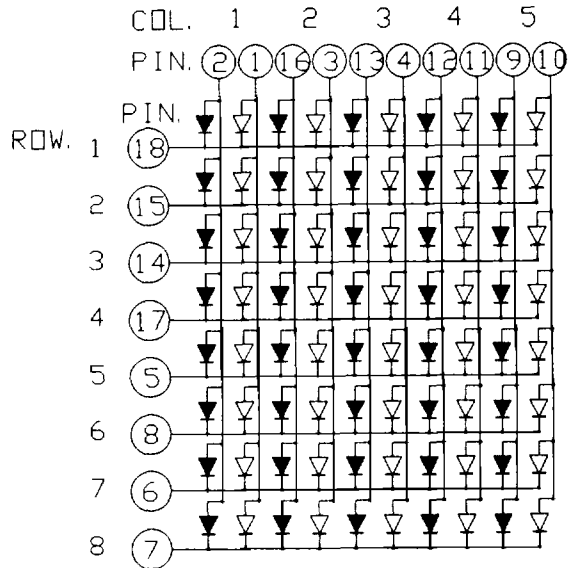
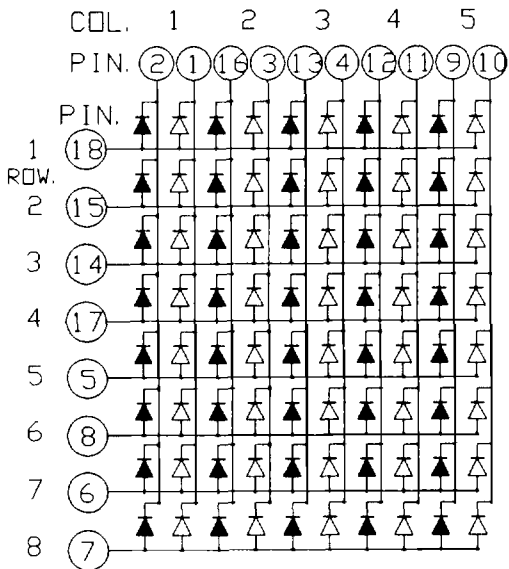


B. LTP-14058A



C. LTP-14958A

D. LTP-14858A



**ABSOLUTE MAXIMUM RATINGS AT  $T_A = 25^\circ\text{C}$**

PARAMETER	GREEN	ORANGE	ULTRA BRIGHT RED	UNIT
Average Power Dissipation Per Dot	36	36	36	mW
Peak Forward Current Per Dot	100	100	125	mA
Average Forward Current Per Dot Derating Linear From $25^\circ\text{C}$ Per Dot	13 0.17	13 0.17	15 0.20	mA mA/ $^\circ\text{C}$
Reverse Voltage Per Dot	5	5	5	V
Operating Temperature Range	-35 $^\circ\text{C}$ to +85 $^\circ\text{C}$			
Storage Temperature Range	-35 $^\circ\text{C}$ to +85 $^\circ\text{C}$			
Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260 $^\circ\text{C}$				

**ELECTRICAL/OPTICAL CHARACTERISTICS AT T<sub>A</sub>=25 °C**  
**LTP-14058AG/14158AG & LTP-14858AA/14958AA (GREEN)**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	1780	4000		μ cd	I <sub>F</sub> = 80mA 1/16 DUTY
Peak Emission Wavelength	λ <sub>p</sub>		565		nm	I <sub>F</sub> = 20mA
Spectral Line Half-Width	Δ λ		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>		2.1	2.8	V	I <sub>F</sub> = 20mA
			3.0	3.7	V	I <sub>F</sub> = 80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> = 5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> = 10mA

**LTP-14058AE/14158AE & LTP-14858AA/14958AA (ORANGE)**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	1780	4000		μ cd	I <sub>F</sub> = 80mA 1/16 DUTY
Peak Emission Wavelength	λ <sub>p</sub>		630		nm	I <sub>F</sub> = 20mA
Spectral Line Half-Width	Δ λ		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>		2.0	2.8	V	I <sub>F</sub> = 20mA
			2.6	3.4	V	I <sub>F</sub> = 80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> = 5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> = 10mA

**LTP-14058AC/14158AC**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	5400	12000		μ cd	I <sub>F</sub> = 80mA 1/16 DUTY
Peak Emission Wavelength	λ <sub>p</sub>		660		nm	I <sub>F</sub> = 20mA
Spectral Line Half-Width	Δ λ		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>		1.8	2.4	V	I <sub>F</sub> = 20mA
			2.0	2.7	V	I <sub>F</sub> = 80mA
Reverse Current, any Dot	I <sub>R</sub>			100	μ A	V <sub>R</sub> = 5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> = 10mA

# TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES (25 °C Ambient Temperature Unless Otherwise Noted)

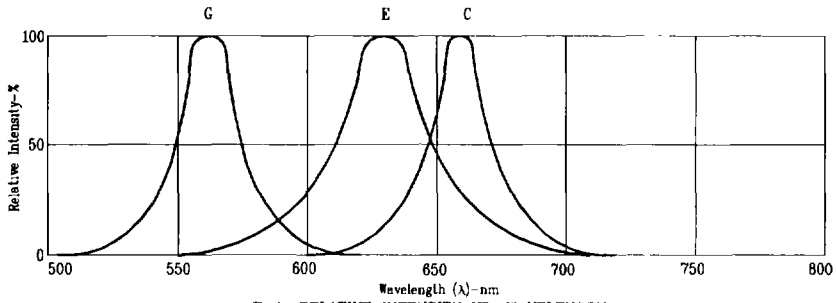


Fig1 RELATIVE INTENSITY VS WAVELENGTH

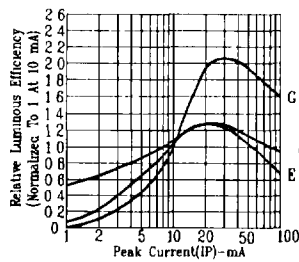


Fig2 RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS PEAK CURRENT

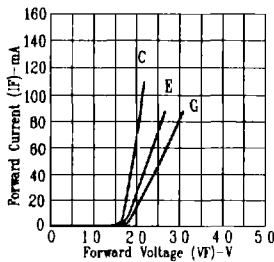


Fig3 FORWARD CURRENT VS FORWARD VOLTAGE

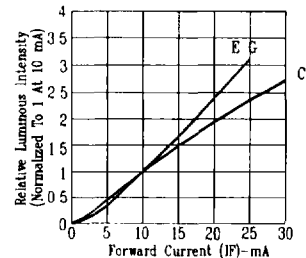


Fig4 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT

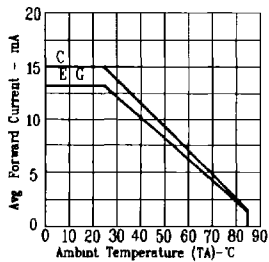


Fig5 MAX AVERAGE FORWARD CURRENT VS AMBIENT TEMPERATURE

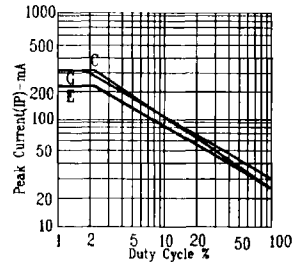


Fig6 MAX PEAK CURRENT VS DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE G=GREEN E=ORANGE C=ULTRA BRIGHT RED (REFRESH RATE 1KHz)