

0.54" Alphanumeric LED Displays

LTP-3784/3786 Series

Features

- 0.54 inch (13.8mm) digit height.
- Continuous uniform segments.
- Choices of five bright colors-ALGaAs red/bright red/ green/yellow/red orange.
- Low power requirements.
- Excellent character appearance.
- Wide viewing angle.
- Solid state reliability.
- Common anode or common cathode models.
- Categorized for luminous intensity.
- Easy mounting on P.C. board.

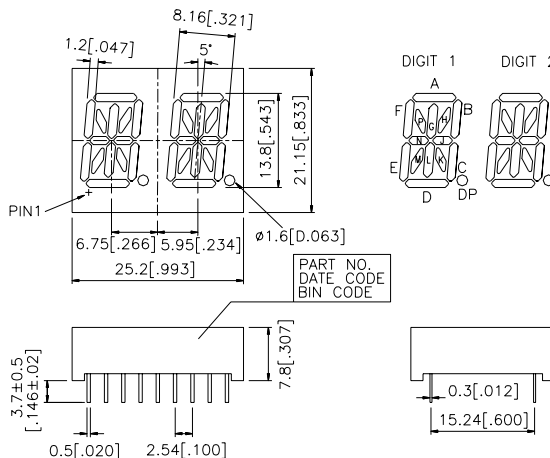
Description

The LTP-3784/3786 series are 0.54 inch (13.8mm) height 14-segment dual digit alphanumeric displays. The Displays have gray face and white segment.

The ALGaAs red alphanumeric display are designed for applications requiring low power consumption. They are tested and selected for their excellent low current characteristics to ensure that the segments are matched at low current. Drive current as low as 1 mA per segment is available.

The ALGaAs red series device utilize LED chips which are made from ALGaAs on a non-transparent GaAs substrate. The bright red and 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.

Package Dimensions



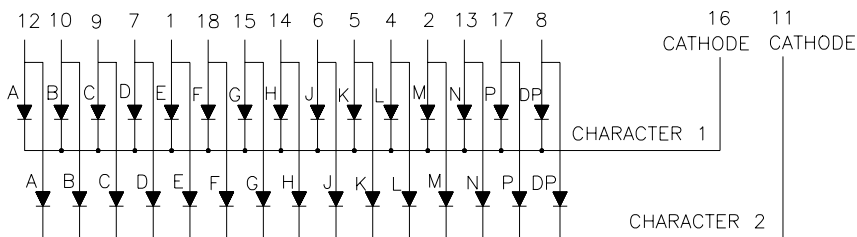
Notes: All dimensions are in millimeters(inches).
Tolerance: $\pm 0.25\text{mm}$ (0.010") unless otherwise noted.

Devices

Part No.					Description	Internal Circuit Diagram
ALGaAs Red	Bright Red	Green	Yellow	Red Orange		
LTP-3784WC-01	LTP-3784P-01	LTP-3784G-01	LTP-3784Y-01	LTP-3784E-01	Duplex Common Cathode, Rt. Hand Decimal	A
LTP-3786WC-03	LTP-3786P-03	LTP-3786G-03	LTP-3786Y-03	LTP-3786E-03	Duplex Common Anode, Rt. Hand Decimal	B

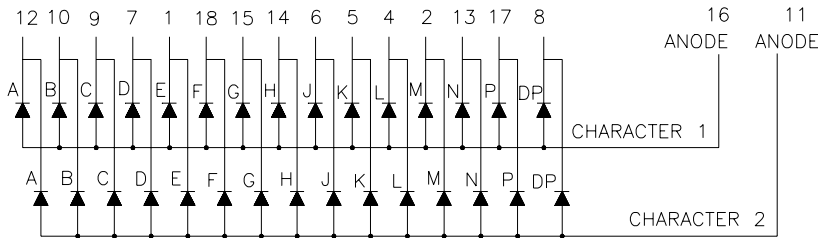
Internal Circuit Diagrams

A. LTP-3784



9-184

B. LTP-3786



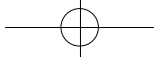
Pin Connection

Pin No.	Connection	
	A. LTP-3784	B. LTP-3786
1	Anode E	Cathode E
2	Anode M	Cathode M
3	No Connection	No Connection
4	Anode L	Cathode L
5	Anode K	Cathode K
6	Anode J	Cathode J
7	Anode D	Cathode D
8	Anode D.P.	Cathode D.P.
9	Anode C	Cathode C
10	Anode B	Cathode B
11	Common Cathode, Character 2	Common Anode, Character 2
12	Anode A	Cathode A
13	Anode N	Cathode N
14	Anode H	Cathode H
15	Anode G	Cathode G
16	Common Cathode, Character 1	Common Anode, Character 1
17	Anode P	Cathode P
18	Anode F	Cathode F

DISPLAYS

Absolute Maximum Rating at Ta=25°C

Parameter	AlGaAs Red	Bright Red	Green	Yellow	Red Orange	Unit
Average Power Dissipation Per Segment	75	40	75	60	75	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1 ms Pulse Width)	125	60	100	80	100	mA
Average Forward Current Per Segment Derating Linear from 25°C Per Segment	30 0.4	15 0.2	25 0.33	20 0.27	25 0.33	mA mA/°C
Reverse Voltage Per Segment	5	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-3784WC-01/3786WC-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I _v	200	520		μ cd	I _F =1mA
			3750			I _F =5mA
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, and Segment	V _F		1.6	2.4	V	I _F =1mA
			1.7			I _F =5mA
			1.8			I _F =20mA
Reverse Current, and Segment	I _R			100	μ A	V _R =5V
Luminous Intensity Matching Ratio	I _{v-m}			2:1		I _F =1mA

LTP-3784P-01/3786P-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I _v	320	650		μ cd	I _F =10mA
Peak Emission Wavelength	λ _P		697		nm	I _F =20mA
Spectral Line Half-Width	Δλ		90		nm	I _F =20mA
Dominant Wavelength	λ _d		657		nm	I _F =20mA
Forward Voltage, and Segment or D.P.	V _F		2.1	2.6	V	I _F =20mA
Reverse Current, and Segment or D.P.	I _R			100	μ A	V _R =5V
Luminous Intensity Matching Ratio	I _{v-m}			2:1		I _F =10mA

LTP-3784G-01/3786G-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I _v	500	1800		μ cd	I _F =10mA
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, and Segment or D.P.	V _F		2.1	2.6	V	I _F =20mA
Reverse Current, and Segment or D.P.	I _R			100	μ A	V _R =5V
Luminous Intensity Matching Ratio	I _{v-m}			2:1		I _F =10mA

LTP-3784Y-01/3786Y-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I _v	500	1800		μ cd	I _F =10mA
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, and Segment or D.P.	V _F		2.1	2.6	V	I _F =20mA
Reverse Current, and Segment or D.P.	I _R			100	μ A	V _R =5V
Luminous Intensity Matching Ratio	I _{v-m}			2:1		I _F =10mA



LTP-3784E-01/3786E-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I _v	500	1800		μ cd	I _F =10mA
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, and Segment or D.P.	V _F		2.0	2.6	V	I _F =20mA
Reverse Current, and Segment or D.P.	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 (Commission Internationale De L'Eclairage) eye-response curve.

Typical Electrical / Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

DISPLAYS

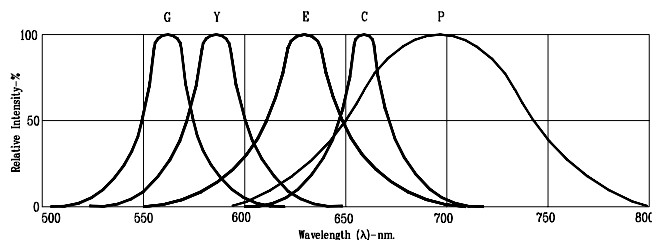


Fig. 1. RELATIVE INTENSITY VS. WAVELENGTH

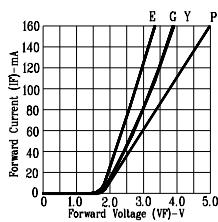


Fig. 2. FORWARD CURRENT VS. FORWARD VOLTAGE

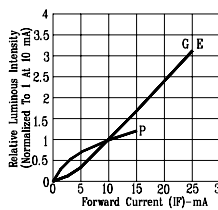


Fig. 3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

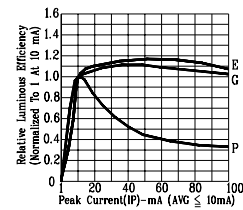


Fig. 4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

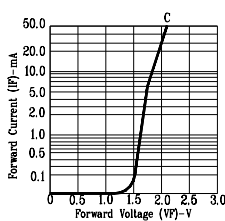


Fig. 5. FORWARD CURRENT VS. FORWARD VOLTAGE

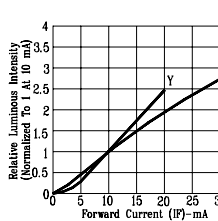


Fig. 6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

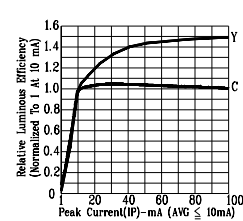


Fig. 7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

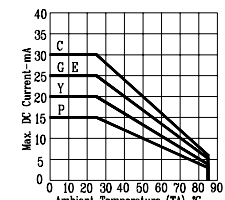


Fig. 8. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

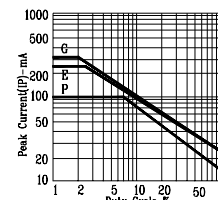


Fig. 9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

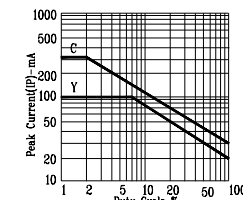


Fig. 10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

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

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