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.

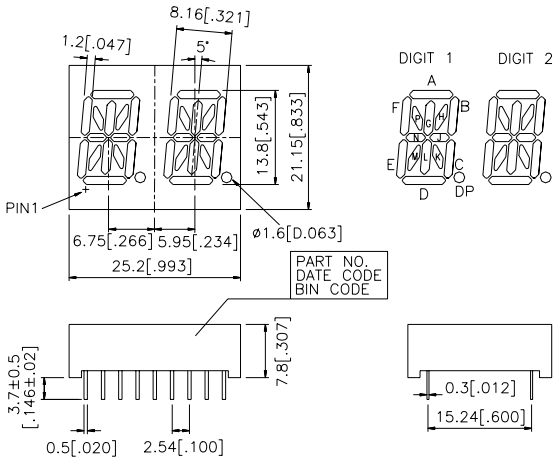
Description

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



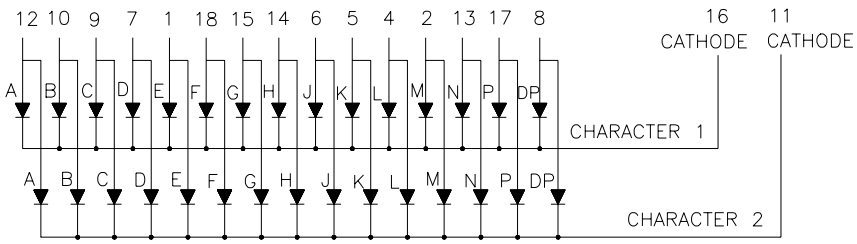
Notes: All dimensions are in millimeters(inches).
Tolerance: ± 0.25mm (0.010") unless otherwise noted.

Devices

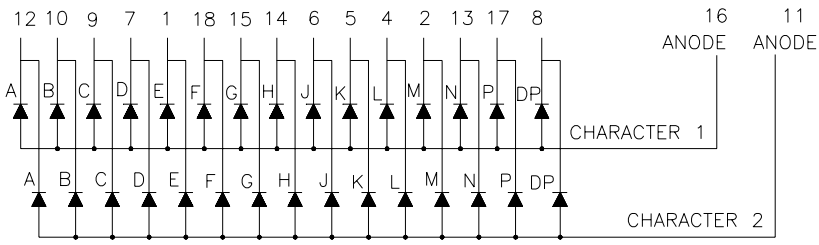
Part No.					Description	Internal Circuit Diagram
AlGaAs Red	Bright Red	Green	Yellow	Red Orange		
LTP-3784WC-01	LTP-3784P-01	LTP-3784G-01	LTP-3784Y-01	LTP-3784E-01	Duplex Common Cathode, Rt. Hand Decimal	A
LTP-3786WC-03	LTP-3786P-03	LTP-3786G-03	LTP-3786Y-03	LTP-3786E-03	Duplex Common Anode, Rt. Hand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

Internal Circuit Diagrams

A. LTP-3784



B. LTP-3786



DISPLAYS

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

Absolute Maximum Rating at Ta=25℃

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℃ Per Segment	30 0.4	15 0.2	25 0.33	20 0.27	25 0.33	mA mA/℃
Reverse Voltage Per Segment	5	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-3784WC-01/3786WC-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	200	520		μcd	IF=1mA
			3750			IF=5mA
Peak Emission Wavelength	λP		660		nm	IF=20mA
Spectral Line Half-Width	Δλ		35		nm	IF=20mA
Dominant Wavelength	λd		638		nm	IF=20mA
Forward Voltage, and Segment	VF		1.6	2.4	V	IF=1mA
			1.7			IF=5mA
			1.8			IF=20mA
Reverse Current, and Segment	IR			100	μA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=1mA

LTP-3784P-01/3786P-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	320	650		μcd	IF=10mA
Peak Emission Wavelength	λP		697		nm	IF=20mA
Spectral Line Half-Width	Δλ		90		nm	IF=20mA
Dominant Wavelength	λd		657		nm	IF=20mA
Forward Voltage, and Segment or D.P.	VF		2.1	2.6	V	IF=20mA
Reverse Current, and Segment or D.P.	IR			100	μA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

LTP-3784G-01/3786G-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	500	1800		μcd	IF=10mA
Peak Emission Wavelength	λP		565		nm	IF=20mA
Spectral Line Half-Width	Δλ		30		nm	IF=20mA
Dominant Wavelength	λd		569		nm	IF=20mA
Forward Voltage, and Segment or D.P.	VF		2.1	2.6	V	IF=20mA
Reverse Current, and Segment or D.P.	IR			100	μA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

LTP-3784Y-01/3786Y-03

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	500	1800		μcd	IF=10mA
Peak Emission Wavelength	λP		585		nm	IF=20mA
Spectral Line Half-Width	Δλ		35		nm	IF=20mA
Dominant Wavelength	λd		588		nm	IF=20mA
Forward Voltage, and Segment or D.P.	VF		2.1	2.6	V	IF=20mA
Reverse Current, and Segment or D.P.	IR			100	μA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	500	1800		μ cd	IF=10mA
Peak Emission Wavelength	λ P		630		nm	IF=20mA
Spectral Line Half-Width	Δλ		40		nm	IF=20mA
Dominant Wavelength	λ d		621		nm	IF=20mA
Forward Voltage, and Segment or D.P.	VF		2.0	2.6	V	IF=20mA
Reverse Current, and Segment or D.P.	IR			100	μ A	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

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

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

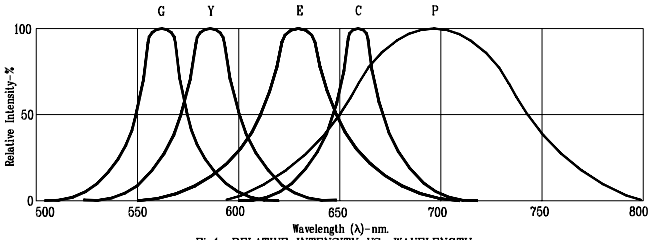


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

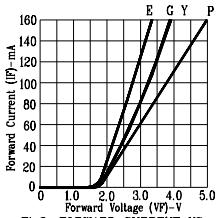


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

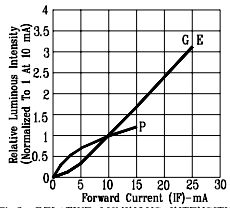


Fig3. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

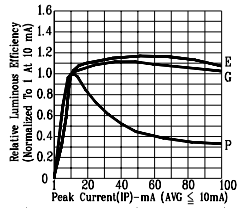


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

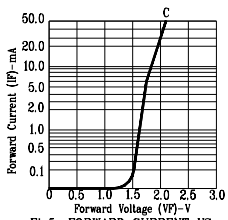


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

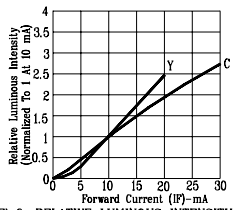


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

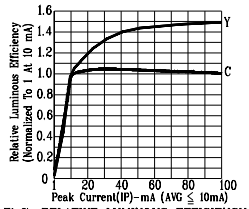


Fig7. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

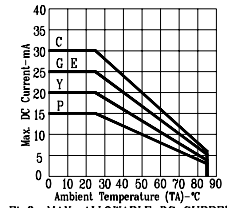


Fig8. MAX. ALLOWABLE DC CURRENT. VS. AMBIENT TEMPERATURE.

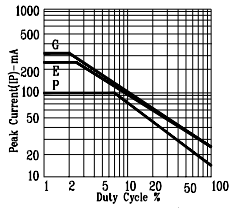


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

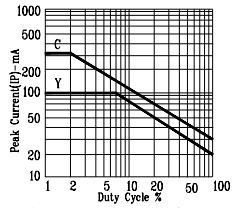


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

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

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