

LITEON

5" Single Color & Multicolor Ultra Large Single Digit LED Numeric LED Displays

LTS-50000 Series

Features

- 5 inch (127.0mm) ultra large digit height.
- Continuous uniform segments.
- Low power requirement.
- Excellent characters appearance.
- High contrast.
- High brightness.
- Wide viewing angle.
- Solid state reliability.
- Categorized for luminous intensity.
- I.C. compatible.
- Easy mounting on P.C. board.
- Single color displays have the choice of two bright color - green/high efficiency red.
- Multicolor displays are applicable to three bright colors - green, red orange and yellow(green and red orange mixed).

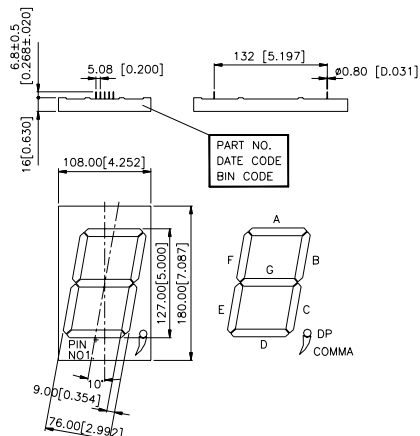
Description

The LTS-50000 series are 5 inch (127.0mm) height ultra large single digit displays. The LTS-50301/50801 series are single color displays. The green displays have black face and green segments, the high efficiency red displays have black face and red segments. The LTS-50302A/50802A are multicolor displays. The multicolor displays have black face and white segments.

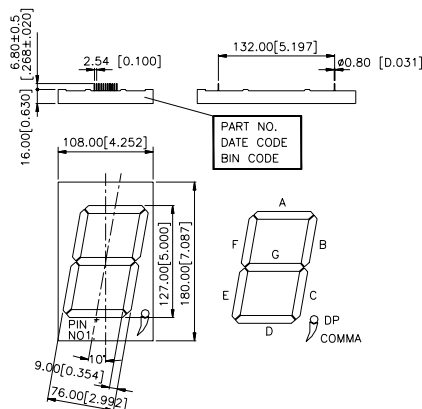
The green series utilize LED chips which are made from GaP on a transparent GaP substrate. The high efficiency red and red orange series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate.

Package Dimensions

A.LTS-50301/50801



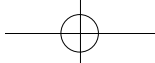
B.LTS-50302A/50802A



Devices

Part No. LTS-			Description	Package Dimension	Internal Circuit Diagram
Green	Hi.-Eff. Red	Multi- Color			
50301G	50301HRB	-	Common Cathode	A	A
50801G	50801HRB	-	Common Anode	A	B
-	-	50302A	Common Cathode	B	C
-	-	50802A	Common Anode	B	D

9-168



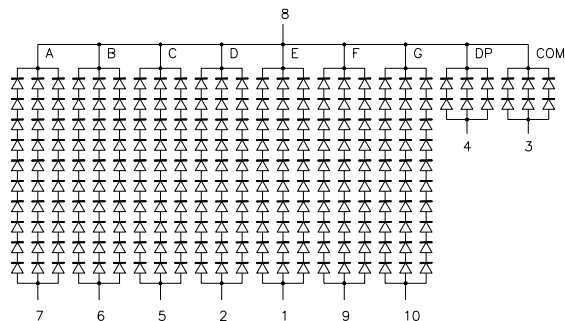
Pin Connection

Pin No.	Connection			
	LTS-50301	LTS-50801	LTS-50302A	LTS-50802A
1.	Segment E Anode	Segment E Cathode	Anode E, Green	Cathode E, Green
2.	Segment D Anode	Segment D Cathode	Anode E, Red Orange	Cathode E, Red Orange
3.	Comma Anode	Comma Cathode	Anode D, Green	Cathode D, Green
4.	D.P. Anode	D.P. Cathode	Anode D, Red Orange	Cathode D, Red Orange
5.	Segment C Anode	Segment C Cathode	Anode Comma, Green	Cathode Comma, Green
6.	Segment B Anode	Segment B Cathode	Anode Comma, Red Orange	Cathode Comma, Red Orange
7.	Segment A Anode	Segment A Cathode	Anode DP. Green	Cathode DP. Green
8.	Common Cathode	Common Anode	Anode DP. Red Orange	Cathode DP. Red Orange
9.	Segment F Anode	Segment F Cathode	Anode C, Green	Cathode C, Green
10.	Segment G Anode	Segment G Cathode	Anode C, Red Orange	Cathode C, Red Orange
11.			Anode B, Green	Cathode B, Green
12.			Anode B, Red Orange	Cathode B, Red Orange
13.			Anode A, Green	Cathode A, Green
14.			Anode A, Red Orange	Cathode A, Red Orange
15.			Cathode Common, Green	Anode Common, Green
16.			Cathode Common, Red Orange	Anode Common, Red Orange
17.			Anode G, Green	Cathode G, Green
18.			Anode G, Red Orange	Cathode G, Red Orange
19.			Anode F, Green	Cathode F, Green
20.			Anode F, Red Orange	Cathode F, Red Orange

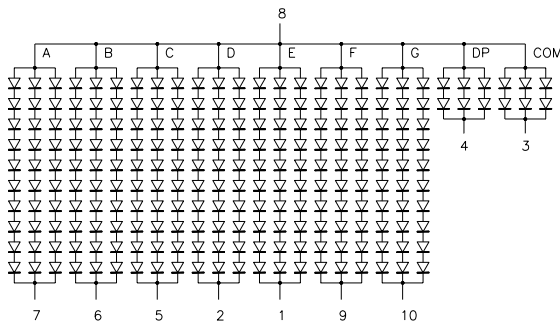
DISPLAYS

Internal Circuit Diagrams

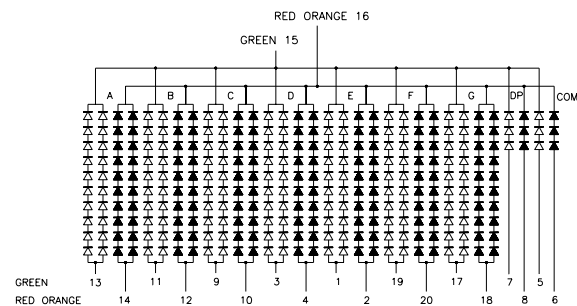
A.LTS-50301



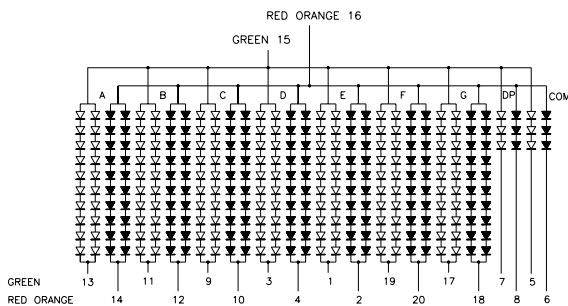
B.LTS-50801



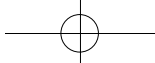
C.LTS-50302A



D.LTS-50802A



Notes: 20 chips green & 20 chips red orange in one segment.



Absolute Maximum Rating at Ta=25°C

Parameter	50x01		50x02A		Unit
	Green	Hi-Eff Red	Green	Red Orangd	
Power Dissipation Per Segment	1200	1200	900	900	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	180	180	160	160	mA
Continuous Forward Current Per Segment	60	60	40	40	mA
Derating Linear from 25°C Per Segment	0.72	0.72	0.48	0.48	mA/°C
Reverse Voltage Per Segment	50 (10)	50 (10)	50 (15)	50 (15)	V
Operating Temperature Range	-35°C to +85°C				
Stroage 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

LTS-50301G/50801G

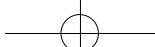
Parameter	Symbol	Min.	Typ.	Max.	Unit	Tset Condition
Average Luminous Intensity (Per Segment)	I _v	21	60		mcd	I _F =30mA
Peak Emission Wavelength (Per Segment)	λ P		565		nm	I _F =60mA
Spectral Line Half-Width (Per Segment)	Δ λ		30		nm	I _F =60mA
Dominant Wavelength (Per Segment)	λ d		569		nm	I _F =60mA
Forward Voltage, Per Segment or D.P.	V _F		21 (4.2)	26 (5.2)	V	I _F =60mA
Reverse Current, Per Segment or D.P.	I _R			300	μ A	V _R =50V(10)
Luminous Intensity Matching Ratio	I _v -m			2:1		I _F =30mA

LTS-50301HRB/50801HRB

Parameter	Symbol	Min.	Typ.	Max.	Unit	Tset Condition
Average Luminous Intensity (Per Segment)	I _v	21	60		mcd	I _F =30mA
Peak Emission Wavelength (Per Segment)	λ P		635		nm	I _F =60mA
Spectral Line Half-Width (Per Segment)	Δ λ		40		nm	I _F =60mA
Dominant Wavelength (Per Segment)	λ d		623		nm	I _F =60mA
Forward Voltage, Per Segment or D.P.	V _F		20 (4.0)	26 (5.2)	V	I _F =60mA
Reverse Current, Per Segment or D.P.	I _R			300	μ A	V _R =50V(10)
Luminous Intensity Matching Ratio	I _v -m			2:1		I _F =30mA

LTS-50302A/50802A(RED ORANGE)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Tset Condition
Average Luminous Intensity (Per Segment)	I _v	13	40		mcd	I _F =20mA
Peak Emission Wavelength (Per Segment)	λ P		630		nm	I _F =40mA
Spectral Line Half-Width (Per Segment)	Δ λ		40		nm	I _F =40mA
Dominant Wavelength (Per Segment)	λ d		621		nm	I _F =40mA
Forward Voltage, Per Segment or D.P.	V _F		20 (6.0)	26 (7.8)	V	I _F =40mA
Reverse Current, Per Segment or D.P.	I _R			200	μ A	V _R =50V (15)
Luminous Intensity Matching Ratio	I _v -m			2:1		I _F =20mA



LTS-50302A/50802A(GREEN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Tset Condition
Average Luminous Intensity (Per Segment)	I _v	13	40		mcd	I _F =20mA
Peak Emission Wavelength (Per Segment)	λ _P		565		nm	I _F =40mA
Spectral Line Half-Width (Per Segment)	Δλ		30		nm	I _F =40mA
Dominant Wavelength (Per Segment)	λ _d		569		nm	I _F =40mA
Forward Voltage, Per Segment or D.P.	V _F		21 (6.3)	26 (7.8)	V	I _F =40mA
Reverse Current, Per Segment or D.P.	I _R			200	μA	V _R =50V(15)
Luminous Intensity Matching Ratio	I _v -m			2:1		I _F =20mA

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)

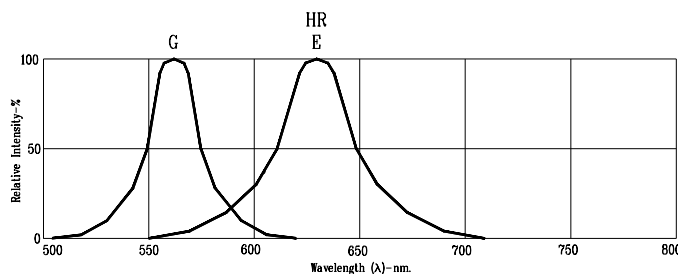


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

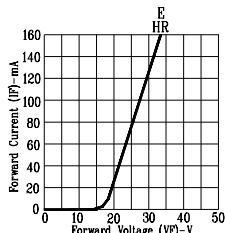


Fig2. FORWARD CURRENT VS. FORWARD VOLTAGE

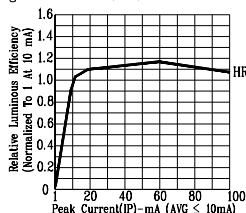


Fig3. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

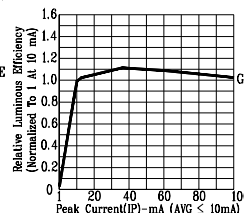


Fig4. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

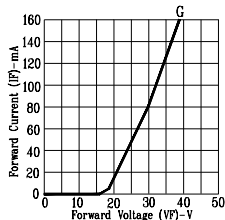


Fig5. FORWARD CURRENT VS. FORWARD VOLTAGE

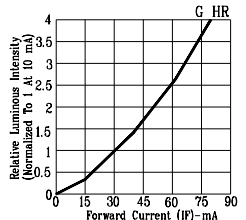


Fig6. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

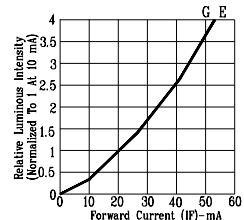


Fig7. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

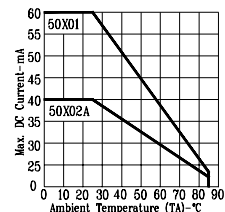


Fig8. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

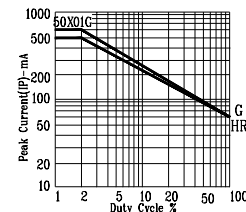


Fig9. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

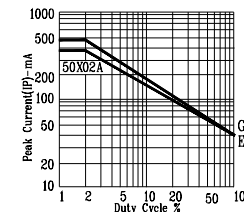


Fig10. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN E=RED ORANGE HR=HIEFF.RED (REFRESH RATE 1KHz)

DISPLAYS