



# LED Display Product Data Sheet LTA-1000M-01

Spec No.: DS30-2006-172

Effective Date: 12/05/2006

Revision: -

**LITE-ON DCC**

**RELEASE**

# LED DISPLAY

## LTA-1000M-01 DATA SHEET

<u>Rev</u>	<u>Description</u>	<u>By</u>
-	Original Spec	<u>PHANOMKORN J.</u>

S P E C . N O . :      DS30-2006-172  
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D A T E            :      06/NOV/06  
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R E V . N O .    :            -  
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P A G E N O . :            0   O F   5  
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## FEATURES

- \* RECTANGULAR LIGHT BAR.
- \* LARGE, BRIGHT, UNIFORM LIGHT EMITTING AREAS.
- \* LOW POWER REQUIREMENT.
- \* HIGH BRIGHTNESS & HIGH CONTRAST.
- \* SOLID STATE RELIABILITY.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.
- \* **LEAD-FREE PACKAGE (ACCORDING TO ROHS)**

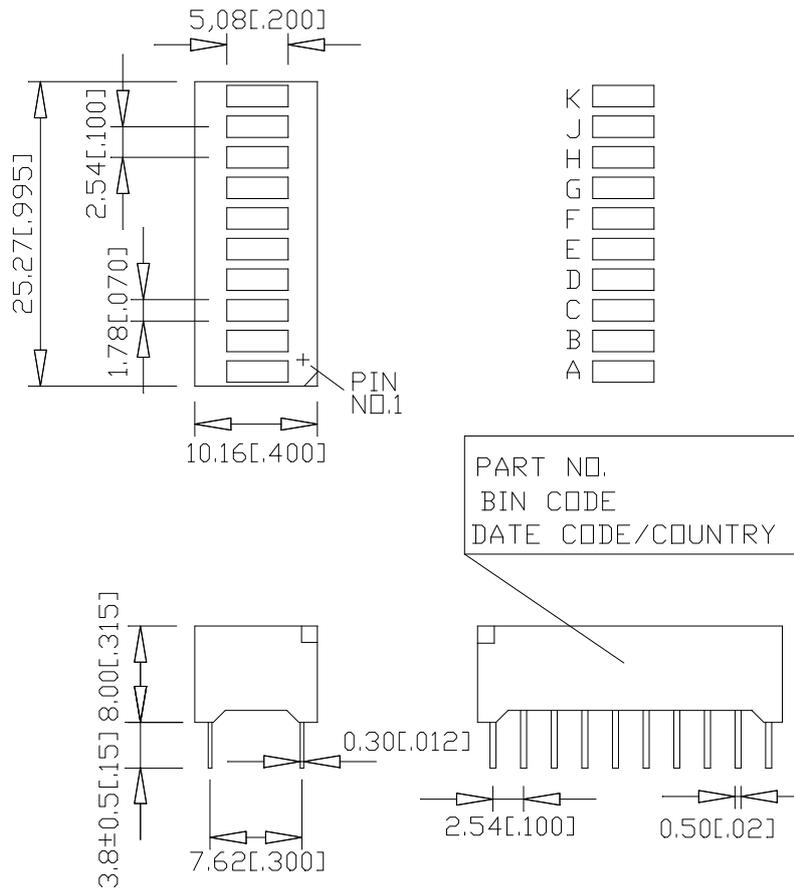
## DESCRIPTION

The LTA-1000M-01 is a ten rectangular light sources array display designed for a variety of applications where a continuously large, bright source of light is required. This device utilizes green LED chips, which are made from GaP on a transparent GaP substrate, This device utilizes yellow LED chips, which are made from GaAsP on a transparent GaP substrate and this device utilizes Hi-EFF red LED chips, which are made from GaAsP on a transparent GaP substrate, and has a black face and white segments.

## DEVICE

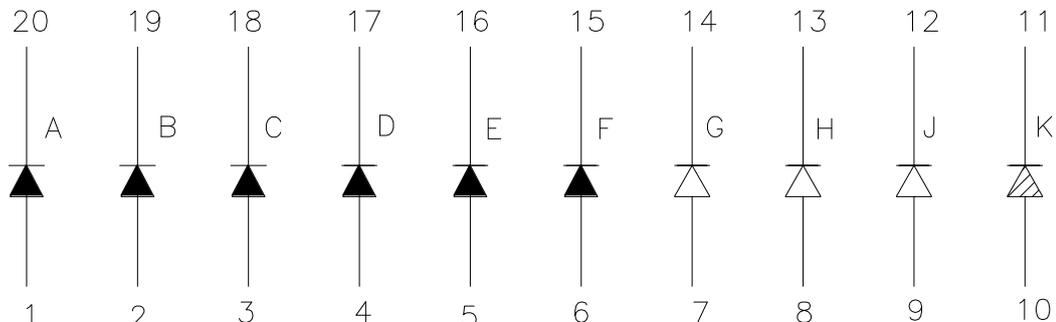
PART NO.	DESCRIPTION
MULTI COLOR	Universal
LTA-1000M-01	Ten Rectangular Bar

**PACKAGE DIMENSIONS**



- NOTES: 1. All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm unless otherwise note.  
 2. Pin tip's shift tolerance is  $\pm 0.4$  mm.

**INTERNAL CIRCUIT DIAGRAM**



THE SIGN "▲" IS STANDARD FOR GREEN CHIP.  
 THE SIGN "△" IS STANDARD FOR YELLOW CHIP.  
 THE SIGN "▨" IS STANDARD FOR HI-EFF RED CHIP.

**PIN CONNECTION**

<b>No.</b>	<b>CONNECTION</b>
1	ANODE A
2	ANODE B
3	ANODE C
4	ANODE D
5	ANODE E
6	ANODE F
7	ANODE G
8	ANODE H
9	ANODE J
10	ANODE K
11	CATHODE K
12	CATHODE J
13	CATHODE H
14	CATHODE G
15	CATHODE F
16	CATHODE E
17	CATHODE D
18	CATHODE C
19	CATHODE B
20	CATHODE A

## Property of Lite-On Only

### ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	GREEN	YELLOW	HI-EFF RED	UNIT
Power Dissipation Per Segment	75	60	75	mW
Peak Forward Current Per Segment ( 1/10 Duty Cycle, 0.1ms Pulse Width )	100	80	100	mA
Continuous Forward Current Per Segment Derating Linear From 25°C Per Segment	25 0.33	20 0.27	25 0.33	mA mA/°C
Reverse Voltage Per Segment	5	5	5	V
Operating Temperature Range	-35°C to +105°C			
Storage Temperature Range	-35°C to +105°C			
Soldering Conditions: 1/16 inch below seating plane for 3 seconds at 260°C or of temperature unit (during assembly) not over max temperature rating above.				

### ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

#### GREEN

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	800	2800		μcd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>p</sub>		565		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		30		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		569		nm	I <sub>F</sub> =20mA
Forward Voltage Per Segment	V <sub>F</sub>		2.1	2.6	V	I <sub>F</sub> =20mA
Reverse Current Per Segment	I <sub>R</sub>			100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

## Property of Lite-On Only

### YELLOW

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	$I_v$	540	2000		$\mu\text{cd}$	$I_F=10\text{mA}$
Peak Emission Wavelength	$\lambda_p$		585		nm	$I_F=20\text{mA}$
Spectral Line Half-Width	$\Delta\lambda$		35		nm	$I_F=20\text{mA}$
Dominant Wavelength	$\lambda_d$		588		nm	$I_F=20\text{mA}$
Forward Voltage Per Segment	$V_F$		2.1	2.6	V	$I_F=20\text{mA}$
Reverse Current Per Segment	$I_R$			100	$\mu\text{A}$	$V_R=5\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F=10\text{mA}$

### HI-EFF RED

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	$I_v$	540	2000		$\mu\text{cd}$	$I_F=10\text{mA}$
Peak Emission Wavelength	$\lambda_p$		650		nm	$I_F=20\text{mA}$
Spectral Line Half-Width	$\Delta\lambda$		40		nm	$I_F=20\text{mA}$
Dominant Wavelength	$\lambda_d$		630		nm	$I_F=20\text{mA}$
Forward Voltage Per Segment	$V_F$		2.1	2.6	V	$I_F=20\text{mA}$
Reverse Current Per Segment	$I_R$			100	$\mu\text{A}$	$V_R=5\text{V}$
Luminous Intensity Matching Ratio (Similar Light Area)	$I_v\text{-m}$			2:1		$I_F=10\text{mA}$

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)

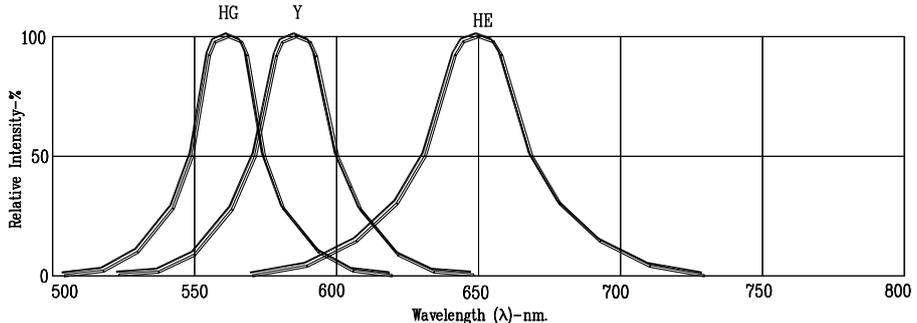


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

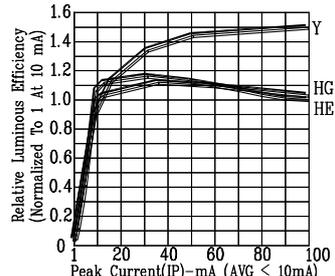


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

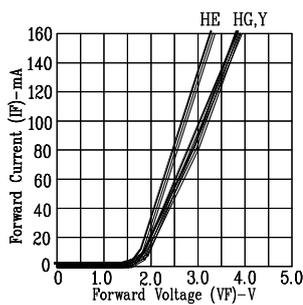


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

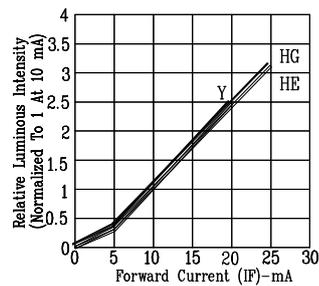


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

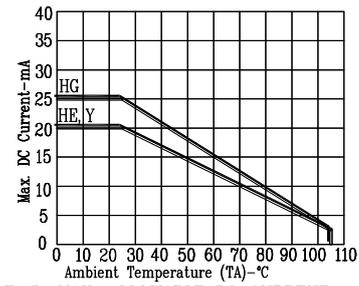


Fig5. MAX ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

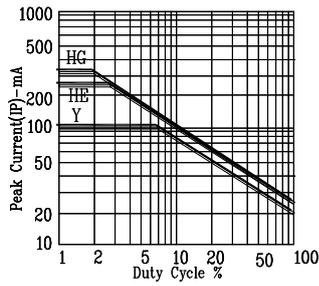


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: HG=HI-EFF. GREEN, Y: YELLOW & HE=HI-EFF. RED