



# LED Display Product Data Sheet LTS-10803TBE

Spec No.: DS30-2013-0068

Effective Date: 10/02/2013

Revision: A

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4



# LITE-ON TECHNOLOGY CORPORATION

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## LED DISPLAY

### LTS-10803TBE DATA SHEET

ITEM	DESCRIPTION	ISSUER	DATE
-	RDR original Spec.	Lucas	02/23/2010
1	1.1 Add Liteon Spec. In Page 3 1.2 Add ESD Note In Page 7	Reo Lin	07/11/2013
2	Modify Symbol Location In Page 3	Reo Lin	09/30/2013

**FEATURES**

- \* 1.0 inch (25.4-mm) DIGIT HEIGHT.
- \* CONTINUOUS UNIFORM SEGMENTS.
- \* LOW POWER REQUIREMENT.
- \* EXCELLENT CHARACTERS APPEARANCE.
- \* HIGH BRIGHTNESS & HIGH CONTRAST.
- \* WIDE VIEWING ANGLE.
- \* SOLID STATE RELIABILITY.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.
- \* **LEAD-FREE PACKAGE (ACCORDING TO ROHS)**

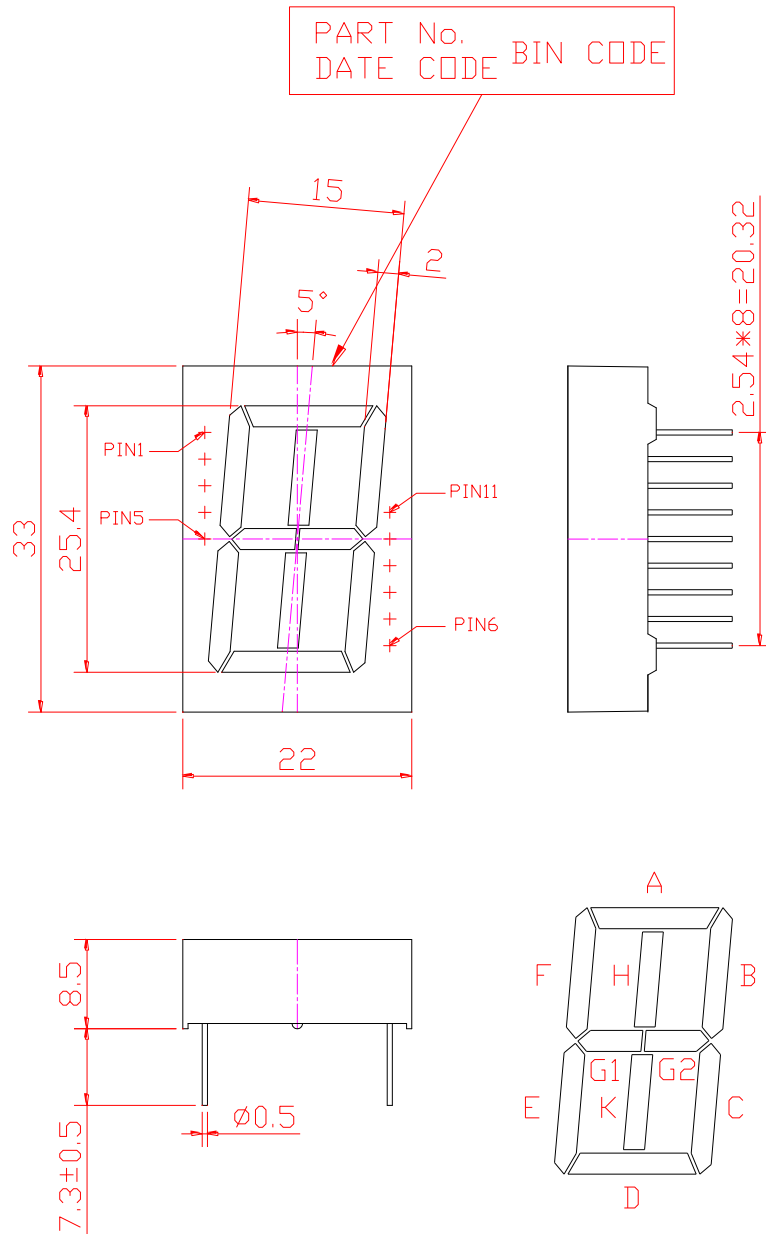
**DESCRIPTION**

The LTS-10803TBE is a 1.0 inch (25.40mm) digit height single digit seven-segment display. This device utilizes Blue LED chips(InGaN epi on a Sapphire substrate), and has a gray face and white segments.

**DEVICE**

<b>PART NO.</b>	<b>DESCRIPTION</b>
InGaN Blue	COMMON ANODE
LTS-10803TBE	

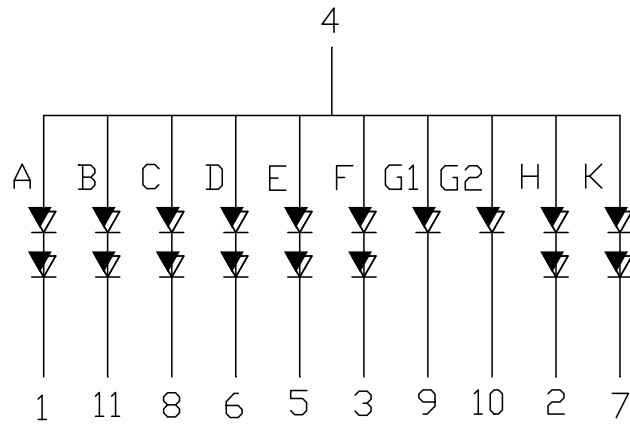
**PACKAGE DIMENSIONS**



NOTES: 1. All dimensions are in millimeters. Tolerances are  $\pm 0.25$  mm (0.01") unless otherwise noted.

- 2. Pin tip's shift tolerance is  $\pm 0.4$  mm.
- 3. Foreign material on segment  $\cong 10$  mils
- 4. Ink contamination (surface)  $\cong 20$  mils
- 5. Bending  $\cong 1\%$  of reflector length
- 6. Bubble in segment  $\cong 10$  mils
- 7. Recommend the best pcb hole : diameter 1.0mm

**INTERNAL CIRCUIT DIAGRAM**



**PIN CONNECTION**

<b>No.</b>	<b>CONNECTION</b>
1	CATHODE A
2	CATHODE H
3	CATHODE F
4	COMMON ANODE
5	CATHODE E
6	CATHODE D
7	CATHODE K
8	CATHODE C
9	CATHODE G1
10	CATHODE G2
11	CATHODE B

## ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	140(70)	mW
Peak Forward Current Per Segment ( 1/10 Duty Cycle, 0.1ms Pulse Width )	30	mA
Continuous Forward Current Per Segment Derating Linear From 25°C Per Segment	25 0.28	mA mA/°C
Operating Temperature Range	-35°C to +105°C	
Storage Temperature Range	-35°C to +105°C	
Solder Temperature: max 260°C for max 3sec at 1.6mm[1/16inch] below seating plane.		

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>		25168		μcd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>p</sub>		468		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		25		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		470		nm	I <sub>F</sub> =20mA
Forward Voltage Per Segment	V <sub>F</sub>		6.6(3.3)	7.6(3.8)	V	I <sub>F</sub> =20mA
Reverse Current Per Segment <sup>(2)</sup>	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> =1mA

Note:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE ( Commission Internationale De L'Eclairiage ) eye-response curve.
- Reverse voltage is only for IR test, it can not continue to operate this situation.
- Cross talk specification  $\leq 2.5\%$

**ESD (Electrostatic Discharge)**

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

- Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- All devices, equipment, and machinery must be properly grounded.
- Work tables, storage racks, etc. should be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic for N/D as a result of friction between LEDs during storage and handling.



**TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES**

(25°C Ambient Temperature Unless Otherwise Noted)

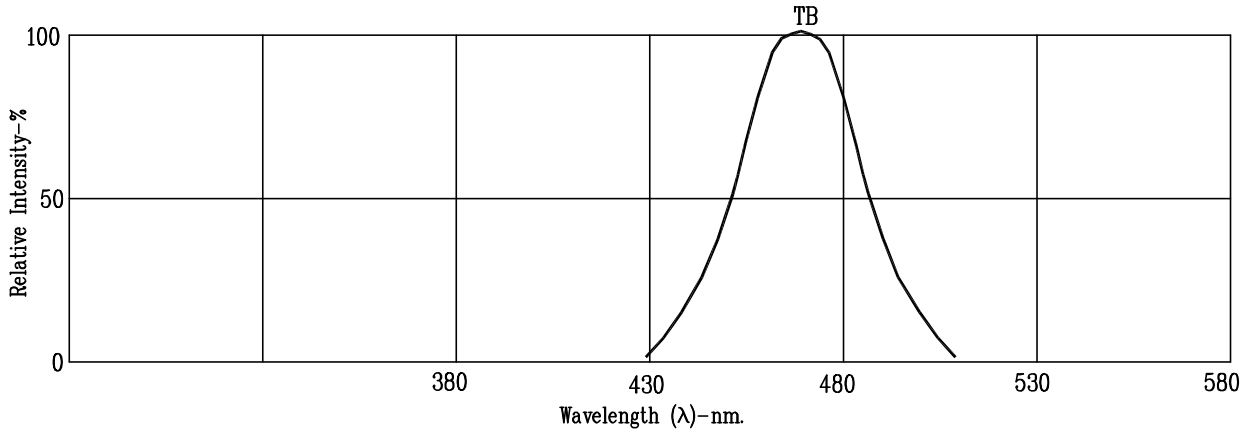


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

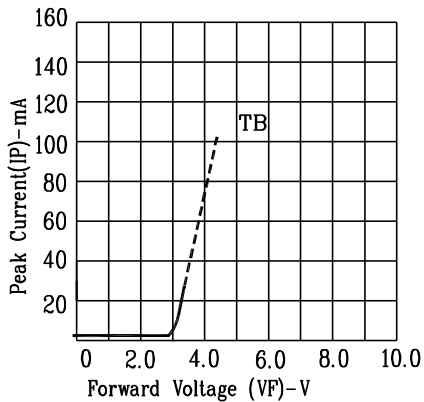


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

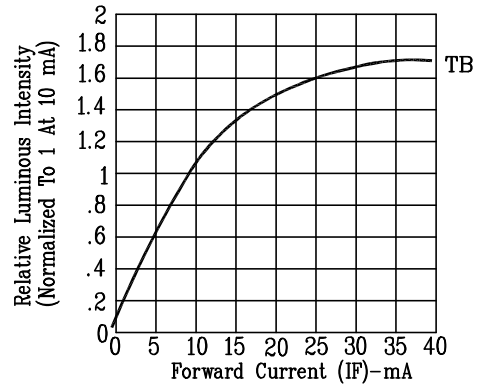


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

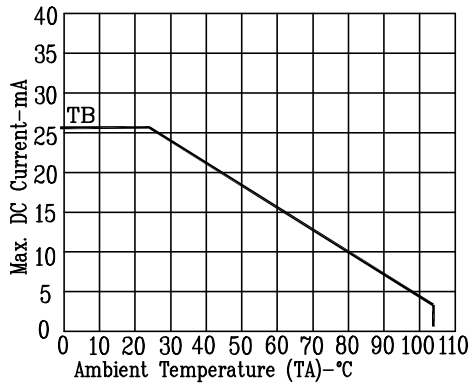


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

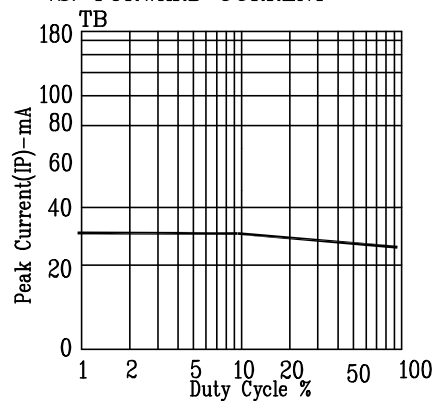


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: TB=InGaN/sapphire Blue