



LED Display

Product Data Sheet

LTC-5689TBZ

Spec No.: DS30-2009-0204

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Revision: A

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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LED DISPLAY

LTC-5689TBZ DATA SHEET

<u>Item</u>	<u>Description</u>	<u>By</u>	<u>DATE</u>
1	New Spec	Richard Lin	2009/10/28
2	Add criteria of reverse voltage :To prevent dice fail after IR test	Richard Lin	2010/6/8

FEATURES

- * 0.56 inch (14.2 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).
- * InGaN BLUE CHIP LED WITH A ZENER DIODE.

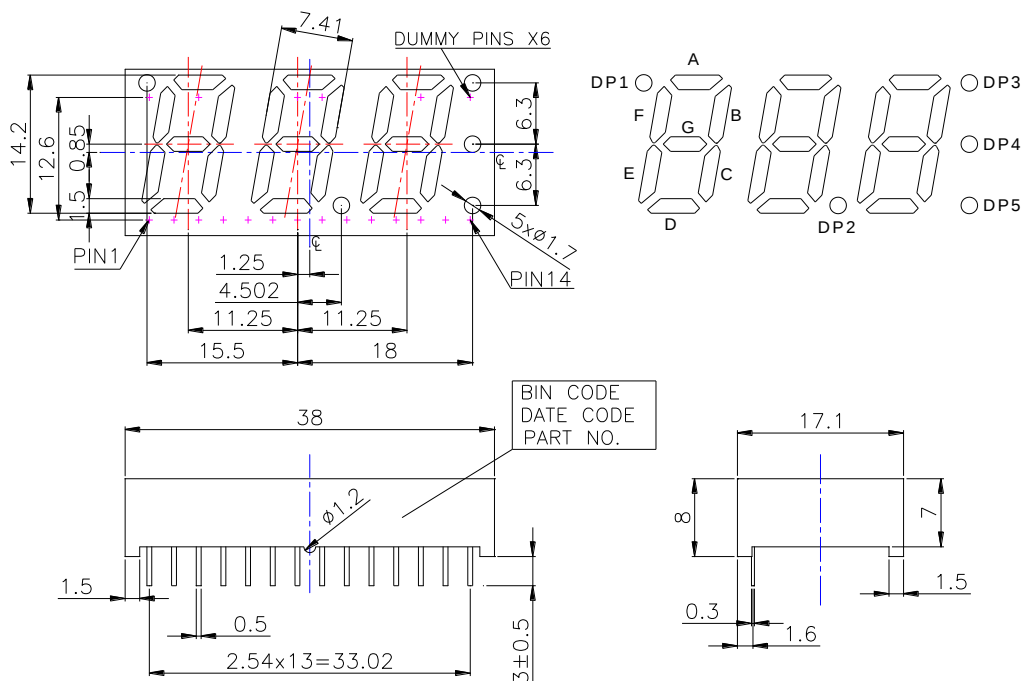
DESCRIPTION

The LTC-5689TBZ is a 0.56 inch (14.2 mm) digit height triple digit seven-segment display. This device uses Blue LED chips (InGaN epi on a Sapphire substrate). The display has black face and white segments.

DEVICE

PART NO.	DESCRIPTION
InGaN BLUE	Common Anode
LTC-5689TBZ	Rt.Hand Decimal

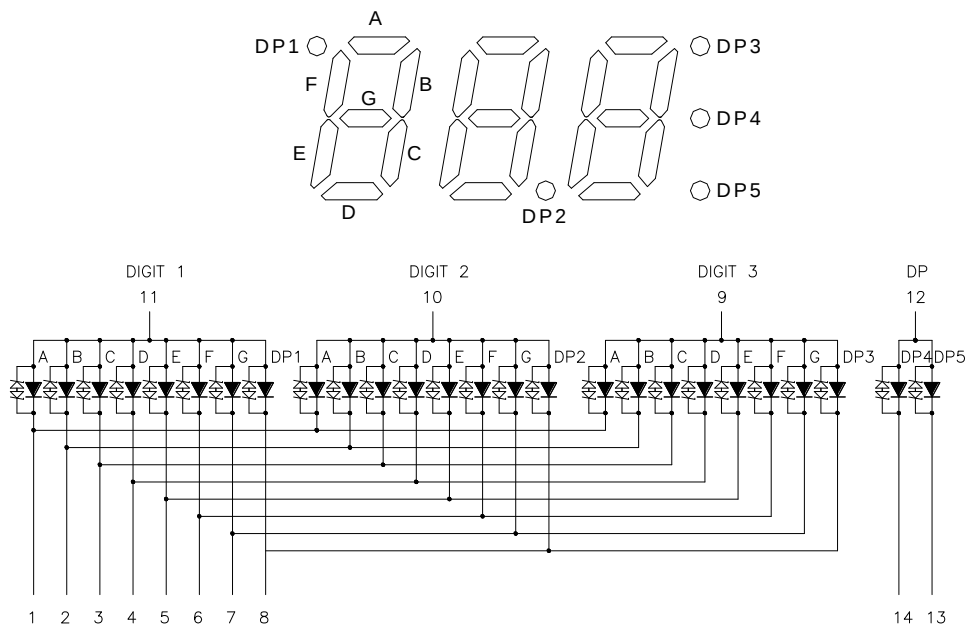
PACKAGE DIMENSIONS



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

2.Pin tip's shift tolerance is ± 0.4 mm.

INTERNAL CIRCUIT DIAGRAM



The sign  is stand for zener diode.

The sign  is stand for InGaN blue chip ($\lambda_d=470\text{nm}$).

PIN CONNECTION

NO.	CONNECTION
1	CATHODE A
2	CATHODE B
3	CATHODE C
4	CATHODE D
5	CATHODE E
6	CATHODE F
7	CATHODE G
8	CATHODE DP1, DP2, DP3
9	COMMON ANODE, DIGIT 3
10	COMMON ANODE, DIGIT 2
11	COMMON ANODE, DIGIT 1
12	COMMON ANODE , DP4, DP5
13	CATHODE DP5
14	CATHODE DP4

ABSOLUTE MAXIMUM RATING (LED+Zener)

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	100	mA
Continuous Forward Current Per Segment	20	mA
Derating Linear From 25°C Per Segment	0.21	mA/°C
Operating Temperature Range	-35°C to +85°C	
Storage Temperature Range	-35°C to +85°C	
Solder Conditions: 1/16 inch below seating plane for 3 seconds at 260°C, or temperature of unit (during assembly) not over max. temperature rating above		

ELECTRICAL/OPTICAL CHARACTERISTICS AT Ta=25°C(LED+Zener)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _v	5400	9000		μcd	I _F =10mA
Peak Emission Wavelength	λ _p		468		nm	I _F =20mA
Spectral Line Half-Width	Δλ		25		nm	I _F =20mA
Dominant Wavelength	λ _d		470	475	nm	I _F =20mA
Forward Voltage Per Segment	V _F		3.3	3.6	V	I _F =20mA
Reverse Current Per Segment(2)	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio (Similar Light Area)	I _v -m			2:1		I _F =10mA

Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.
2. Reverse voltage is only for IR test. It can not continue to operate at this situation.

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

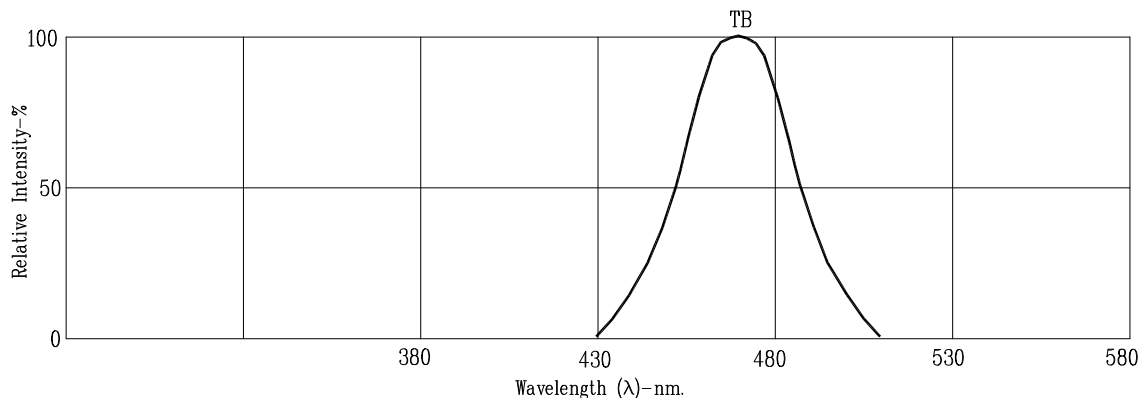


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

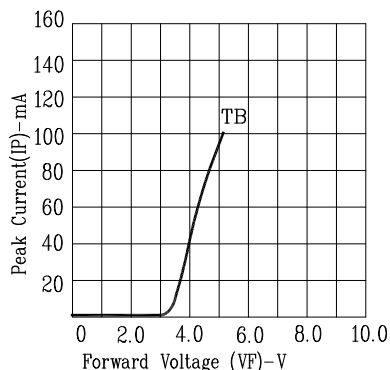


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

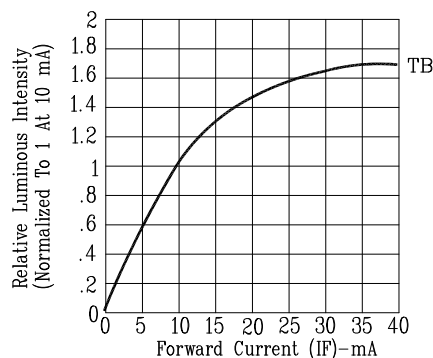


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

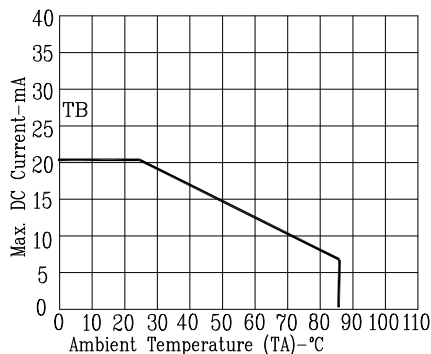


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

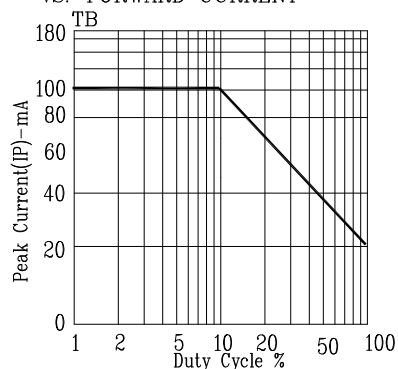


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: TB=InGaN/sapphire Blue