



# **LED Display**

## **Product Data Sheet**

### **LTS-5003AJR**

Spec No.: DS30-2000-151

Effective Date: 06/09/2010

Revision: A

**LITE-ON DCC**

**RELEASE**

## FEATURES

- \* 0.56-INCH (14.22-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.

## DESCRIPTION

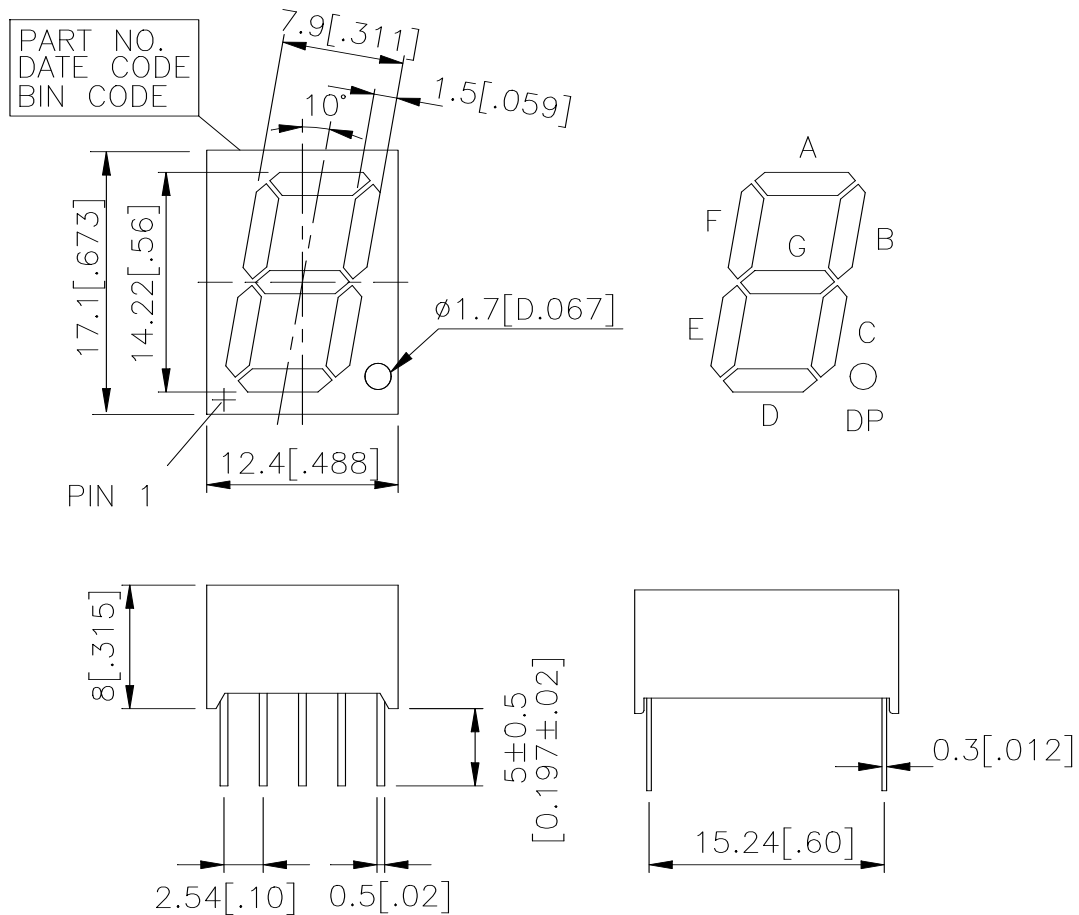
The LTS-5003AJR is a 0.56inch (14.22mm) height digit display. The device utilizes AlInGaP super red LED chips which are made from AlInGaP on a non-transparent GaAs substrate, and have light gray face and white segments.

This low current seven-segment display is designed to perform under low power consumption. It is tested and selected for it's excellent low current characteristics. It can be driven in low current condition and the segments are matched. This driving current as low as 1mA per segment is applicable.

## DEVICE

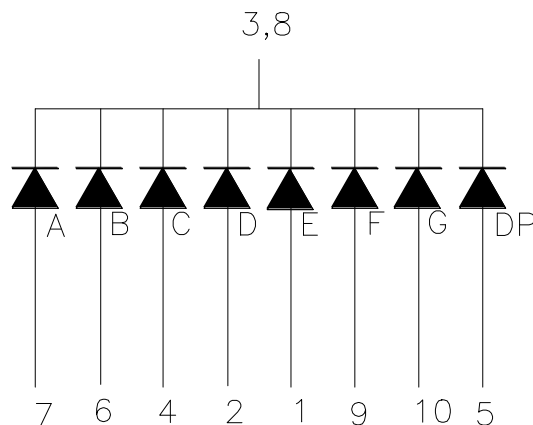
PART NO.	DESCRIPTION
AlInGaP SUPER RED	Common Cathode Rt. Hand Decimal
LTS-5003AJR	

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

No.	CONNECTION
1	ANODE E
2	ANODE D
3	COMMON CATHODE
4	ANODE C
5	ANODE D.P.
6	ANODE B
7	ANODE A
8	COMMON CATHODE
9	ANODE F
10	ANODE G

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

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	90	mA
Continuous Forward Current Per Segment	25	mA
Derating Linear From 25 <sup>0</sup> C Per Segment	0.33	mA/ <sup>0</sup> C
Reverse Voltage Per Segment	5	V
Operating Temperature Range	-35 <sup>0</sup> C to +85 <sup>0</sup> C	
Storage Temperature Range	-35 <sup>0</sup> C to +85 <sup>0</sup> C	
Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260 <sup>0</sup> C		

**ELECTRICAL / OPTICAL CHARACTERISTICS AT T a=25°C**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	320	700		μcd	I <sub>F</sub> =1mA
Peak Emission Wavelength	λ <sub>p</sub>		639		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		20		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		631		nm	I <sub>F</sub> =20mA
Forward Voltage Per Segment	V <sub>F</sub>		2.0	2.6	V	I <sub>F</sub> =1mA
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> =1mA

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

# TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

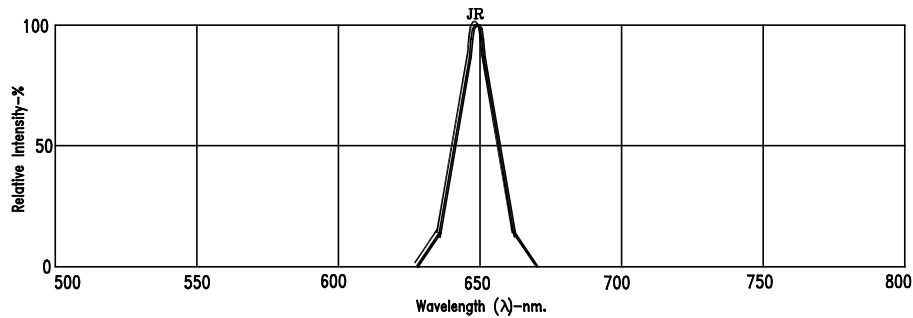


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

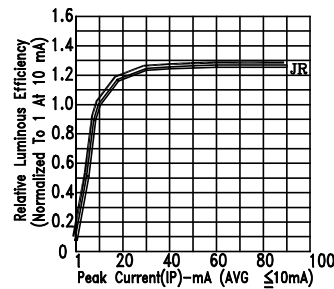


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT

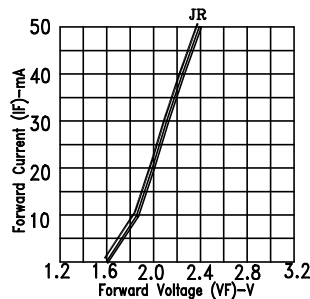


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

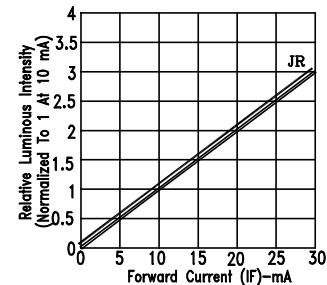


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

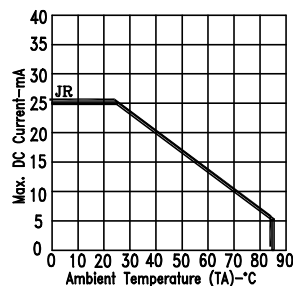


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

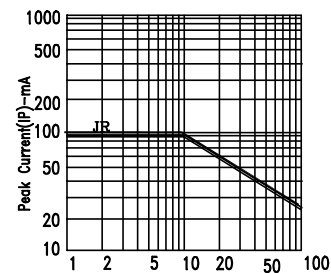


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE : JR=AlInGaP SUPER RED (REFRESH RATE 1KHz)