



# LED Display Product Data Sheet LTP-14188JM

Spec No.: DS30-2001-421

Effective Date: 11/17/2001

Revision: -

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

**FEATURES**

- \* 1.4 inch (37.02 mm) MATRIX HEIGHT.
- \* LOW POWER REQUIREMENT.
- \* SINGLE PLANE, WIDE VIEWING ANGLE.
- \* SOLID STATE RELIABILITY.
- \* 8x8 ARRAY WITH X-Y SELECT.
- \* COMPATIBLE WITH USASCII AND EBCDIC CODES.
- \* STACKABLE HORIZONTALLY.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.

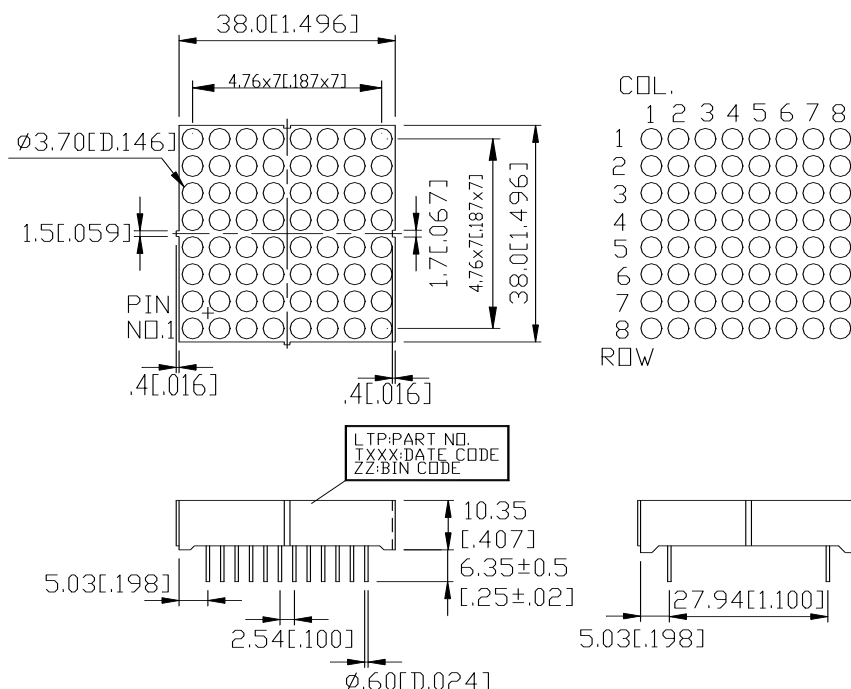
**DESCRIPTION**

The LTP-14188JM is a 1.4 inch (37.02 mm) matrix height 8x8 dot matrix display. This device is multi-color applicable display. The AlInGaP Green LED chips, which are made from AlInGaP on a transparent GaAs substrate. The AlInGaP Super Red LED chips, which are made from AlInGaP on a transparent GaAs substrate. The device has gray face and white dots.

**DEVICE**

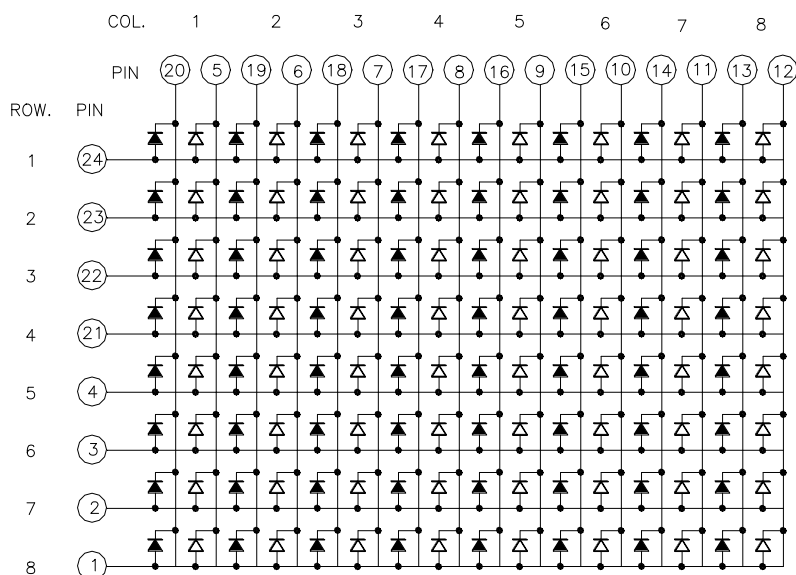
<b>PART NO.</b>	<b>DESCRIPTION</b>
MULTI-COLOR	CATHODE COLUMN
LTP-14188JM	ANODE ROW

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



The sign "→" stands for ORANGE color chips.

The sign "→" stands for GREEN color chips.

**PIN CONNECTION**

<b>No.</b>	<b>CONNECTION</b>
1	ANODE ROW 8
2	ANODE ROW 7
3	ANODE ROW 7
4	ANODE ROW 7
5	CATHODE COLUMN 1 GREEN
6	CATHODE COLUMN 2 GREEN
7	CATHODE COLUMN 3 GREEN
8	CATHODE COLUMN 4 GREEN
9	CATHODE COLUMN 5 GREEN
10	CATHODE COLUMN 6 GREEN
11	CATHODE COLUMN 7 GREEN
12	CATHODE COLUMN 8 GREEN
13	CATHODE COLUMN 8 RED ORANGE
14	CATHODE COLUMN 7 RED ORANGE
15	CATHODE COLUMN 6 RED ORANGE
16	CATHODE COLUMN 5 RED ORANGE
17	CATHODE COLUMN 4 RED ORANGE
18	CATHODE COLUMN 3 RED ORANGE
19	CATHODE COLUMN 2 RED ORANGE
20	CATHODE COLUMN 1 RED ORANGE
21	ANODE ROW 4
22	ANODE ROW 3
23	ANODE ROW 2
24	ANODE ROW 1

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

PARAMETER	AllnGaP GREEN	AllnGaP SUPER RED	UNIT
Average Power Dissipation Per Dot	70	70	mW
Peak Forward Current Per Dot	60	90	mA
Average Forward Current Per Dot	13	15	mA
Derating Linear From 25°C Per Dot	0.17	0.2	mA/°C
Reverse Voltage Per Dot	5		V
Operating Temperature Range	-35°C to +85°C		
Storage Temperature Range	-35°C to +85°C		
Solder Temperature: max 260°C for max 3sec at 1.6mm[1/16inch] below seating plane.			

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

## AllnGaP SUPER RED

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	1020	2800		μcd	I <sub>p</sub> =32mA 1/16Duty
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 any Dot	V <sub>F</sub>		2.0	2.6	V	I <sub>F</sub> =20mA
			2.3	2.8		I <sub>F</sub> =80mA
Reverse Current any Dot	I <sub>R</sub>			100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>			2:1		I <sub>p</sub> =32mA 1/16Duty

## AlInGaP GREEN

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	$I_v$	1020	2800		$\mu\text{cd}$	$I_p=32\text{mA}$ 1/16Duty
Peak Emission Wavelength	$\lambda_p$		571		nm	$I_F=20\text{mA}$
Spectral Line Half-Width	$\Delta\lambda$		15		nm	$I_F=20\text{mA}$
Dominant Wavelength	$\lambda_d$		572		nm	$I_F=20\text{mA}$
Forward Voltage any Dot	$V_F$		2.05	2.6	V	$I_F=20\text{mA}$
			2.3	2.8		$I_F=80\text{mA}$
Reverse Current any Dot	$I_R$			100	$\mu\text{A}$	$V_R=5\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_p=32\text{mA}$ 1/16Duty

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

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

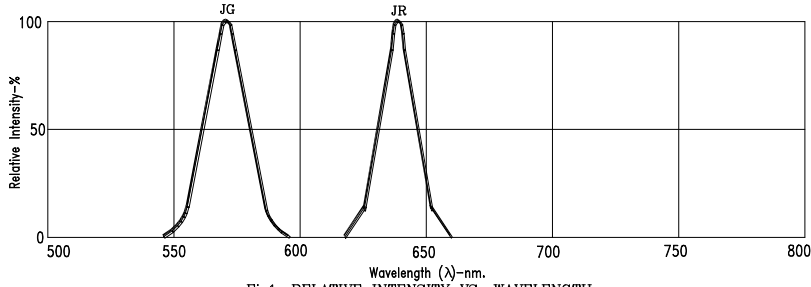


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

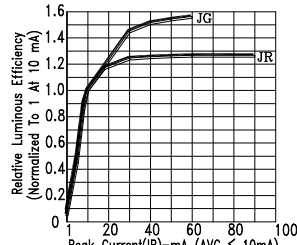


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

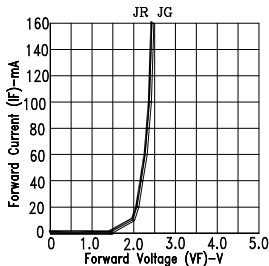


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

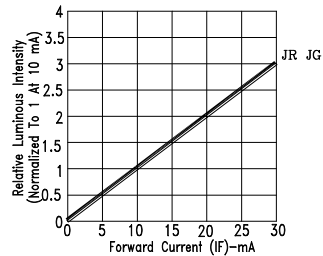


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

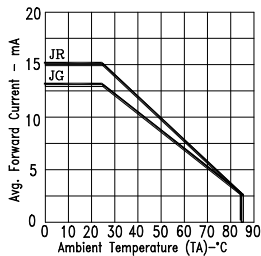


Fig5. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

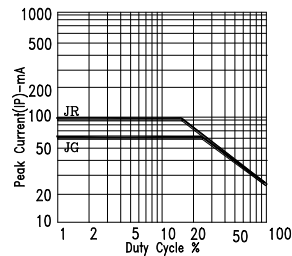


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: JR=AlInGaP SUPER RED JG=AlInGaP GREEN