

**FEATURES**

- \* 2.3 inch (58.42 mm) MATRIX HEIGHT.
- \* LOW POWER REQUIREMENT.
- \* SINGLE PLANE, WIDE VIEWING ANGLE
- \* SOLID STATE RELIABILITY.
- \* 8x8 ARRAY WITH X-Y SELECT.
- \* COMPATIBLE WITH USASCLL AND EBCDIC CODES.
- \* STACKABLE HORIZONTALLY.
- \* CATEGORIZED FOR LUMINOUS INTENSITY.

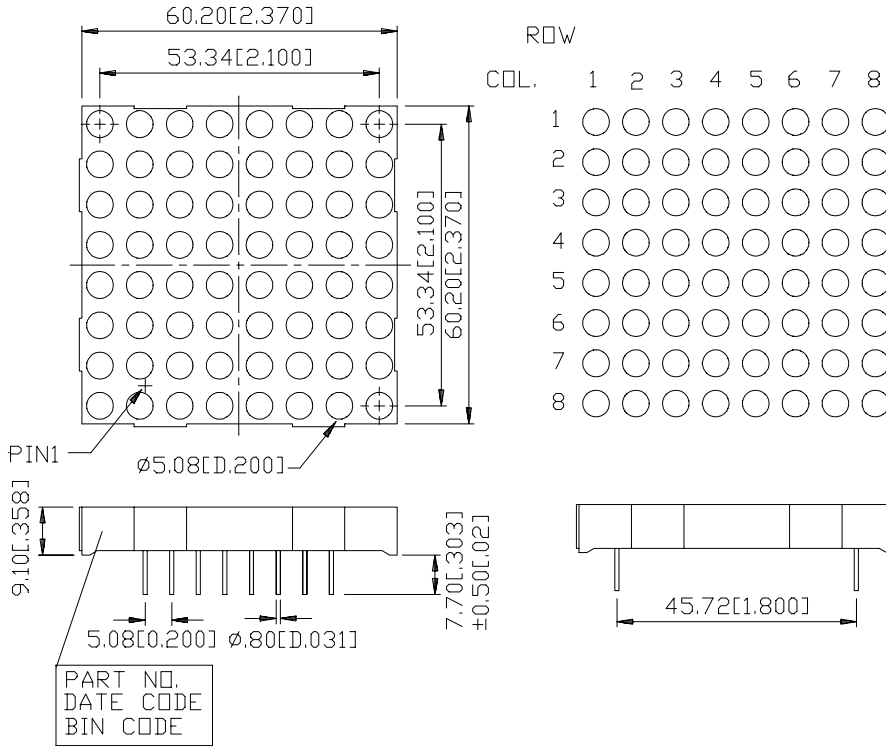
**DESCRIPTION**

The LTP-2088AKD is a 2.3 inch (58.42 mm) matrix height 8x8 dot matrix display. AlInGaP Hyper Red LED chips, which are made from AlInGaP on a non-transparent GaAs substrate, and has a gray face and white segments.

**DEVICE**

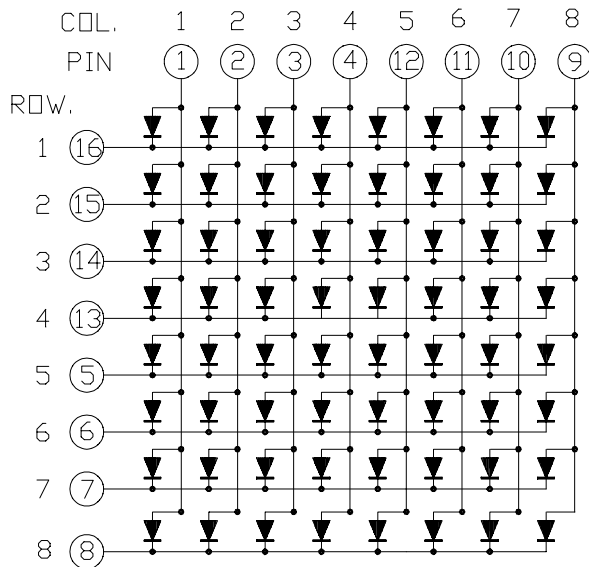
<b>PART NO.</b>	<b>DESCRIPTION</b>
AllnGaP Hyper Red	Anode Column
LTP-2088AKD	Cathode Row

## PACKAGE DIMENSIONS



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

## INTERNAL CIRCUIT DIAGRAM



**PIN CONNECTION**

<b>NO.</b>	<b>CONNECTION</b>
1.	ANODE COL. 1
2.	ANODE COL. 2
3.	ANODE COL. 3
4.	ANODE COL. 4
5.	CATHODE ROW 5
6.	CATHODE ROW 6
7.	CATHODE ROW 7
8.	CATHODE ROW 8
9.	ANODE COL. 8
10.	ANODE COL. 7
11.	ANODE COL. 6
12.	ANODE COL. 5
13.	CATHODE ROW 4
14.	CATHODE ROW 3
15.	CATHODE ROW 2
16.	CATHODE ROW 1

**ABSOLUTE MAXIMUM RATING AT T<sub>A</sub>=25°C**

PARAMETER	MAXIMUM RATING	UNIT
Average Power Dissipation Per Dot	40	mW
Peak Forward Current Per Dot	90	mA
Average Forward Current Per Dot	15	mA
Derating Linear From 25°C Per Dot	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 1/16 inch Below Seating Plane for 3 Seconds at 260°C		

**ELECTRICAL / OPTICAL CHARACTERISTICS AT T<sub>A</sub>=25°C**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	1650	3500		μcd	I <sub>p</sub> =32mA 1/16DUTY
Peak Emission Wavelength	λ <sub>p</sub>		650		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		20		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		639		nm	I <sub>F</sub> =20mA
Forward Voltage any Dot	V <sub>F</sub>		2.1	2.6	V	I <sub>F</sub> =20mA
			2.3	2.8	V	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</sub> -m			2:1		I <sub>p</sub> =32mA 1/16DUTY

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)

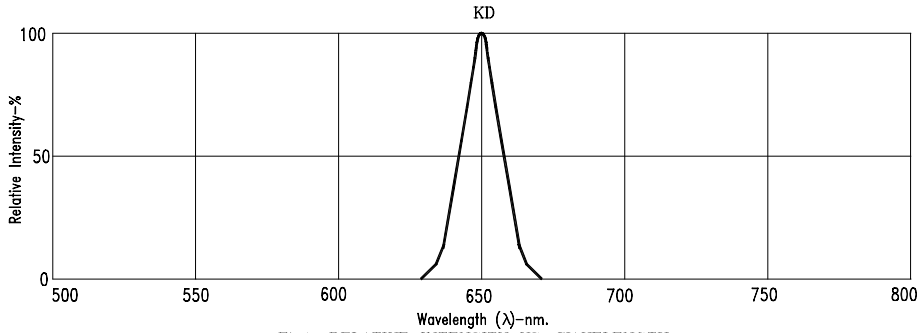


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

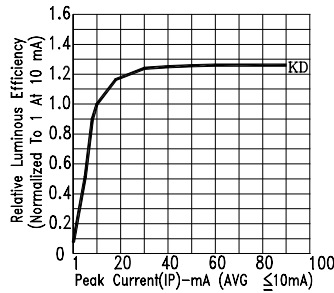


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

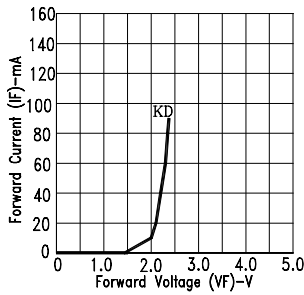


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

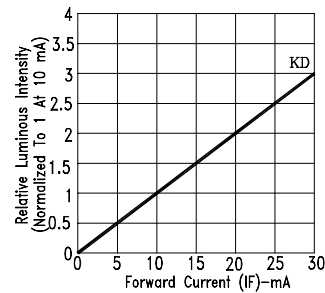


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

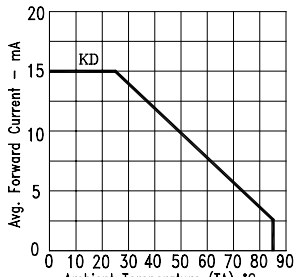


Fig5. MAX AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

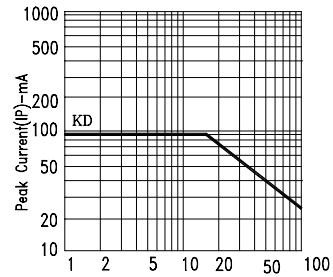


Fig6. MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE : KD=AlInGaP HYPER RED