



LED Display

Product Data Sheet

LTP-20088A-01

Spec No.: DS-30-93-131

Effective Date: 11/06/2001

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

FEATURES

- * 1.95 inch (49.53 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.

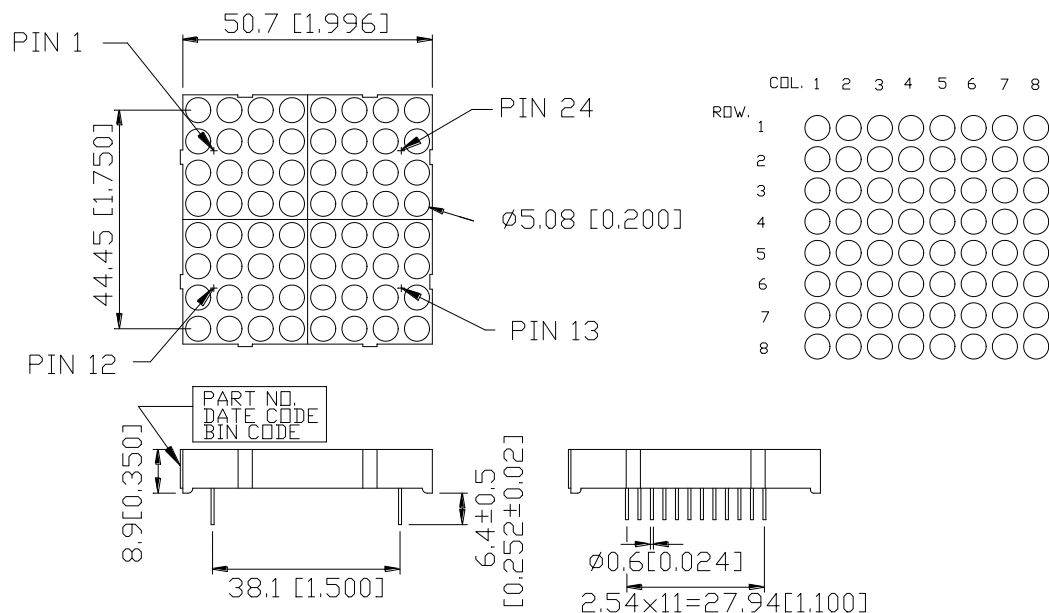
DESCRIPTION

The LTP-20088A-01 is 1.95 inch (49.53 mm) matrix height 8x8 dot matrix display. The green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The red orange series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate. the multicolor displays have gray face and white dots.

DEVICE

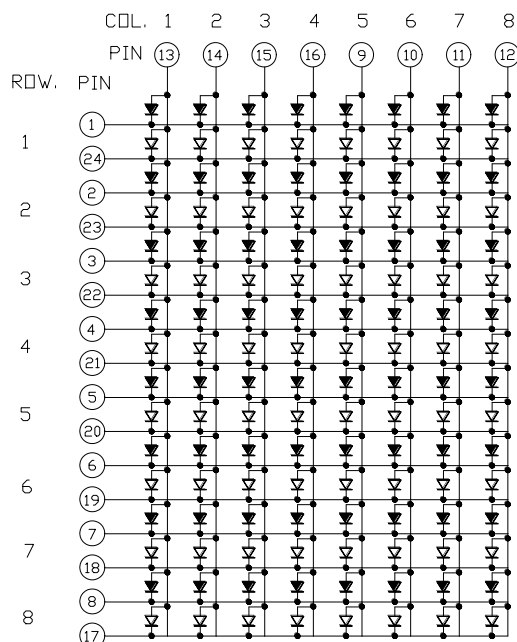
PART NO.	DESCRIPTION
RED ORANGE & GREEN	MULTIPLEX CATHODE ROW
LTP-20088A-01	

PACKAGE DIMENSIONS



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

INTERNAL CIRCUIT DIAGRAM



THE SIGN "  " STANDS FOR RED ORANGE COLOR CHIPS.

THE SIGN "  " STANDS FOR GREEN COLOR CHIPS.

PIN CONNECTION

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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	GREEN	UNIT
Average Power Dissipation Per Dot	36	mW
Peak Forward Current Per Dot	100	mA
Average Forward Current Per Dot	13	mA
Derating Linear From 25°C Per Dot	0.17	mA/°C
Reverse Voltage Per Segment	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**GREEN**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _V	1780	4800		μcd	I _p =80mA 1/16Duty
Peak Emission Wavelength	λ _p		565		nm	I _F =20mA
Spectral Line Half-Width	Δλ		30		nm	I _F =20mA
Dominant Wavelength	λ _d		569		nm	I _F =20mA
Forward Voltage any Dot	V _F		2.1	2.6	V	I _F =20mA
			3.0	3.7		I _F =80mA
Reverse Current any Dot	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio	I _{v-m}			2:1		I _F =10mA

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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	RED ORANGE	UNIT
Average Power Dissipation Per Dot	36	mW
Peak Forward Current Per Dot	100	mA
Average Forward Current Per Dot	13	mA
Derating Linear From 25°C Per Dot	0.17	mA/°C
Reverse Voltage Per Segment	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.		

LECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C**RED ORANGE**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _V	1780	4800		μcd	I _p =80mA 1/16Duty
Peak Emission Wavelength	λ _p		630		nm	I _F =20mA
Spectral Line Half-Width	Δλ		40		nm	I _F =20mA
Dominant Wavelength	λ _d		621		nm	I _F =20mA
Forward Voltage any Dot	V _F		2.0	2.6	V	I _F =20mA
			2.6	3.4		I _F =80mA
Reverse Current any Dot	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio	I _V -m			2:1		I _F =10mA

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)

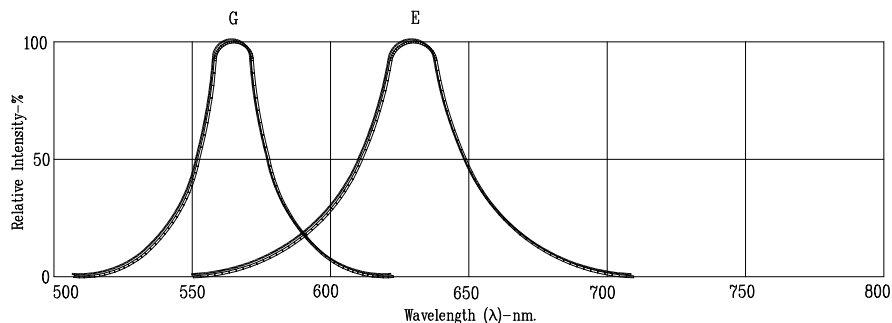


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

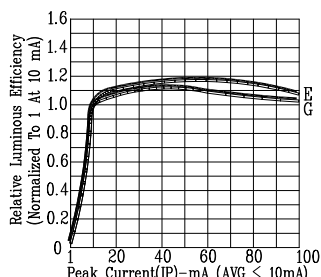


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

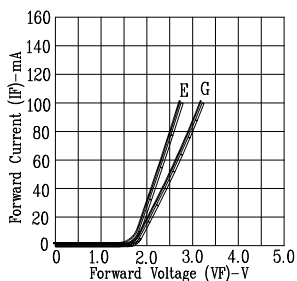


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

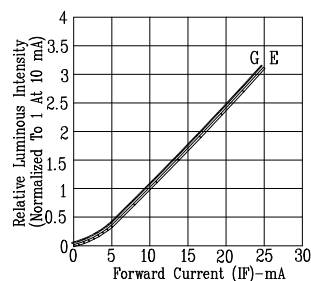


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

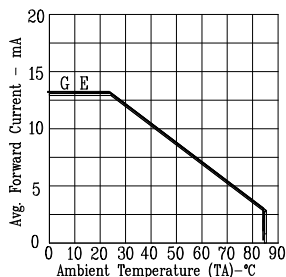


Fig5. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE

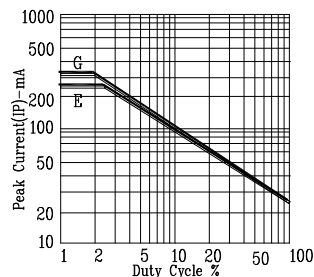


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN E=RED ORANGE