



LED Display Product Data Sheet LTP-12088M-03

Spec No.: DS30-2008-0184

Effective Date: 03/04/2009

Revision: A

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

LED DISPLAY**LTP-12088M-03**
DATA SHEET

Rev	Description	By
01	RDR Original Spec	Phanomkorn J. July 31, 2008
02	Change the test condition on page 4-6 to Ip=80mA, 2msec 1/8 Duty	Phanomkorn J. August 19, 2008
03	Paper Correction	Phanomkorn J. October 15, 2008
-	NPPR Original Spec	Phanomkorn J. December 03, 2008
A	Add pin ϕ on page 2 of 8	Phanomkorn J. January 29, 2009

SPEC. NO.: DS30-2008-0184D A T E : January 29, 2009REV. NO. : APAGE NO. : 0 OF 8

FEATURES

- * 1.22 inch (31.0 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.
- * **LEAD-FREE PACKAGE (ACCORDING TO ROHS)**

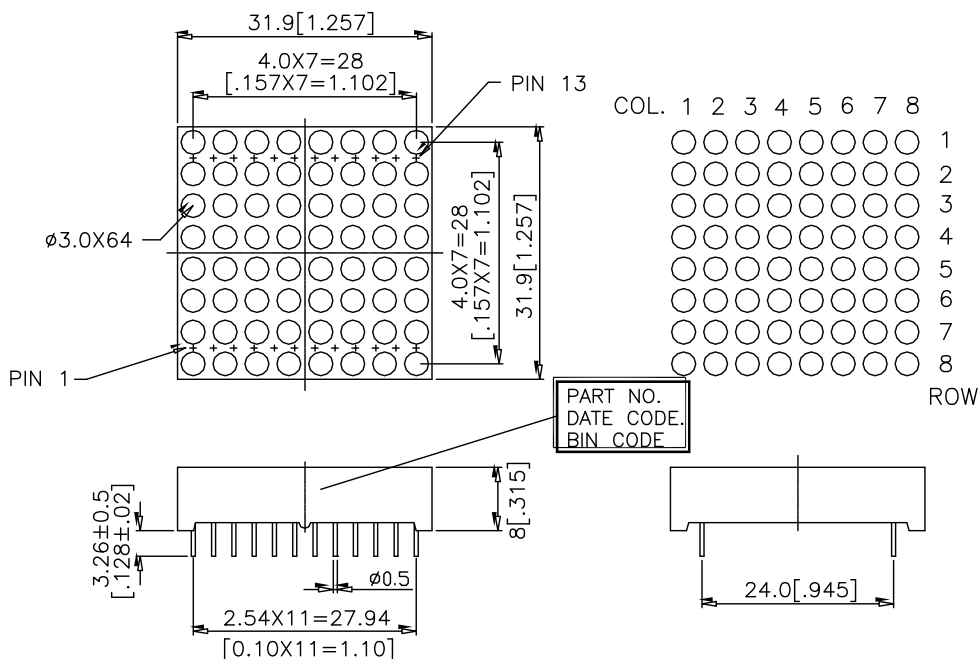
DESCRIPTION

The LTP-12088M-03 is a 1.22 inch (31.0 mm) matrix height 8 x8 dot matrix display. This device is multi-color applicable display. The AlInGaP Green LED chips, which are made from AlInGaP on GaAs substrate. The AlInGaP Hyper Red LED chips, which are made from AlInGaP on GaAs substrate. The device has black face and white dot color. The product is binned by luminous intensity and dominant wavelength in the red mode of operation.

DEVICE

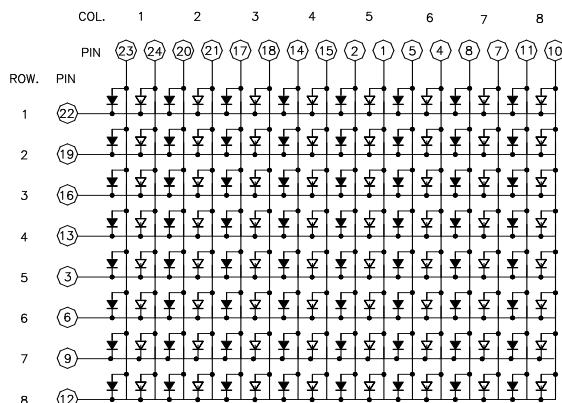
PART NO.	DESCRIPTION
MULTI-COLOR	Anode Column
LTP-12088M-03	Cathode Row



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.
 3. Foreign material on segment ≤ 10 mils
 4. Ink contamination (surface) ≤ 20 mils
 5. Bending $\leq 1/100$
 6. Bubble in segment ≤ 10 mils

INTERNAL CIRCUIT DIAGRAM



The sign "  "stands for AllnGaP Hyper Red chips.
 The sign "  "stands for AllnGaP Green chips.

PIN CONNECTION

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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	AlInGaP GREEN	UNIT
Average Power Dissipation Per Dot	70	mW
Peak Forward Current Per Dot	60	mA
Average Forward Current Per Dot	25	mA
Derating Linear From 25°C Per Dot	0.28	mA/°C
Reverse Voltage Per Dot	5	V
Operating Temperature Range	-35°C to +105°C	
Storage Temperature Range	-35°C to +105°C	
Soldering Conditions: 1/16 inch below seating plane for 3 seconds at 260°C or of temperature unit (during assembly) not over max. temperature rating above.		

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

AlInGaP GREEN

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _v	9000	22000		μcd	I _p =80mA, T _p =2 ms, 1/8 Duty
Peak Emission Wavelength	λ _p		571		nm	I _F =20mA
Spectral Line Half-Width	Δλ		15		nm	I _F =20mA
Dominant Wavelength	λ _d		572		nm	I _F =20mA
Forward Voltage any Dot	V _F		2.05	2.6	V	I _F =20mA
			2.3	2.8		I _F =80mA
Reverse Current any Dot	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio (Similar Light Area)	I _{v-m}			2:1		I _p =80mA T _p =2 ms, 1/8 Duty

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

ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	AlInGaP HYPER RED	UNIT
Average Power Dissipation Per Dot	70	mW
Peak Forward Current Per Dot	90	mA
Average Forward Current Per Dot	25	mA
Derating Linear From 25°C Per Dot	0.28	mA/°C
Reverse Voltage Per Dot	5	V
Operating Temperature Range	-35°C to +105°C	
Storage Temperature Range	-35°C to +105°C	
Soldering Conditions: 1/16 inch below seating plane for 3 seconds at 260°C or of temperature unit (during assembly) not over max. temperature rating above.		

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

AlInGaP HYPER RED

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _v	17000	24000		μcd	I _p =80mA T _p =2 ms, 1/8 Duty
Peak Emission Wavelength	λ _p		650		nm	I _F =20mA
Spectral Line Half-Width	Δλ		20		nm	I _F =20mA
Dominant Wavelength	λ _d		639		nm	I _F =20mA
Forward Voltage any Dot	V _F		2.1	2.6	V	I _F =20mA
			2.3	2.8		I _F =80mA
Reverse Current any Dot	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio (Similar Light Area)	I _{v-m}			2:1		I _p =80mA T _p =2 ms, 1/8 Duty

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

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

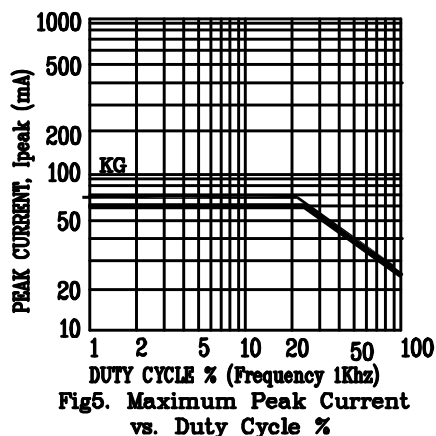
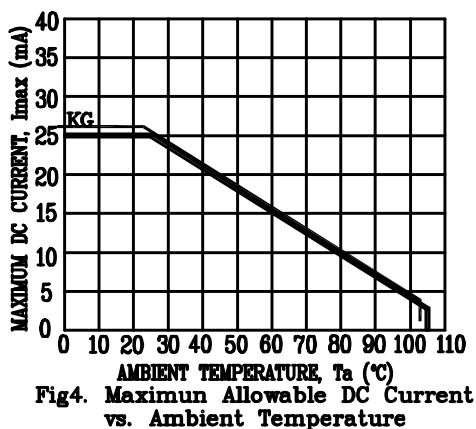
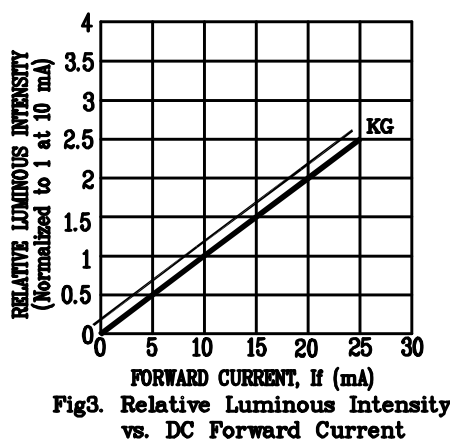
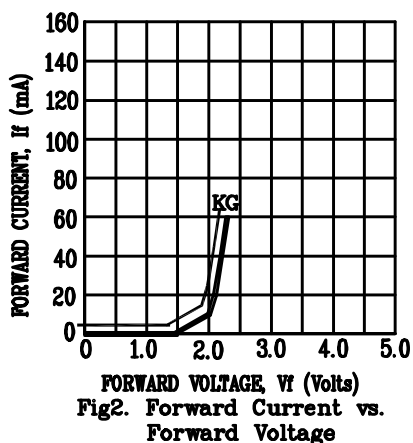
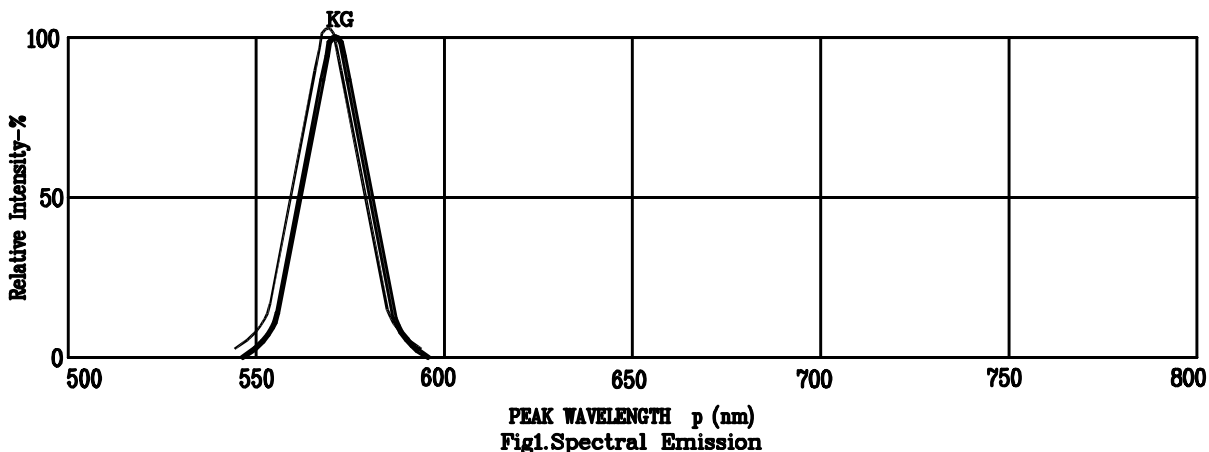
Amber = AlInGaP HYPER RED + AlInGaP GREEN

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I _v	2800 0	32000		μcd	I _p =80mA T _p =2 ms, 1/8 Duty
Peak Emission Wavelength	λ _p		611		nm	I _F =20mA
Spectral Line Half-Width	Δλ		17		nm	I _F =20mA
Dominant Wavelength	λ _d		605		nm	I _F =20mA
Forward Voltage any Dot (AlInGaP Green)	V _F		2.05	2.6	V	I _F =20mA
Forward Voltage any Dot (AlInGaP Hyper Red)			2.1	2.6		I _F =20mA
Reverse Current any Dot	I _R			100	μA	V _R =5V
Luminous Intensity Matching Ratio (Similar Light Area)	I _{v-m}			2:1		I _p =80mA T _p =2 ms, 1/8 Duty

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

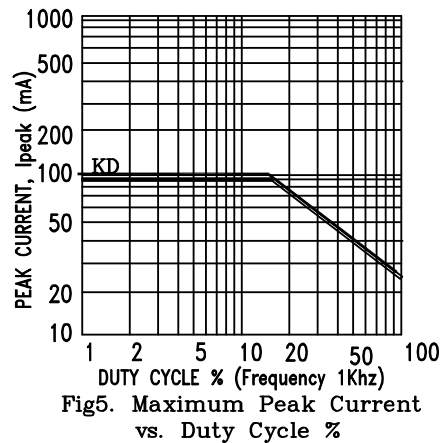
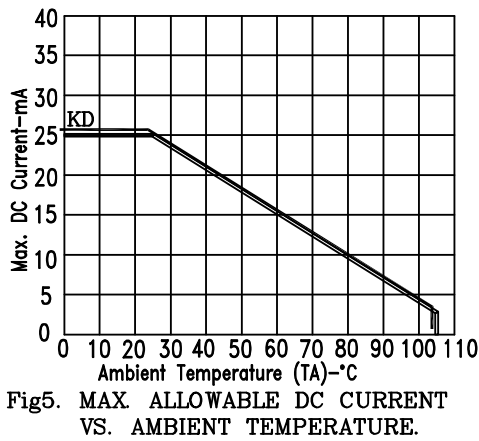
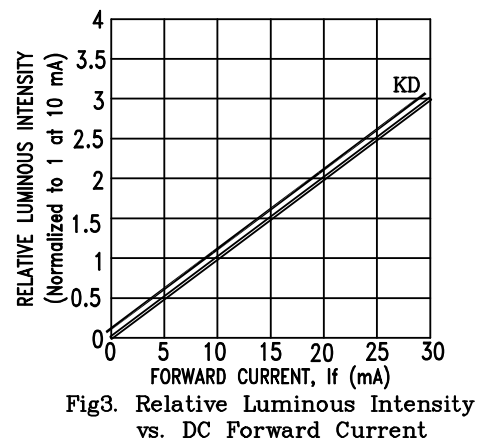
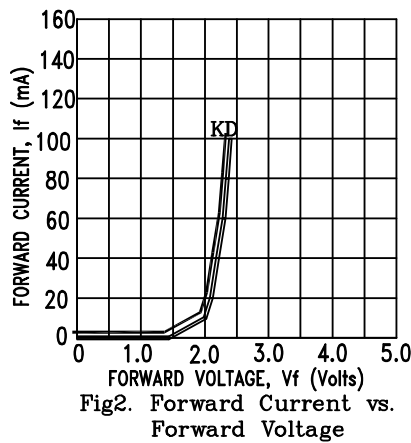
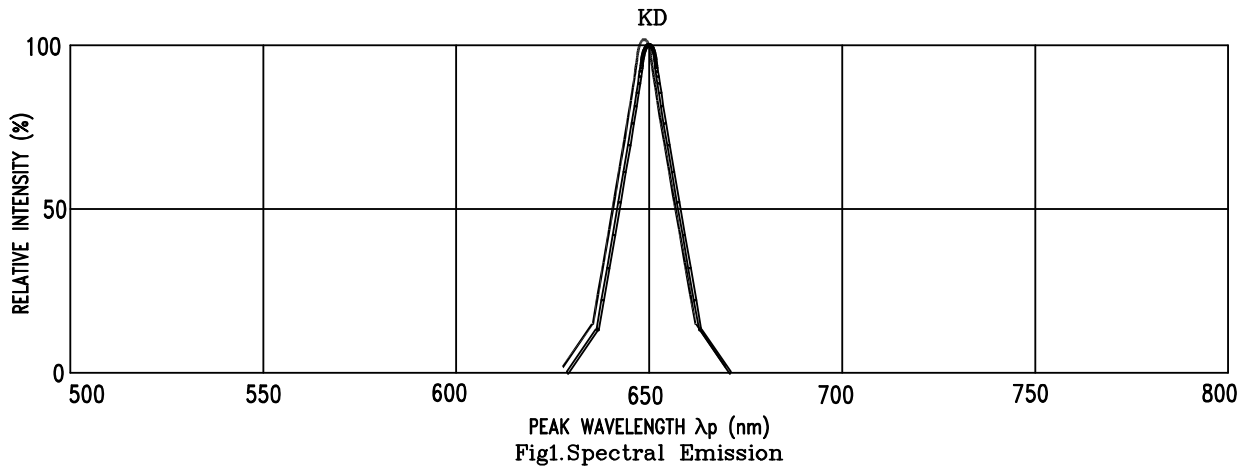
(25°C Ambient Temperature Unless Otherwise Noted)



NOTE : KG=AlInGaP Green

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)



NOTE : KD=AlInGaP HYPER RED