

# Dot Matrix LED Unit for Outdoor Use LT1540M(Lamp Type)

## ■ Features

- No. of dots : 16X16dots
- Outline dimensions : 240X240mm
- Dot size : 13.0X13.0mm
- Dot pitch : 14.9mm
- Radiation color : Yellow-green+Red(High-luminosity)dichromatic type
- Driving method : 1/8 duty dynamic drive



LT1540M

## ■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage for IC	VCC	-0.3 to +6.0	V
Supply voltage for LED	VLED	-0.3 to +8.5	V
Input voltage	VI	-0.3 to VCC+0.3	V
Turn-on time	ton	1	ms
Operating temperature	Topr	-20 to +45	°C
Storage temperature	Tstg	-25 to +100	°C
Power dissipation	P	58	W

## ■ Optical Characteristics

(VCC=5V, VLED=8V, Ta=25°C)

Parameter	Symbol	TYP.	Unit
Viewing angle	2θ <sup>1/2</sup>	50	°
Peak emission wavelength	Red	660	nm
	Yellow-green	565	

## ■ Luminance

Luminance is classified into 2 ranks shown below.

(VCC=5V, VLED=8V, Ta=25°C)

Radiation color	Rank		Unit
	1	2	
Red	1 200	1 600	cd/m <sup>2</sup>
Yellow-green	750	1 000	

## ■ Terminal Functions

Connector	Symbol	Function
Power supply (CN1)	VLED	Supply voltage for LED (+8V)
	VCC	Supply voltage for IC (+5V)
	GND1	Ground for IC
	GND2	Ground for LED
Input signal (CN2)	A0 to A2	Address specification signal for column driver
	RDATA GDATA	Serial data input for each color(H:ON, L:OFF) Shift from up to down in the unit HD <sub>16</sub> →HD <sub>31</sub> →HD <sub>0</sub> →HD <sub>15</sub>
	LATCH	Latch signal of display data.H: Serial data is converted to parallel data. L: Contents are latched. LATCH signal is set up after switching address(A0 to A2)
	RENABLE GENABLE	Controls ON/OFF of each color of LED. (H: LED OFF)
	CLOCK	Clock signal for data transmission in the shift-register. (L→H: serial data is shifted.)
	GND1	Ground for signal. (Connected to ground for IC)
Output signal (CN3)	A0 to A3	Buffered input signal
	RDATA GDATA	Input signal generated through 32-bit shift register
	LATCH	Buffered input signal
	RENABLE GENABLE	Buffered input signal
	CLOCK	Buffered input signal
	GND1	Ground for signal. (Connected to ground for IC)

Each signal is used as input signal for next unit.

\* As for the terminal number, refer to the outline dimensions.

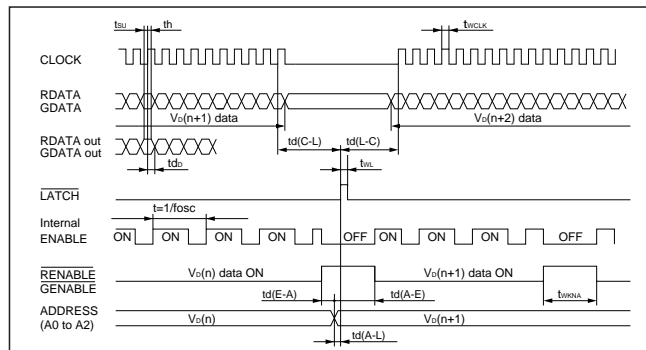
## ■ Electrical Characteristics

(VCC=5V, VLED=8V, Ta=25°C)

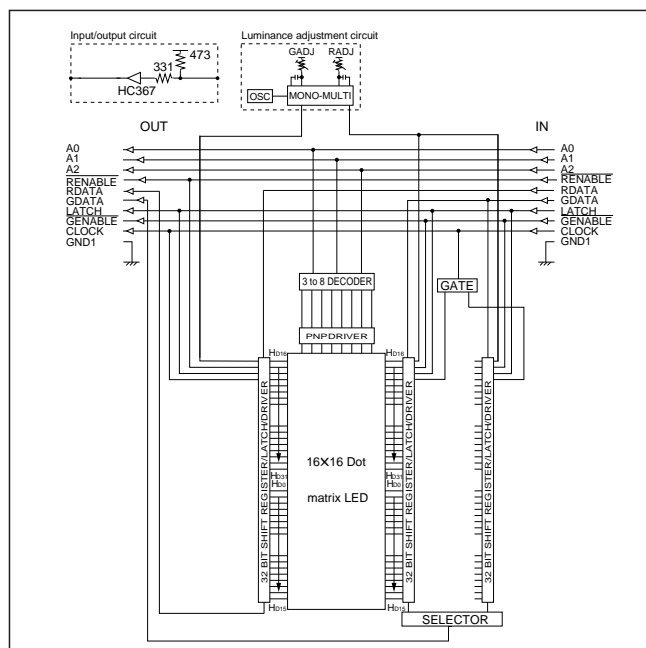
Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply voltage for IC	VCC	4.75	5.0	5.25	V
Supply voltage for LED	VLED	7.5	8.0	8.25	V
IC current dissipation	ICC	—	200	500	mA
LED current dissipation*1	ILED	—	5.5	7.0	A
Input voltage	VIH	3.5	—	—	V
	VIL	—	—	1.5	V
Input current	IiH	—	—	0.1	μA
	IiL	—	—	0.12	mA
Clock frequency	fCLK	—	—	10.0	MHz
Frame frequency	fFR	250	400	3 000	Hz

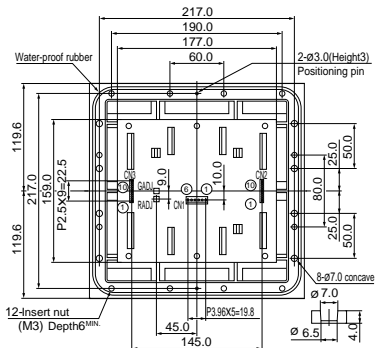
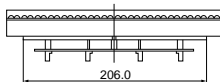
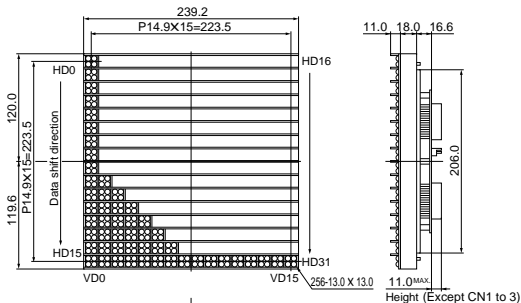
\*1 Under the condition that dichromatic all dots are lit.

## ■ Timing Chart



## ■ Block Diagram





## Pin connection

## CN1 (Power supply)

Pin No.	Name
1	VLED
2	VLED
3	Vcc
4	GND1
5	GND2
6	GND2

## CN2 (Input signal)

Pin No.	Name
1	A0
2	A1
3	A2
4	RENEWABLE
5	RDATA
6	GDATA
7	LATCH
8	GENABLE
9	CLOCK
10	GND1

## CN3 (Output signal)

Pin No.	Name
1	A0
2	A1
3	A2
4	RENEWABLE
5	RDATA
6	GDATA
7	LATCH
8	GENABLE
9	CLOCK
10	GND1