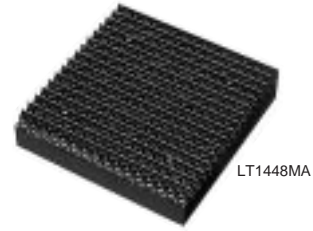


# Dot Matrix LED Unit for Outdoor Use LT1448MA(Lamp Type,Water-proof Type)

## ■ Features

- No. of dots : 16X16dots
- Outline dimensions : 160X160mm
- Dot size : φ7.5mm(Using oval lamp)
- Dot pitch : 9.9mm
- Radiation color : Yellow-green+Red(High-luminosity)dichromatic type
- Driving method : 1/4 duty dynamic drive



LT1448MA

## ■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage for IC	VDD	-0.3 to +5.5	V
Supply voltage for LED	VLED	-0.3 to +5.0	V
Input voltage	Vi	-0.3 to Vcc+0.3	V
Turn-on time	ton	1	ms
Operating temperature	Topr	-10 to +45	°C
Storage temperature	Tstg	-20 to +100	°C
Power dissipation	P	38	W

## ■ Optical Characteristics

(VCC=5V, VLED=4.5V, Ta=25°C)

Parameter	Symbol	TYP	Unit
Viewing angle(Horizontal)	2θ1/2	70	°
Peak emission wavelength	Red	660	nm
	Yellow-green	565	

## ■ Luminance

Luminance is classified into 2 ranks shown below.

(VCC=5V, VLED=4.5V, Ta=25°C)

Radiation color	Rank		Unit
	1	2	
Red	1 100	1 300	cd/m <sup>2</sup>
Yellow-green	700	800	

## ■ Terminal Functions

Connector	Symbol	Function
Power supply (CN1)	VLED	Supply voltage for LED(+4.5V)
	VCC	Supply voltage for IC(+5V)
	GND1	Ground for IC
	GND2	Ground for LED
Input signal (CN2)	A0,A1	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 (HD48→HD63→HD32→HD47→HD16→HD31→HD0→HD15)
	LATCH	Latch signal of display data L→H: Contents of shift register are latched.
	REENABLE 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,A1	Buffered input signal
	RDATA GDATA	Input signal generated through 64-bit shift register or buffer
	LATCH	Buffered input signal
	REENABLE 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.

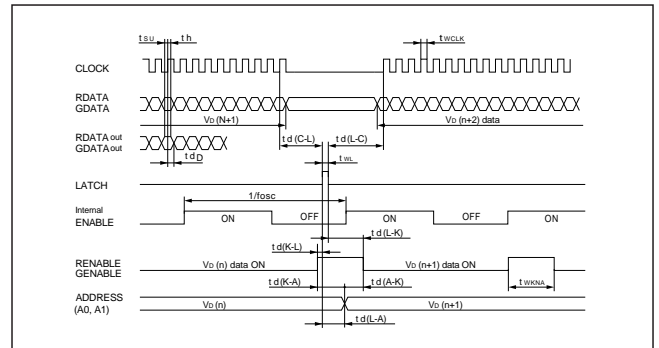
## ■ Electrical Characteristics

(VCC=5V, VLED=4.5V, Ta=25°C)

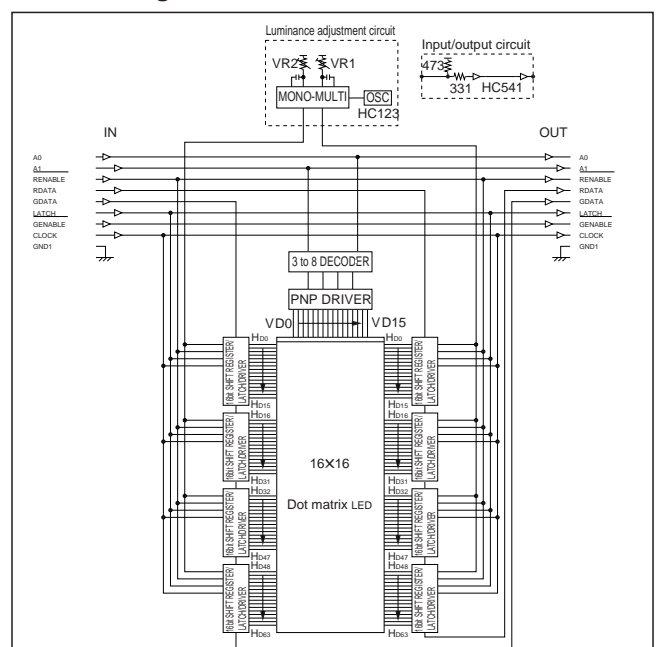
Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply voltage for IC	VDD	4.75	5.0	5.25	V
Supply voltage for LED	VLED	4.25	4.5	4.75	V
IC current dissipation <sup>*1</sup>	IDD	—	400	800	mA
LED current dissipation <sup>*1</sup>	ILED	—	6.0	7.0	A
Input voltage	VIH	3.5	—	—	V
	VIL	—	—	1.5	V
Input current	IiH	—	—	0.1	μA
	IiL	—	—	0.12	mA
Clock frequency	fCLK	—	—	10	MHz
Frame frequency	fFR	250	400	3 000	Hz

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

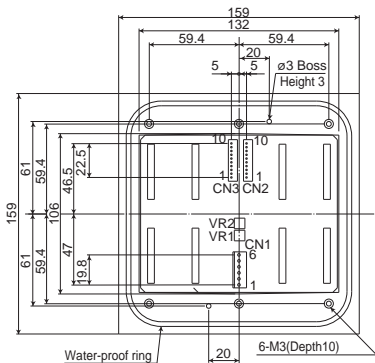
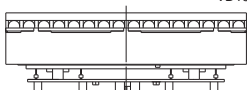
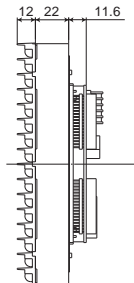
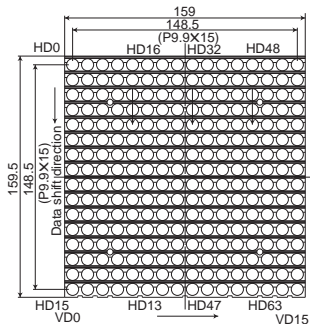
## ■ Timing Chart



## ■ Block Diagram



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## Pin connection

## CN1:Power supply

1	VLED
2	VLED
3	Vcc
4	GND1
5	GND2
6	GND2

## CN2:Input signal

1	A0
2	A1
3	GND1
4	RENEWABLE
5	RDATA
6	GDATA
7	LATCH
8	GENABLE
9	CLK
10	GND1

## CN3:Output signal

1	A0
2	A1
3	GND1
4	RENEWABLE
5	RDATA
6	GDATA
7	LATCH
8	GENABLE
9	CLK
10	GND1