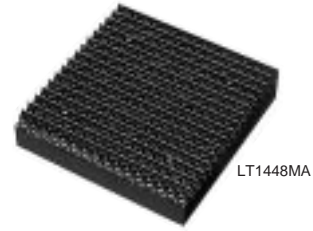


Dot Matrix LED Unit for Outdoor Use LT1448MA(Lamp Type,Water-proof Type)

■ Features

- No. of dots : 16X16dots
- Outline dimensions : 160X160mm
- Dot size : ø7.5mm(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 ² |
| 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.

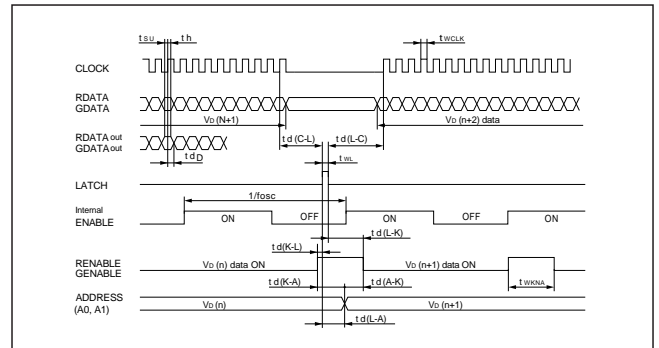
■ Electrical Characteristics

(VCC=5V, VLED=4.5V, Ta=25°C)

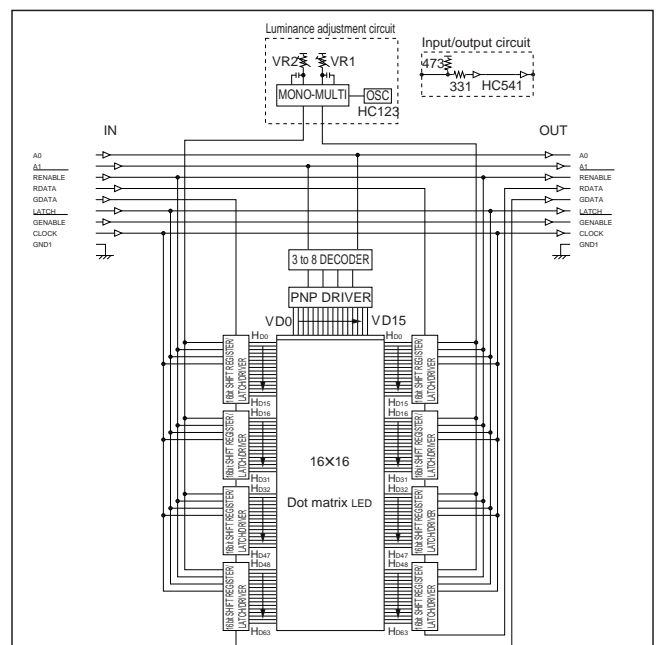
| Parameter | Symbol | MIN. | TYP. | MAX. | Unit |
|---------------------------------------|--------|------|------|-------|------|
| Supply voltage for IC | VDD | 4.75 | 5.0 | 5.25 | V |
| Supply voltage for LED | VLED | 4.25 | 4.5 | 4.75 | V |
| IC current dissipation ^{*1} | IDD | — | 400 | 800 | mA |
| LED current dissipation ^{*1} | 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.

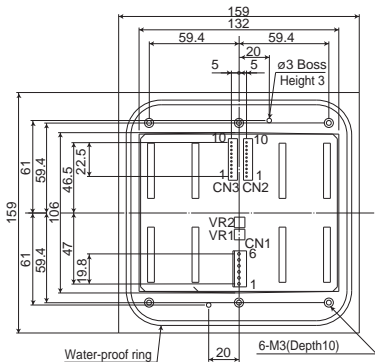
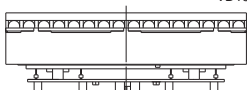
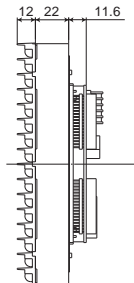
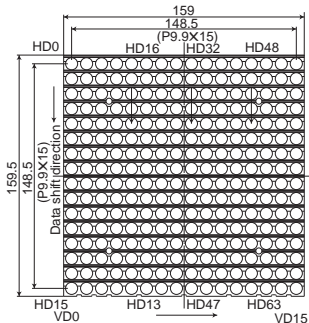
■ Timing Chart



■ Block Diagram



11



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 | RENABLE |
| 5 | RDATA |
| 6 | GDATA |
| 7 | LATCH |
| 8 | GENABLE |
| 9 | CLK |
| 10 | GND1 |

CN3: Output signal

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