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LED DOT MATRIX MODULE

VS064F111-8

2 x 1 Type

| ISSUED DATE | | | ITEM | DESIGN | CHECK | REFERENCE |
|-------------|--------|--|-----------|--------|-------|-----------|
| VER | BV5.00 | | SIGNATURE | | | |
| | | | | | | |
| | | | | | | |
| | | | DATE | | | |

1.MODEL NAME : VS064F111-8

2. FEATURES

| ITEM | | DESCRIPTION |
|---------------|-----------------|--------------------------------|
| Display Color | | Full Color |
| Structure | Size(W X H X D) | 128 X 64 X17.5(mm) |
| | Dot Pitch | 4(mm) |
| | Number Of Dots | 512(32 × 16) Dots |
| | Leds Per Dot | R:1, PG:1,B:1 (3In-1 SMD CHIP) |
| Weight | | Max. 65 (g) |
| Drive Mode | | 1/8 Duty Drive |
| Application | | INDOOR |

3. ABSOLUTE MAXIMUN RATINGS

| ITEM | SYMBOL | VALUE | UNIT | REMARK |
|----------------------------|------------------|--------------------|------|--------------|
| Supply Voltage | V_{LED} | 0~+5.5 | V | |
| | V_{CC} | 0~+6.0 | | |
| Signal Input Voltage Level | V_{IH}, V_{IL} | -0.3~ $V_{CC}+0.3$ | V | |
| Operating Temperature | $T_{OP}^{[1]}$ | -20 ~ +50 | °C | On Dots=100% |
| | | -20 ~ +60 | °C | On Dots=30% |
| Storage Temperature | T_{stg} | -20 ~ +80 | °C | |


NOTES : [1] Temperature of led surface's should be remained below 70°C in case of necessity, led system requires cooling fan. Maintained at less than 80% relative humidity, and no dew condensation shall take place.

4. RECOMMENDABLE OPERATING CONDITIONS

| ITEM | | SYMBOL | MIN. | TYP. | MAX. | UNIT | REMARK |
|----------------------------|---------------|---------------------|------|----------|---------------------|------|--------|
| Supply Voltage | Led | V_{LED} | 4.75 | 5 | 5.25 | V | |
| | Logic Circuit | V_{CC} | 4.75 | 5 | 5.25 | | |
| Signal Input Voltage Level | V_{IH} | $0.8 \times V_{CC}$ | - | V_{CC} | $0.3 \times V_{CC}$ | | |
| | V_{IL} | 0 | - | | | | |
| Operating Temperature | | T_{OP} | 0~35 | | | °C | |

5. ELECTRICAL CHARATERISTICS (AT $T_a = 25^\circ C$)

| ITEM | SYMBOL | VALUE | UNIT | REMARK |
|--------------------------------|-----------|----------|------|--------|
| Clock Frequency | F | MAX.16 | Mhz | |
| Current Consumption For Module | I_{LED} | MAX. 2.0 | A | ALL On |
| | I_{IC} | MAX. 0.5 | | |

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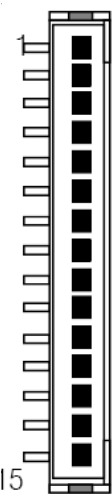
6. OPTICAL CHARACTERISTICS(AT T_a = 25°C)

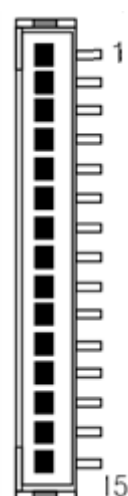
| ITEM | SYMBOL | MIN. | TYP. | MAX. | UNIT | REMARK |
|---------------|--------|------|-------|------|-------------------|-------------------|
| Brightness | RED | - | 850 | - | cd/m ² | |
| | GREEN | - | 2,400 | - | | |
| | BLUE | - | 250 | - | | |
| | WHITE | - | 3,500 | - | | |
| Wavelength | RED | 620 | - | 630 | nm | |
| | GREEN | 523 | - | 532 | | |
| | BLUE | 465 | - | 475 | | |
| Viewing Angle | HOR. | - | 110 | - | deg(°) | Tolerance ±10% |
| | VER. | - | 110 | - | | |


[REFERENCE] **Brightness of standard model are measured by Our company's the controller.**
If you have any questions about brightness, Please contact us.

7. SIGNAL FUNTION

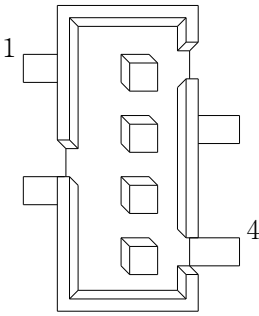
1) DATA SIGNAL CONNECTOR

| PIN MAP (IN) | PIN NUMBER | PIN NAME | FUNCTION DESCRIPTION |
|--|-------------------|------------------------|----------------------------|
|  | 1, 12 | RED0, RED1 | Data Input For Green Color |
| | 2, 13 | GRN0, GRN1 | Data Input For Red Color |
| | 11, 14 | BLUE0, BLUE1 | Data Input For Blue Color |
| | 3[LSB], 4, 5[MSB] | A[0:2]_IN | 3 BIT Line Address |
| | 7 | $\overline{\text{OE}}$ | Color Brightness Control |
| | 8 | LATCH_IN | Data Strobe |
| | 9 | SCLK_IN | Shift Clock For Input Data |
| | 15 | DIS | Line Decoder Enable Signal |
| | 6, 10 | GND | Ground Of The Module |

| PIN MAP (OUT) | PIN NUMBER | PIN NAME | FUNCTION DESCRIPTION |
|---|-------------------|------------------------|-----------------------------|
|  | 1, 12 | RED0, RED1 | Data Output For Green Color |
| | 2, 13 | GRN0, GRN1 | Data Output For Red Color |
| | 11, 14 | BLUE0, BLUE1 | Data Output For Blue Color |
| | 3[LSB], 4, 5[MSB] | A[0:2]_OUT | 3 BIT Line Address |
| | 7 | $\overline{\text{OE}}$ | Color Brightness Control |
| | 8 | LATCH_OUT | Data Strobe |
| | 9 | SCLK_OUT | Shift Clock For Output Data |
| | 15 | DIS | Line Decoder Enable Signal |
| | 6, 10 | GND | Ground Of The Module |

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2) POWER CONNECTOR

| PIN MAP(POWER) | PIN NUMBER | PIN NAME | FUNCTION DESCRIPTION |
|---|------------|--------------------|-----------------------------|
|  | 1, 2 | $V_{CC} + V_{LED}$ | Supply Voltage For IC & LED |
| | 3, 4 | GND | Ground Of The Module |

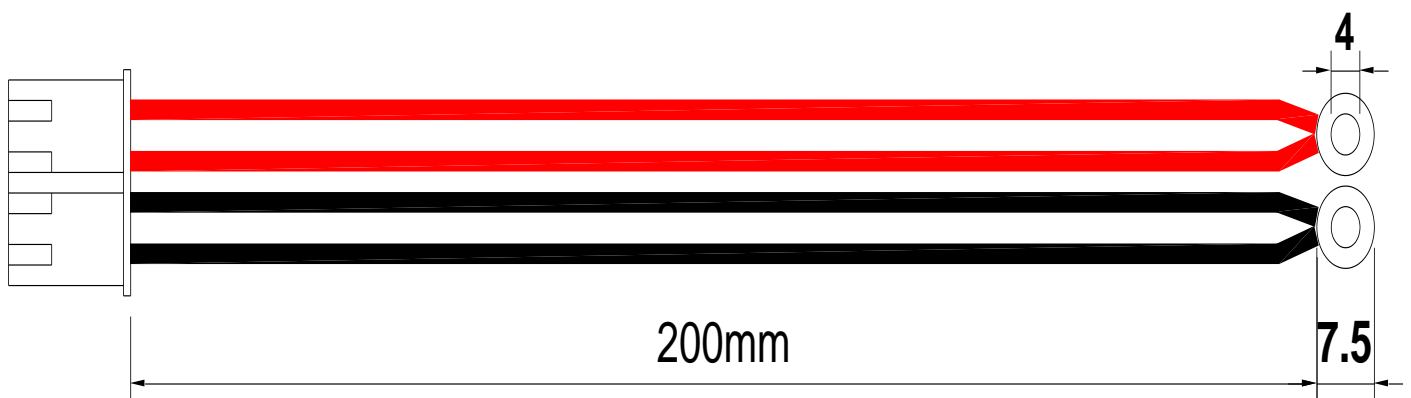
3) CONNECTOR CABLE SPECIFICATION

- DATA CABLE




※ CAUTION : There is no need for data cable to connect in between modules. Only, there is need for data cable to connect between controller and module. The data cable's length depend on customer's condition

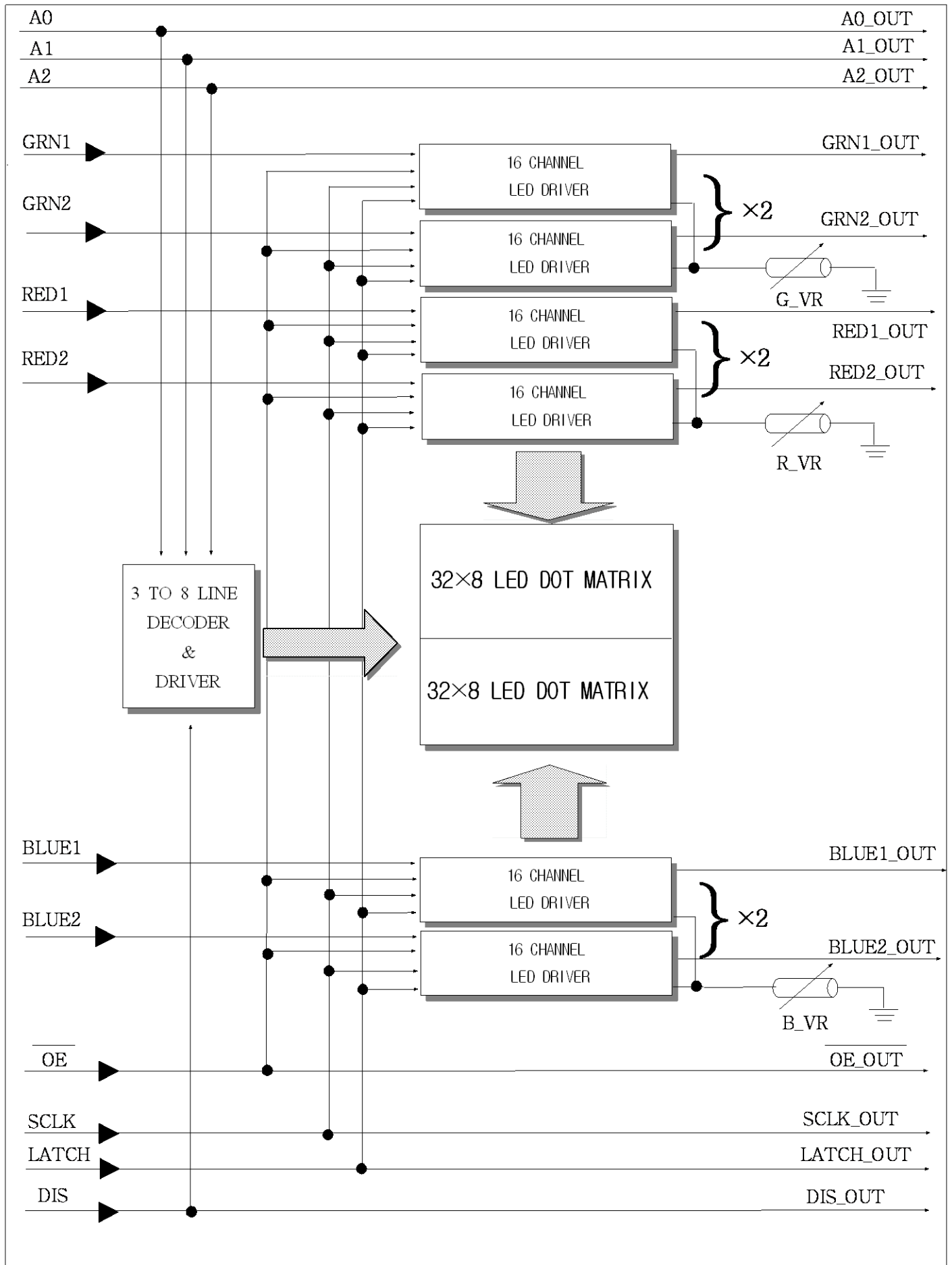
- POWER CABLE




※ This connectors can be changed without a previous notice for quality improvement.

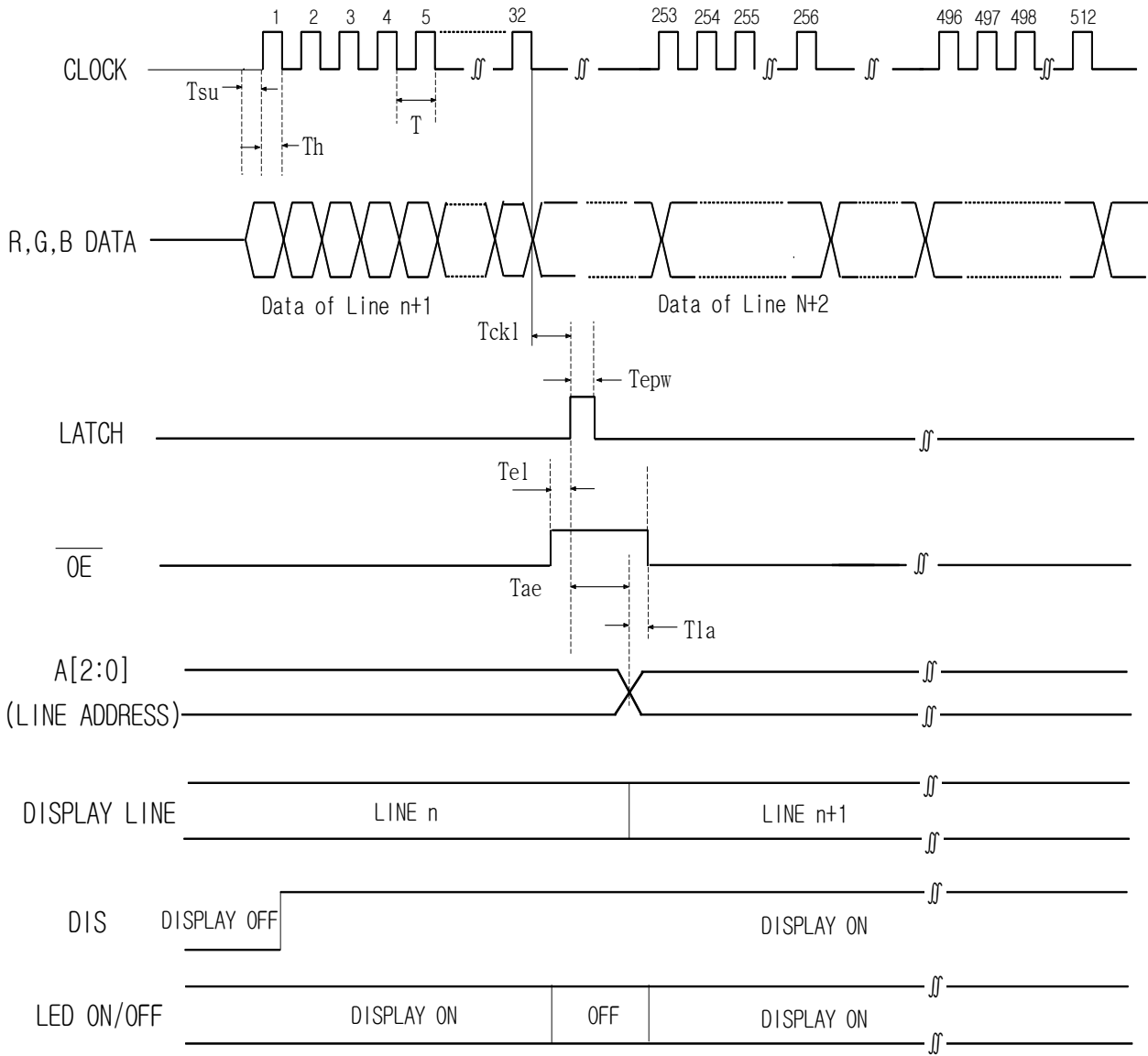
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9. BLOCK DIAGRAM



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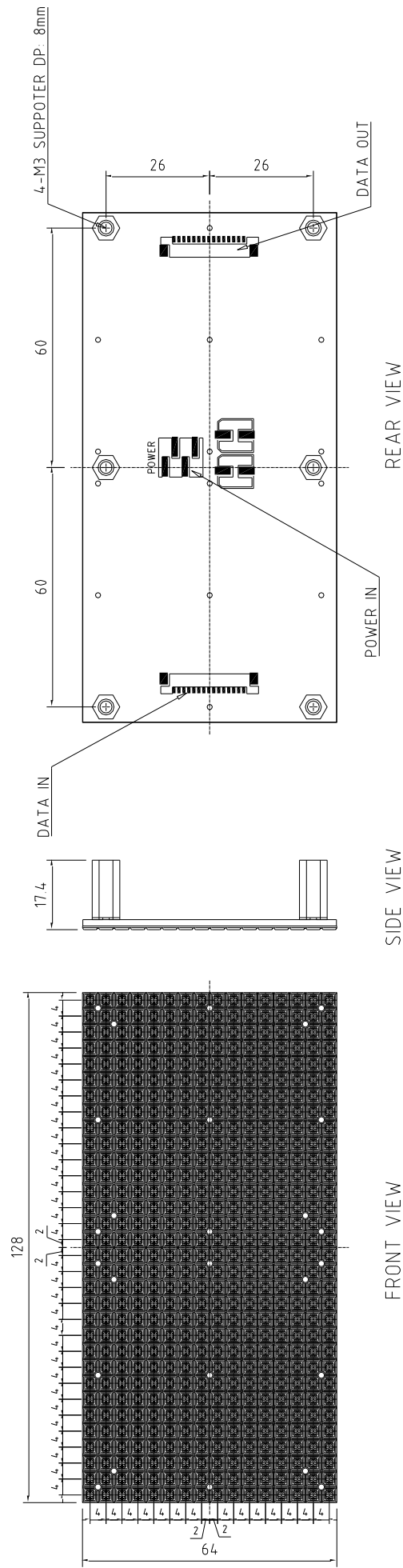
10. TIMMING CHART



($T_a=25^\circ\text{C}$, $V_{CC}=5\text{V}$)

| CHARACTERISTICS | SYMBOL | MIN. | MAX. | UNIT |
|---------------------|-----------|------|------|------|
| CLOCK CYCLE | T | - | 16 | Mhz |
| DATA SETUP TIME | T_{su} | 10 | - | ns |
| DATA HOLD TIME | T_h | 15 | - | ns |
| LATCH PULSE WIDTH | T_{pw} | 50 | - | ns |
| LATCH HOLD TIME | T_{ckl} | 15 | - | ns |
| ENABLE-LATCH TIME | T_{el} | 1 | - | us |
| ENABLE PULSE WIDTH | T_{epw} | 3 | - | us |
| ADDRESS-ENABLE TIME | T_{ae} | 1 | - | us |
| LATCH-ADDRESS TIME | T_{la} | 20 | - | ns |

11. DIMENSION




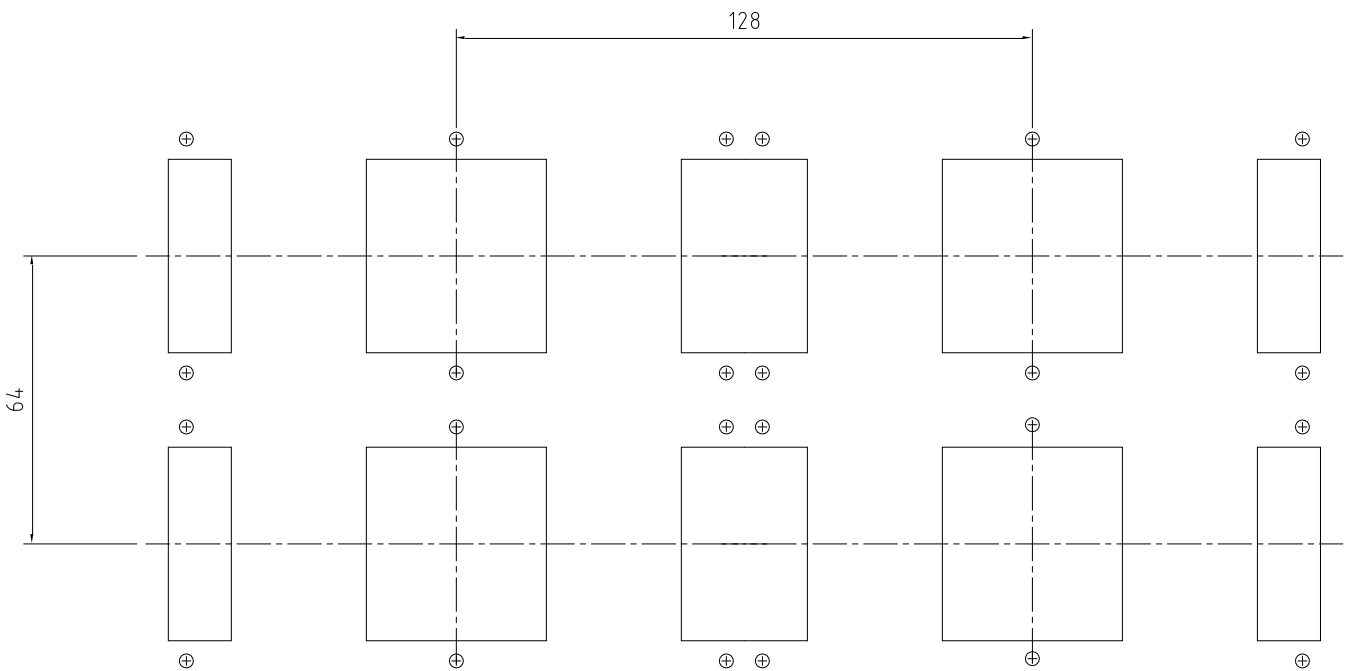
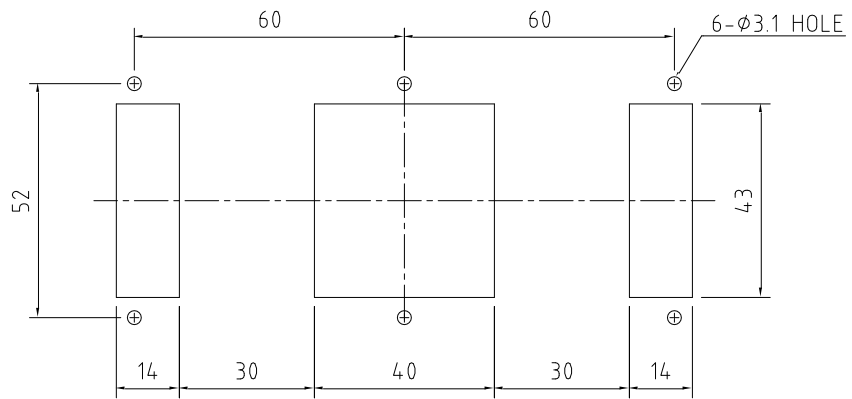

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Plate Work



2*2 ARRAY

**** Hole for assemble between unit case and module.**

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12. SAFETY

● Precautions in installing LED Module


1. Please escape the place where electromagnetic wave and noise is, which might cause malfunction to LED module, when install LED Display Board.
2. Since over voltage and reverse voltage might cause the problem in internal circuit and LED, please make sure and check the input voltage range, before operation.
3. Please escape the high humidity and leakage place which cause the LED module to be broken.
4. The temperature of the surface of LED module shall be under 70°C during operation.
5. Heating from LED might cause damage in LED module or/and malfunction in LED display board, user shall prepare suitable ventilation and cooling facility.
6. Even though the brightness become lower and lower, after long time use, it's prohibited to input over voltage in order to increase the brightness, which might cause severe damage to LED Module.
For the best operation, user shall operate LED module according to data sheet.
7. Please turn off the power supply, when display data are not charged.
8. Please be careful not to exposure LED Module to the dust, dirt, base, gas and other noxious gas, when install LED Display.
9. User shall consider the weight of LED module enough, when prepare steel structure and install LED Display Board.

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● Precautions in installing LED Module

1. Any jumper and switch is set up properly before delivery, please do not modify or/and change setting without consulting with manufacturer.
2. The circuit part of LED Module includes CMOS components, please treat carefully with consideration of static electricity
3. Impact and vibration to LED Module might be the reason of disconnection and dot off, please escape those factors.
4. It's highly recommended to escape the high temperature & humidity and be careful not to exposure LED module to dust, dirt, base and SO2 Gas and other noxious Gas in order to escape the potential problem.
5. Please be careful not to be scratched and hurt on the surface of LED module.
6. It's prohibited to clean up LED module with solvent.
In order to clean up LED module, it's highly recommended to use a piece of dried cloth and smooth brush.
7. Stacking LED modules without anti-impact material and wearing out the surface or/and edge of LED modules might cause fatal problem.
8. It's highly recommended to use twisted cable or shielded wire in order to remove the noise from high frequency.
9. When user use and store LED module, please pack LED module with anti-static material.

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