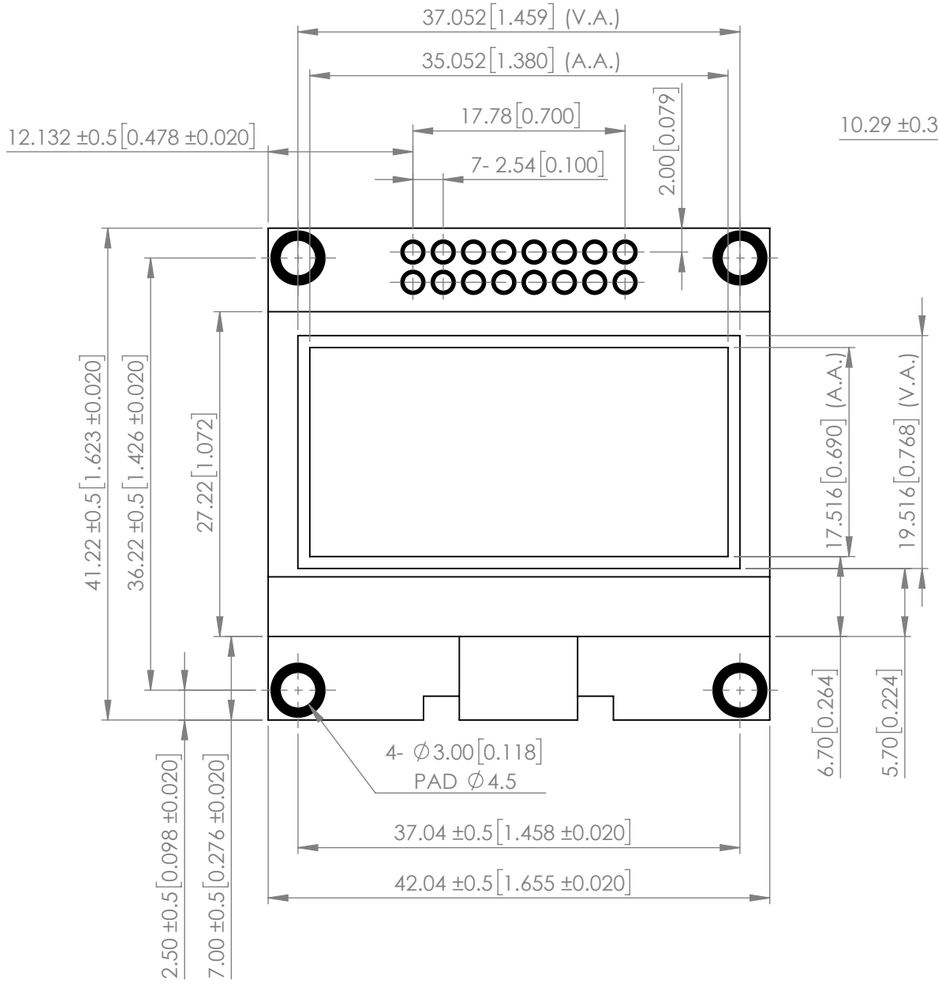
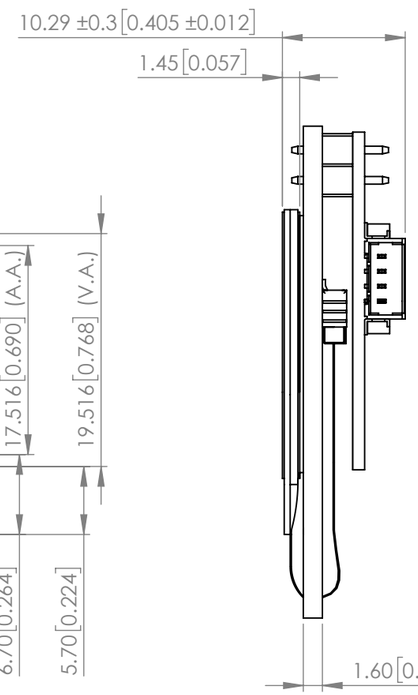
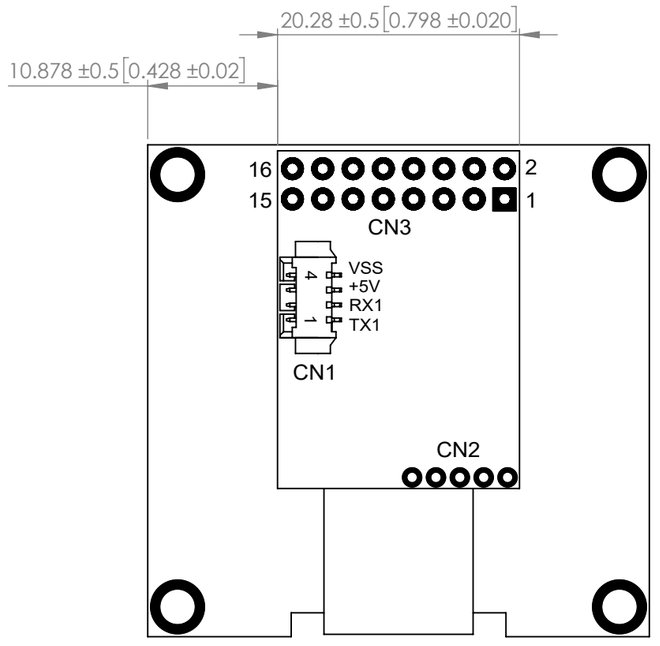
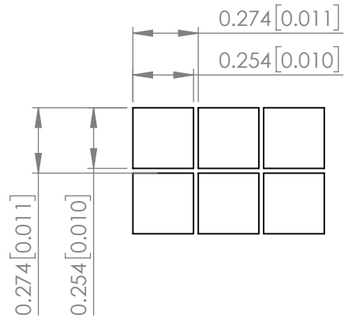
| PART NUMBER | LOD-H12864GP-W-UR2 | REV | -- |
|---|---|---|---|

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42.04(L)*41.2(W)*6.0(H)mm, 1.54" 128x64 OLED ezDisplay, UART Interface.

****THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.****



| | |
|---|---|
| DATE : 2017.10.29 | DRAWN BY : C.C. |
| PAGE : 1 OF 6 | CHKD BY : E.C. |
| SCALE : NTF | APRVD BY : G.Y. |
| UNIT : mm [INCH] | Pb |

## GENERAL SPECIFICATION

| ITEM | DESCRIPTION |
|---|---|
| DISPLAY MODE | PASSIVE MATRIX |
| DISPLAY TYPE | OLED 1.54" |
| NUMBER OF PIXELS | 128 x 64 |
| PIXELS PITCH | 0.274 x 0.274 |
| PIXELS SIZE | 0.254 x 0.254 |
| VIEW ANGLE | >160 DEGREE |
| SUPPLY VOLTAGE | 5.0V |
| DIMENSIONS | 42.04 * 41.22 * 6.0 |
| WINDOW SIZE | 37.052 * 19.516 |
| ACTIVE AREA | 35.052 * 17.516 |

## ABSOLUTE MAXIMUM RATING

(1) Electrical Absolute Ratings

| ITEM | SYMBOL | MIN. | MAX. | UNIT |
|---|---|---|---|---|
| POWER SUPPLY FOR LOGIC | VDD-VSS | -0.3 | 5.5 | VOLT |
| INPUT VOLTAGE | VI | -0.3 | VDD | VOLT |
| SUPPLY VOLTAGE FOR DISPLAY | VCC | 12.0 | 13.0 | VOLT |
| LIFE TIME(120cd/$m^2$) | - | 10000 | - | HOUR |

Note 1: All the above voltages are on the basis of “VSS” = 0V”.
Note 2: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur.

(2) Environmental Absolute Maximum Ratings

| ITEM | WIDE TEMPERATURE | | | |
|---|---|---|---|---|
| | OPERATING | | STORAGE | |
| | MIN. | MAX. | MIN. | MAX. |
| AMBIENT TEMPERATURE | -40°C | +70°C | -40°C | +80°C |

## FUNCTIONAL SPECIFICATION

### (1)UART CONFIGURATION:

| ITEM | SETTING VALUE |
|---|---|
| BAUD RATE | 115200 |
| DATA BIT | 8 |
| STOP BIT | 1 |
| PARITY BIT | NONE |
| FLOW CONTROL | NONE |

## CN1 PIN ASSIGNMENT

| PIN NO. | PIN OUT | LEVEL | DESCRIPTION |
|---|---|---|---|
| 1 | TX1 | H/L | SERIAL TRANSMIT SIGNAL |
| 2 | RX1 | H/L | SERIAL RECEIVE SIGNAL |
| 3 | +5V | +5V | POWER SUPPLY VOLTAGE |
| 4 | VSS | 0V | POWER SUPPLY GROUND |

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42.04(L)*41.2(W)*6.0(H)mm, 1.54" 128x64 OLED ezDisplay, UART Interface.

## ELECTRICAL CHARACTERISTICS

| ITEM | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| POWER SUPPLY FOR LOGIC | $V_{DD}$-$V_{SS}$ | - | 4.5 | 5.0 | 5.5 | VOLT |
| SUPPLY VOLTAGE FOR DISPLAY | $V_{CC}$ | - | 12.0 | 12.5 | 13.0 | VOLT |
| INPUT VOLTAGE | $V_{IL}$ | L LEVEL | 0 | - | 0.2 $V_{DD}$ | VOLT |
| | $V_{IH}$ | H LEVEL | 0.8 $V_{DD}$ | - | $V_{DD}$ | VOLT |
| OUTPUT VOLTAGE | $V_{OL}$ | L LEVEL | 0 | - | 0.1 $V_{DD}$ | VOLT |
| | $V_{OH}$ | H LEVEL | 0.9 $V_{DD}$ | - | $V_{DD}$ | VOLT |
| POWER SUPPLY CURRENT | $I_{DD}$ OPERATING | $V_{DD}$=5V | 52 | 57 | 65 | mA |

## OPTICAL CHARACTERISTICS

| ITEM | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| VIEW ANGLE RANGE | Φf (12 O'CLOCK) | - | - | 85 | - | DEGREE |
| | Φb (12 O'CLOCK) | | - | 85 | - | |
| | Φl (12 O'CLOCK) | | - | 85 | - | |
| | Φr (12 O'CLOCK) | | - | 85 | - | |
| RISE TIME | Tr | - | - | 40 | 15 | nS |
| FALL TIME | Tf | | - | 40 | 15 | |
| FRAME FREQUENCY | Frm | | - | - | - | Hz |
| CONTRAST | Cr | | 10000 | - | - | |
| BRIGHTNESS | L | - | 100 | 120 | - | $cd/m^2$ |
| PEAK EMISSION WAVELENGTH | C.I.E (WHITE) | | X=0.25 Y=0.27 | X=0.29 Y=0.31 | X=0.33 Y=0.35 | nm |

Note1: Optiacl measure taken at VDD=5.0V, Vcc=12.5V, Ta=25℃.

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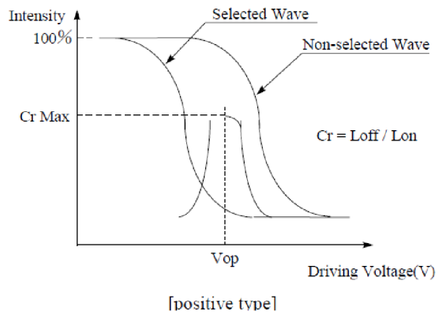
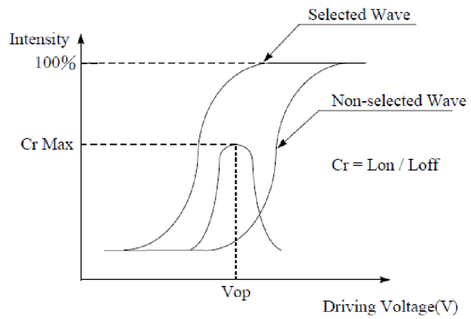
## Definition of Operation Voltage (Vop)

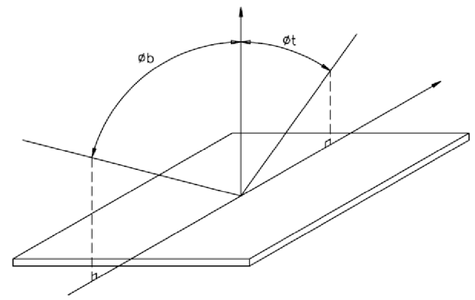


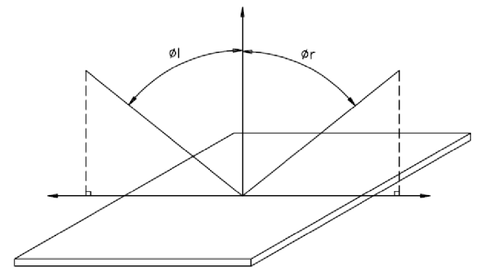

[positive type]



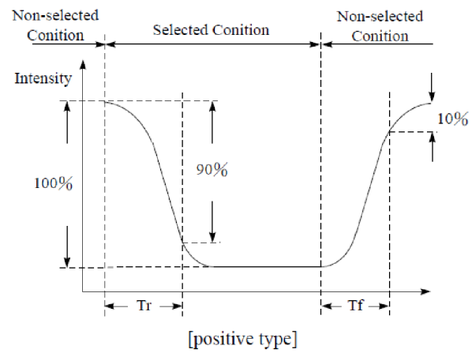

[Negative type]

## Definition of viewing angle

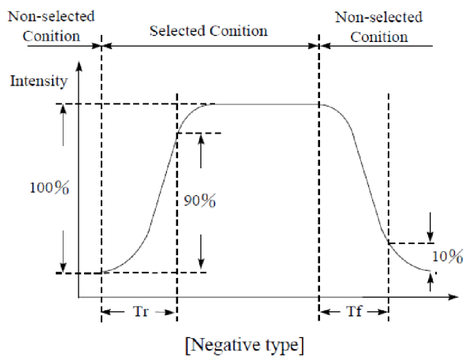



## Definition of Response Time (Tr, Tf)

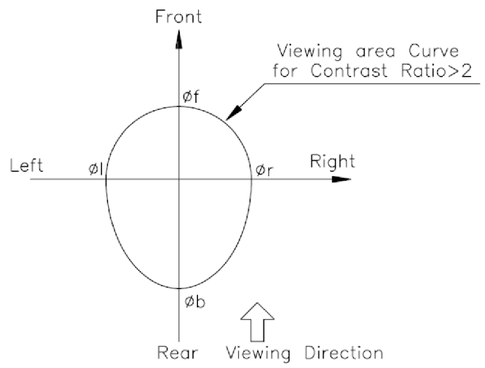



[positive type]




[Negative type]

## Definition of Viewing Direction

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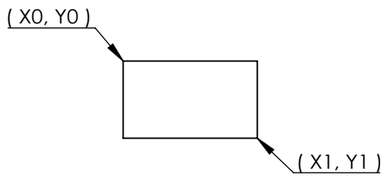
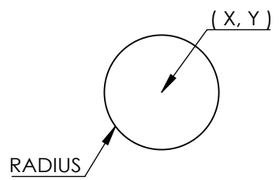
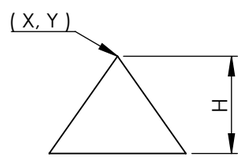
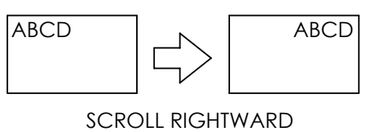
| DATE : 2017.10.29 | DRAWN BY : C.C. |
| PAGE : 4 OF 6 | CHKD BY : E.C. |
| SCALE : NTF | APRVD BY : G.Y. |
| UNIT : mm [INCH] | Pb |

| DIAGRAM | COMMAND* | EXAMPLE |
|---|---|---|
|  | Write a 5X7 String | at**81**=(line,column,String)<br>at**81**=(0,0,ABCD) |
|  | Draw a Rectangle | at**91**=(X0 position,Y0 position,X1 position,Y1 position,**0 or 1**)<br>at**91**=(0,0,55,7,1) : '1' positive mode |
|  | Draw a Circle | at**94**=(X position,Y position,Radius,**0 or 1**)<br>at**94**=(48,4,3,1) : '1' positive mode |
|  | Draw a tip upward Triangle | at**96**=(X position,Y position,Height,**0 or 1**)<br>at**96**=(48,1,3,1) : '1' positive mode |
|  | Scroll the whole display rightward | at**d5**=(shif time in ms)<br>at**d5**=(20) |

* Please refer to detail commands on Lumex website: www.lumex.com/ezdisplay



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| PAGE : 5 OF 6 | CHKD BY : E.C. |
| SCALE : NTF | APRVD BY : G.Y. |
| UNIT : mm [INCH] | Pb |

## ASCII code of 5X7 fonts and 8X16 fonts

| Hex | Symbol | Hex | Symbol | Hex | Symbol |
|---|---|---|---|---|---|
| **0x20** | | **0x40** | @ | **0x60** | ` |
| **0x21** | ! | **0x41** | A | **0x61** | a |
| **0x22** | " | **0x42** | B | **0x62** | b |
| **0x23** | # | **0x43** | C | **0x63** | c |
| **0x24** | $ | **0x44** | D | **0x64** | d |
| **0x25** | % | **0x45** | E | **0x65** | e |
| **0x26** | & | **0x46** | F | **0x66** | f |
| **0x27** | | **0x47** | G | **0x67** | g |
| **0x28** | ( | **0x48** | H | **0x68** | h |
| **0x29** | ) | **0x49** | I | **0x69** | i |
| **0x2a** | * | **0x4a** | J | **0x6a** | j |
| **0x2b** | + | **0x4b** | K | **0x6b** | k |
| **0x2c** | , | **0x4c** | L | **0x6c** | l |
| **0x2d** | - | **0x4d** | M | **0x6d** | m |
| **0x2e** | . | **0x4e** | N | **0x6e** | n |
| **0x2f** | | **0x4f** | O | **0x6f** | o |
| **0x30** | 0 | **0x50** | P | **0x70** | p |
| **0x31** | 1 | **0x51** | Q | **0x71** | q |
| **0x32** | 2 | **0x52** | R | **0x72** | r |
| **0x33** | 3 | **0x53** | S | **0x73** | s |
| **0x34** | 4 | **0x54** | T | **0x74** | t |
| **0x35** | 5 | **0x55** | U | **0x75** | u |
| **0x36** | 6 | **0x56** | V | **0x76** | v |
| **0x37** | 7 | **0x57** | W | **0x77** | w |
| **0x38** | 8 | **0x58** | X | **0x78** | x |
| **0x39** | 9 | **0x59** | Y | **0x79** | y |
| **0x3a** | : | **0x5a** | Z | **0x7a** | z |
| **0x3b** | ; | **0x5b** | ] | **0x7a** | { |
| **0x3c** | < | **0x5c** | \ | **0x7a** | \| |
| **0x3d** | = | **0x5d** | [ | **0x7a** | } |
| **0x3e** | > | **0x5e** | ^ | **0x7a** | ~ |
| **0x3f** | ? | **0x5f** | _ | **0x7a** | <- |

## ASCII code of 16X16 fonts

| Hex | Symbol |
|---|---|
| **0x30** | 0 |
| **0x31** | 1 |
| **0x32** | 2 |
| **0x33** | 3 |
| **0x34** | 4 |
| **0x35** | 5 |
| **0x36** | 6 |
| **0x37** | 7 |
| **0x38** | 8 |
| **0x39** | 9 |

## No. of 8X16 pattern

| No. | Symbol |
|---|---|
| **0** | 0 |
| **1** | 1 |
| **2** | 2 |
| **3** | 3 |
| **4** | 4 |
| **5** | 5 |
| **6** | 6 |
| **7** | 7 |
| **8** | 8 |
| **9** | 9 |

## No. of 32X32 pattern

| No. | Symbol |
|---|---|
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 | °C |
| 11 | °F |
| 12 |  |

## No. of 8X8 pattern

| No. | Symbol |
|---|---|
| **0** | 0 |
| **1** | 1 |
| **2** | 2 |
| **3** | 3 |
| **4** | 4 |
| **5** | 5 |
| **6** | 6 |
| **7** | 7 |
| **8** | 8 |
| **9** | 9 |

## No. of 16X16 pattern

| No. | Symbol |
|---|---|
| **0** | 0 |
| **1** | 1 |
| **2** | 2 |
| **3** | 3 |
| **4** | 4 |
| **5** | 5 |
| **6** | 6 |
| **7** | 7 |
| **8** | 8 |
| **9** | 9 |

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