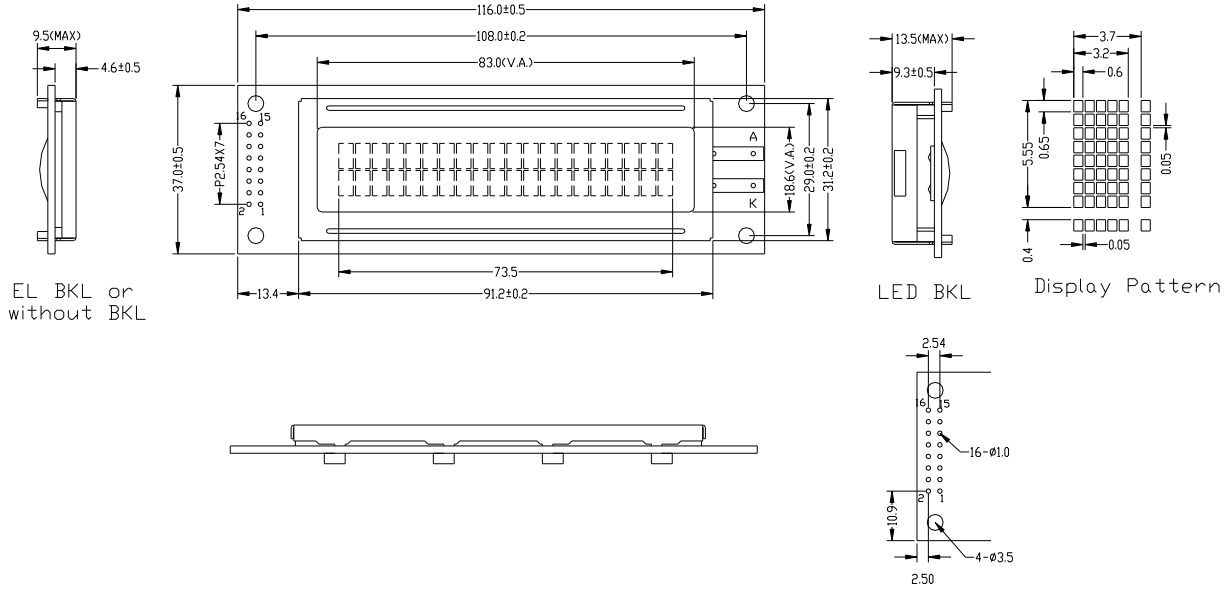
# ECM2002D

## Outline Dimension




## Feature

1. *5X8 dots with cursor*
2. *Built-in controller (SPLC780D or Equivalent)*
3. *+5V power supply(Also available for +3.0V)*
4. *1/16 duty cycle*
5. *BKL to be driven by pin1,pin2,or pin15,pin16 or A,K*
6. *N.V.optional*

## Interface pin connections

| PIN NO | Symbol | Function |
|---|---|---|
| 1 | VSS | GND |
| 2 | VDD | +5V |
| 3 | V0 | Contrast adjustment |
| 4 | RS | H/L Register select signal |
| 5 | R/W | H/L Read/Write signal |
| 6 | E | H/L Enable signal |
| 7 | DB0 | H/L Data bus line |
| 8 | DB1 | H/L Data bus line |
| 9 | DB2 | H/L Data bus line |
| 10 | DB3 | H/L Data bus line |
| 11 | DB4 | H/L Data bus line |
| 12 | DB5 | H/L Data bus line |
| 13 | DB6 | H/L Data bus line |
| 14 | DB7 | H/L Data bus line |
| 15 | A | +4.2V for BKL |
| 16 | K | Power supply for BKL(0V) |

## Mechanical Data

| Item | Standard | Unit |
|---|---|---|
| *Module dimension* | *116.0x37.0* | *mm* |
| *Viewing area* | *83.0x18.6* | *mm* |
| *Dot size* | *0.60x0.65* | *mm* |
| *Character size* | *3.20x5.95* | *mm* |

## Absolute Maximum Rating

| Item | Symbol | Standard | | | Unit |
|---|---|---|---|---|---|
| | | Min | Typ | Max | |
| *Power supply* | *VDD-VSS* | -0.3 | -------- | 5.5 | V |
| *Input voltage* | *VI* | -0.3 | -------- | VDD | |

## Electronical characteristics

| Item | Symbol | Condition | Standard | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | |
| *Input voltage* | *VDD* | +5V | 4.7 | 5.0 | 5.5 | V |
| | | +3.3V | 2.7 | 3.0 | 5.3 | V |
| *Supply current* | *IDD* | VDD=5V | ------ | 2.5 | 4 | mA |
| *Recommended LCD driving voltage for normal temp version module* | VDD-V0 | -20ºC | ------ | ------ | ------ | V |
| | | 0 ºC | 4.7 | 5.0 | 5.5 | |
| | | 25ºC | 4.3 | 4.5 | 4.7 | |
| | | 50ºC | 4.1 | 4.3 | 4.5 | |
| | | 70ºC | ------ | ------- | ------ | |
| *LED forward voltage* | *VF* | 25ºC | ------ | 4.2 | 4.6 | V |
| *LED forward current* | *IF* | 25ºC | ------ | 140 | ------ | mA |
| *EL power supply current* | IEL | VEL=110V AC 400Hz | ----- | ------- | ------ | mA |

## Display character address code:

*Display position*

| | *1* | *2* | *3* | *4* | *5* | --- | --- | --- | --- | *18* | *19* | *20* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *DDRAM address* | *00* | *01* | *02* | --- | --- | --- | --- | --- | | *11* | *12* | *13H* |
| *DDRAM address* | *40* | *41* | *42* | --- | --- | --- | --- | --- | | *51* | *52* | *53H* |