



Graphic LCD is meant to display images, letters and numbers.

For example, a 128 x 64 LCD would contain 128 horizontal dots and 64 vertical dots. Each of these dots can be turned ON and OFF independently and are referred as pixel.

Bolymin is a leading manufacturer of Graphic LCD modules (liquid crystal display) in Taiwan.

We offer many standard graphic LCD, including 122x32, 128x64, 128x128, 144x32, 160x128, 160x160, 160x32, 160x80, 192x64, 192x128, 240x64, 320x240 and also provide customized LCD.

Bolymin have various color LCD display with different LED backlights. Yellow-Green LCD module, White LCD Module, Red LCD Module etc. please refer to our LCD shade card for more details.

We cater to customers across the globe and offer graphic LCD for various applications; white goods LCD, POS system LCD, industrial LCD, automotive LCD, medical LCD, defense LCD and many more.

Different application require different LCD view angles and Bolymin offers viewing angles of 6:00, 12:00, 3:00, and 9:00 o'clock. To read more about viewing angles, please click here

| Model No. | Format | Module Size (mm) | View Area (mm) | Dot Size (mm) | Controller | Interface | Product flyer |
|-----------|--------|------------------|----------------|---------------|------------|-----------|---------------|
|-----------|--------|------------------|----------------|---------------|------------|-----------|---------------|

COB / SMD Type

| | | | | | | | |
|------------|---------|---------------|--------------|-----------|-----------------|---------------|--|
| BG12232A1 | 122x32 | 84*44 | 60*18 | 0,4*0,45 | SBN1661G-M18 | Parallel | |
| BG12232D1 | 122x32 | 80*36 | 60*18 | 0,4*0,45 | SBN1661G-M18 | Parallel | |
| BG12232D2 | 122x32 | 80*36 | 61,3*18 | 0,4*0,45 | SBN1661G-M02 | Parallel | |
| BG12864A | 128x64 | 93*70 | 72*40 | 0.48*0.48 | NT7107 / NT7108 | Parallel | |
| BG12864B | 128x64 | 93*70 | 72*40 | 0.48*0.48 | ST7920 | Parallel/ SPI | |
| BG12864C | 128x64 | 80*70 | 72*40 | 0.48*0.48 | NT7107 / NT7108 | Parallel | |
| BG12864C1 | 128x64 | 78*70 | 62*44 | 0,4*0,56 | NT7107 / NT7108 | Parallel | |
| BG12864D | 128x64 | 78*70 | 62*44 | 0,4*0,56 | UCi6963c | Parallel | |
| BG12864E | 128x64 | 75*52.7 | 60*32.6 | 0.39*0.39 | NT7107 / NT7108 | Parallel | |
| BG12864F | 128x64 | 87*70 | 72*44 | 0.48*0.48 | UCi6963c | Parallel | |
| BG12864H | 128x64 | 54*50 | 43.5*29 | 0.28*0.35 | NT7107 / NT7108 | Parallel | |
| BG12864J | 128x64 | 75*45.8 | 61*38 | 0.42*0.50 | SBN0064G/6400G | Parallel | |
| BG14432A | 144x32 | 84*44 | 66*16 | 0,37*0,37 | ST7920 | Parallel | |
| BG16032A | 160x32 | 116*37 | 85*18.6 | 0.45*0.45 | ST7920 | Parallel | |
| BG16080A | 160x80 | 100*54 | 72.3*37.8 | 0.39*0.39 | SAP1024B | Parallel | |
| BG160128B | 160x128 | 129*102 | 101*82 | 0.54*0.54 | UCi6963c | Parallel | |
| BG19264A | 192x64 | 100*60 | 84*31 | 0.36*0.36 | NT7107 / NT7108 | Parallel | |
| BG24064A | 240x64 | 180*65 | 133*39 | 0.49*0.49 | UCi6963c | Parallel | |
| BG240128A | 240x128 | 170*103.5 | 132*76 | 0.47*0.47 | UCi6963c | Parallel | |
| BG240128B2 | 240x128 | 144*104 | 114*64 | 0.43*0.43 | UCi6963c | Parallel | |
| BG240128BA | 240x128 | 144*104 | 114*64 | 0.42*0.42 | UCi6963c | Parallel | |
| BG320240A | 320x240 | 166.8*109 | 122*92 | 0.34*0.34 | None | Parallel | |
| BG320240B1 | 320x240 | 139,98*120,24 | 120,14*92,14 | 0.34*0.34 | RA8835 | Parallel | |
| BG320240F | 320x240 | 166.8*109 | 122*92 | 0.34*0.34 | RA8835 | Parallel | |



BG12232A₁

Feature

1. COB with metal frame
2. Built-in internal clock
3. Built-in controller SBN1661G-M18 or equivalent
4. 1/32 duty cycle
5. + 5V single power supply
6. LED B/L Pins: 19/20, or A/K, or 1/2
7. Option: LED, EL B/L
8. Option: +3V single power supply

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 84.0 x 44.0 | mm |
| Viewing Area | 60 x 18 | mm |
| Dot Size | 0.4 x 0.45 | mm |
| Dot Pitch | 0.44 x 0.49 | mm |



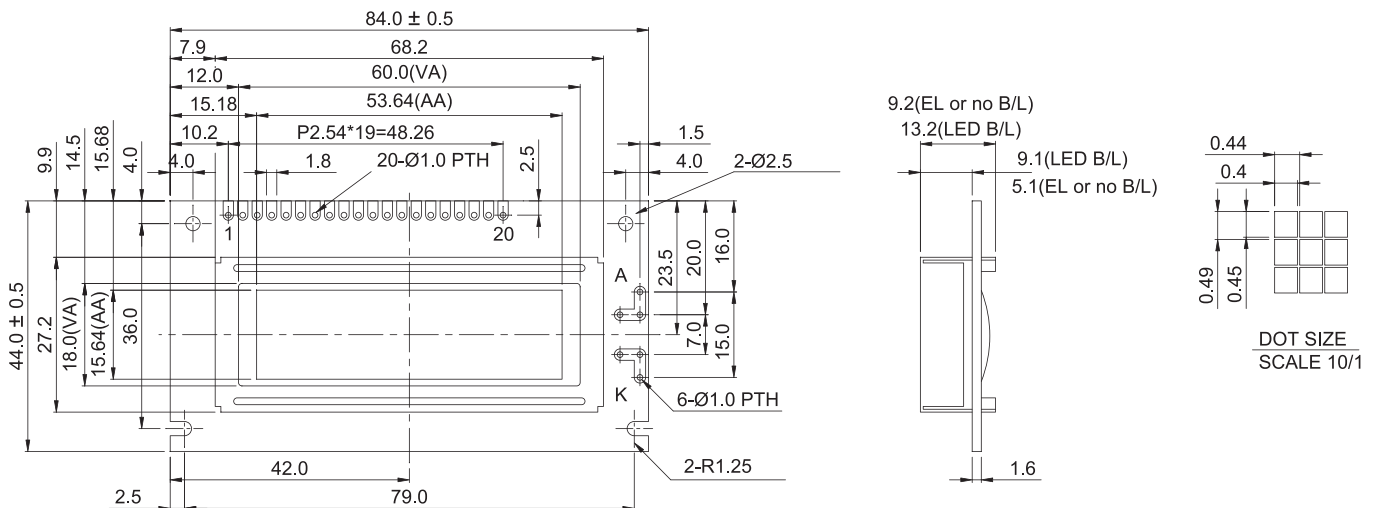
Pin Assignment

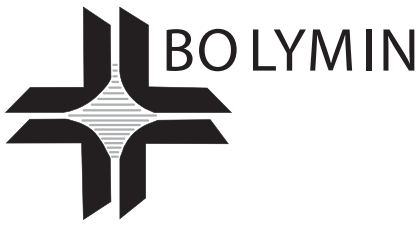
| Pin | Symbol | Function |
|-------|--------|--------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | +5V(+3V option) |
| 3 | Vo | Contrast Adjustment |
| 4 | Ao | H --> Data L --> Instruction |
| 5 | E1 | Data Latch For Chip1(S1~S61) |
| 6 | E2 | Data Latch For Chip2(S62~S122) |
| 7 | NC | No Connection |
| 8 | NC | No Connection |
| 9 | R/W | R/W for 68 serial |
| 10~17 | DB0~7 | Data bus line |
| 18 | /RES | Reset(H->L) |
| 19 | A/Vee | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|---------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 1.0 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 4.8 | V |
| LED Forward Voltage | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 100 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension





BG12232D1



Feature

1. COB with metal frame
2. built-in oscillation
3. Built-in controller SBN1661G-M18 or equivalent
4. 1/32 duty cycle
5. + 5V single power supply
6. Option: +3V single power supply
7. Option: LED, EL B/L
7. Option: Negative Voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 80.0 x 36.0 | mm |
| Viewing Area | 60.0 x 18.0 | mm |
| Dot Size | 0.4 x 0.45 | mm |
| Dot Pitch | 0.44 x 0.49 | mm |



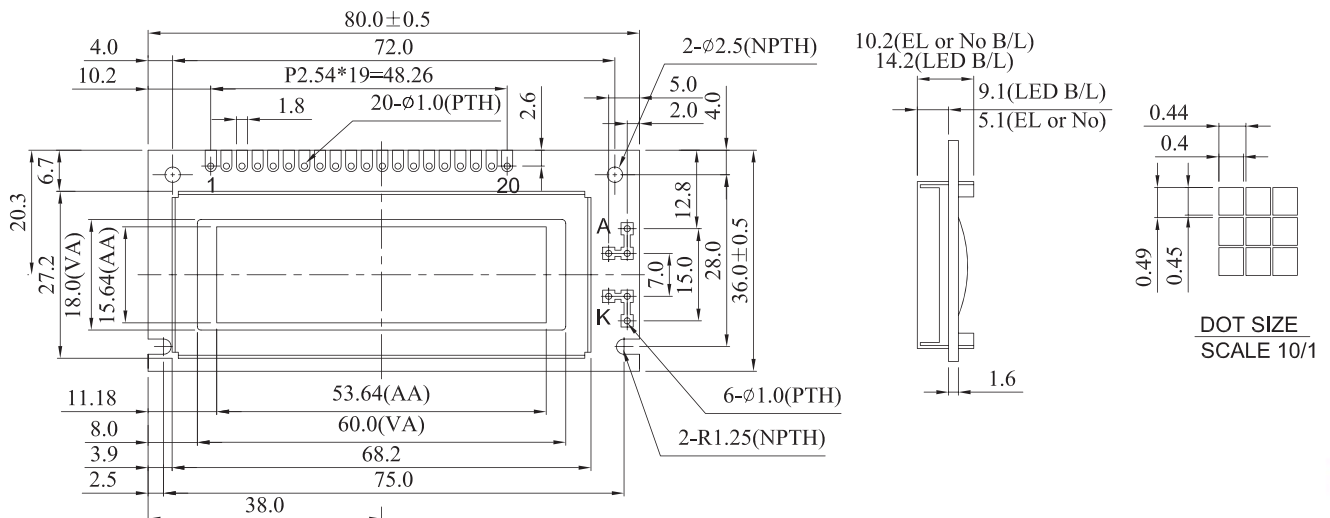
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|------------------------------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | + 5V(+3V option) |
| 3 | Vo | Contrast adjustment |
| 4 | Ao | H --> Data L --> Instruction |
| 5 | E1 | Data latch for chip 1 |
| 6 | E2 | Data latch for chip2 |
| 7 | NC | No connection |
| 8 | NC | No connection |
| 9 | R/W | H:read , L:write |
| 10~17 | DB0~7 | Data bus line |
| 18 | /RES | Reset signal |
| 19 | A/Vee | Power supply for B/L (+)/ Negative voltage output |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 1.0 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 4.8 | V |
| LED Forward Voltage(yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 100 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension

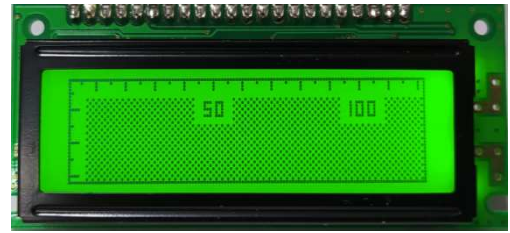




BG12232D2

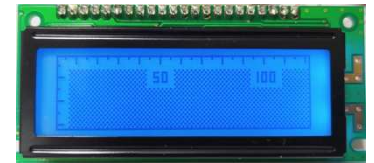
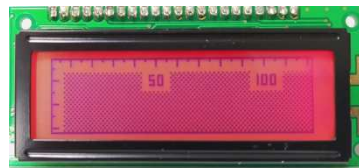
Feature

1. COB with metal frame
2. No built-in oscillation, requiring external clock
3. Built-in controller SBN1661G-M02 or equivalent
4. 1/32 duty cycle
5. +5V single power supply
6. LED RGB Backlight



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 80.0 x 36.0 | mm |
| View Area | 61.3 x 18.0 | mm |
| Dot Size | 0.40 x 0.45 | mm |
| Dot Pitch | 0.45 x 0.49 | mm |



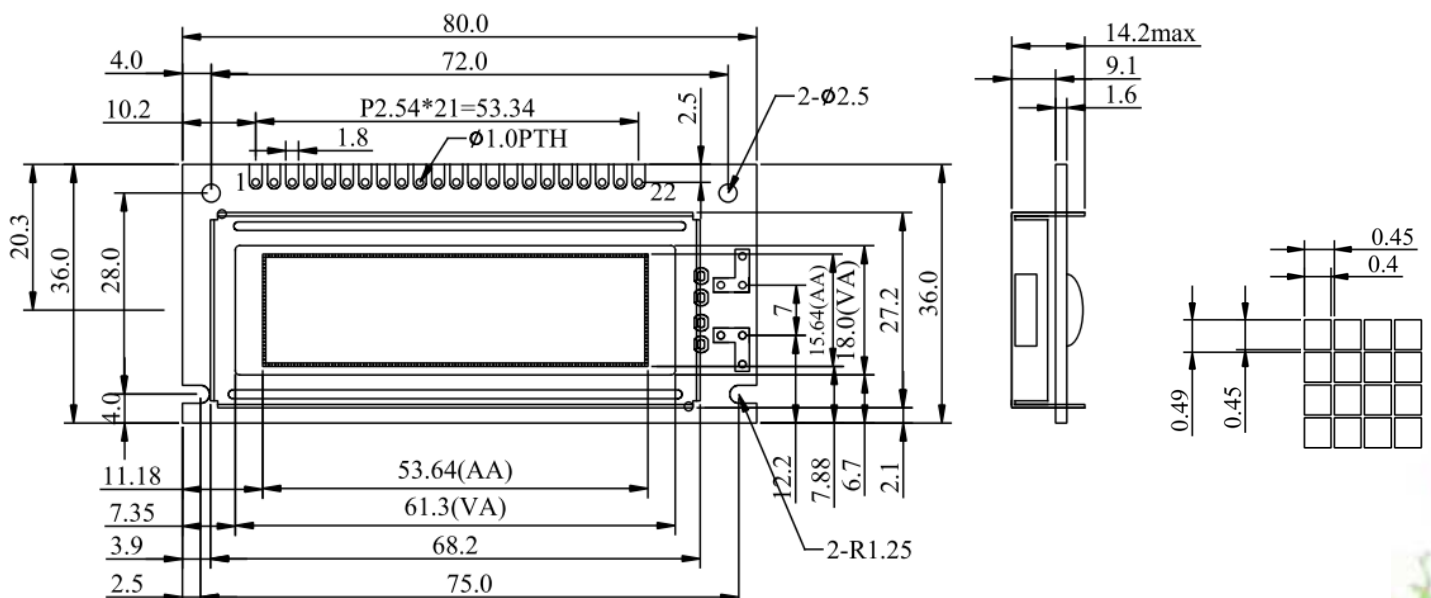
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|---------------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | 5V |
| 3 | Vo | Contrast adjustment |
| 4 | Ao | H --> Data L --> Instruction |
| 5 | /CS1 | L --> Chip1 enable |
| 6 | /CS2 | L --> Chip2 enable |
| 7 | CL | External clock 2KHZ |
| 8 | RD/E | RD for 80 series; / E for 68 series |
| 9 | WR,R/W | WR for 80 series; / R/W for 68 series |
| 10~17 | DB0~7 | Data bus line |
| 18 | RES | L: 80 series; H: 68 series |
| 19 | A | Power supply for B/L(+) |
| 20 | K(R) | Power supply for B/L(GND) |
| 21 | K(G) | Power supply for B/L(GND) |
| 22 | K(B) | Power supply for B/L(GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|---------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd=+5V | 5.0 | V |
| Supply Current | Idd | Vdd=+5V | 1.0 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 4.8 | V |

Dimension



BG12864A



Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: Temperature compensation circuit
6. LED B/L Pins: 19/20, or A/K, or 1/2
7. Option: LED array/edge B/L, EL B/L
8. Option: +3V single power supply
9. Option: External negative voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 93.0 x 70.0 | mm |
| Viewing Area | 72.0 x 40.0 | mm |
| Dot Size | 0.48 x 0.48 | mm |
| Dot Pitch | 0.52 x 0.52 | mm |



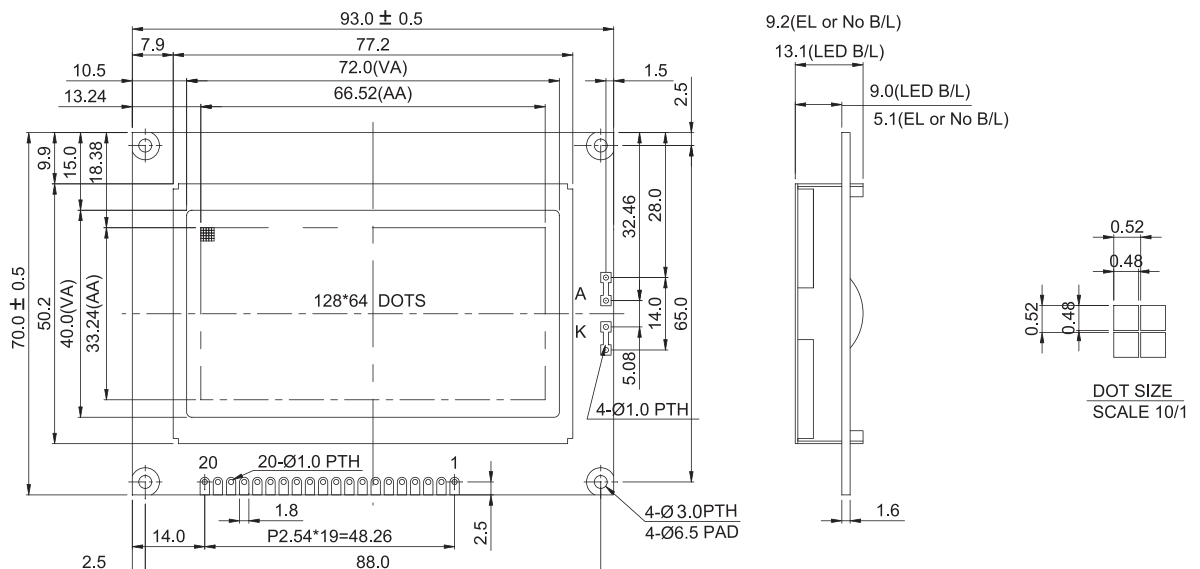
Pin Assignment

| Pin | Symbol | Function |
|------|--------|--------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | + 5V(+3V option) |
| 3 | Vo | Contrast adjustment |
| 4 | D/I | Data/instruction |
| 5 | R/W | Data read/write |
| 6 | E | H -> L Enable signal |
| 7~14 | DB0~7 | Data bus line |
| 15 | CS1 | Chip select for IC1 |
| 16 | CS2 | Chip select for IC2 |
| 17 | /RST | Reset |
| 18 | Vee | Negative voltage output(-4.8V) |
| 19 | A | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.6 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.1 | V |
| LED Forward Current | If | 25°C | 330 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension



BG12864B



Feature

1. COB with metal frame
2. Built-in controller ST7920
(128x64 dots matrix mode or 16x16 dots Big5/GB Chinese mode , or 8x16 dots ASCII mode)
3. +5V single power supply
4. 1/32 duty cycle
5. Option: +3V single power supply
6. Option: LED array/edge B/L, EL B/L

Chinese Font



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 93.0 x 70.0 | mm |
| Viewing Area | 72.0 x 40.0 | mm |
| Dot Size | 0.48 x 0.48 | mm |
| Dot Pitch | 0.52 x 0.52 | mm |

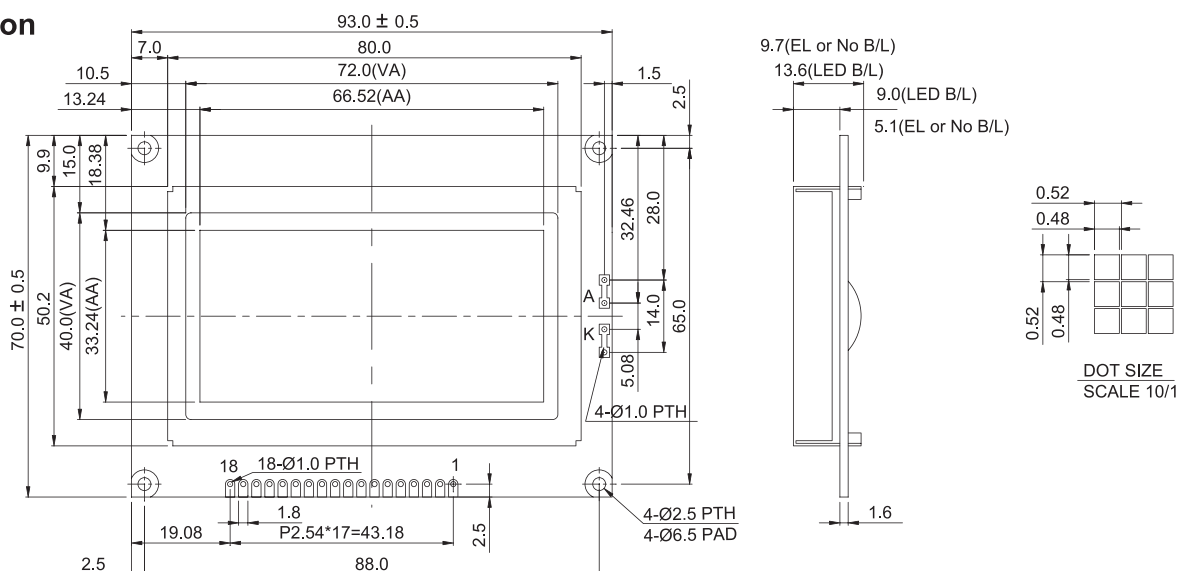
Pin Assignment

| Pin | Symbol | Function |
|------|--------|-------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | + 5V(+3V option) |
| 3 | Vo | Contrast adjustment |
| 4 | RS | Register selection signal |
| 5 | R/W | Data read/write |
| 6 | E | H -> L Enable signal |
| 7~14 | DB0~7 | Data bus line |
| 15 | A | Power supply for B/L (+) |
| 16 | K | Power supply for B/L (GND) |
| 17 | /RST | Reset LCD module |
| 18 | Vee | Positive voltage output +7.5V |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|---------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5.0 | mA |
| LCD Driving Voltage | Vo-Vss | 25°C | 4.3 | V |
| LED Forward Voltage | Vf | 25°C | 4.1 | V |
| LED Forward Current | If | 25°C | 330 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension



BG12864C



Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. + 5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: LED, EL B/L
6. Option: External negative voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 80.0 x 70.0 | mm |
| Viewing Area | 72.0 x 40.0 | mm |
| Dot Size | 0.48 x 0.48 | mm |
| Dot Pitch | 0.52 x 0.52 | mm |



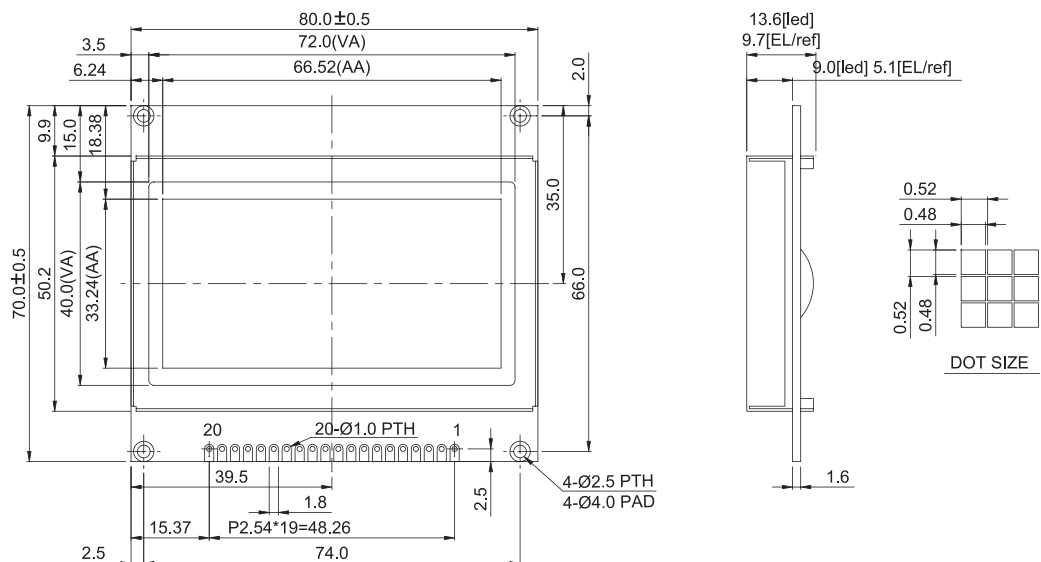
Pin Assignment

| Pin | Symbol | Function |
|------|--------|----------------------------|
| 1 | Vss | GND |
| 2 | Vdd | Power supply (+5V) |
| 3 | Vo | Contrast adjustment |
| 4 | D/I | Data/Instruction |
| 5 | R/W | Data read/write |
| 6 | E | H --> L Enable signal |
| 7~14 | DB0~7 | Data bus line |
| 15 | CS1 | Chip select for IC1 |
| 16 | CS2 | Chip select for IC2 |
| 17 | /RST | Reset |
| 18 | Vee | Negative voltage output |
| 19 | A | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.8 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.1 | V |
| LED Forward Current | If | 25°C | 330 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension

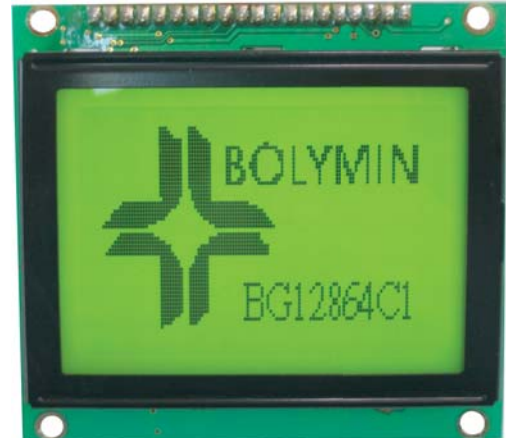


BG12864C1



Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: LED array B/L, EL B/L
6. Option: External negative voltage



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 78.0 x 70.0 | mm |
| Viewing Area | 62.0 x 44.0 | mm |
| Dot Size | 0.40 x 0.56 | mm |
| Dot Pitch | 0.44 x 0.60 | mm |

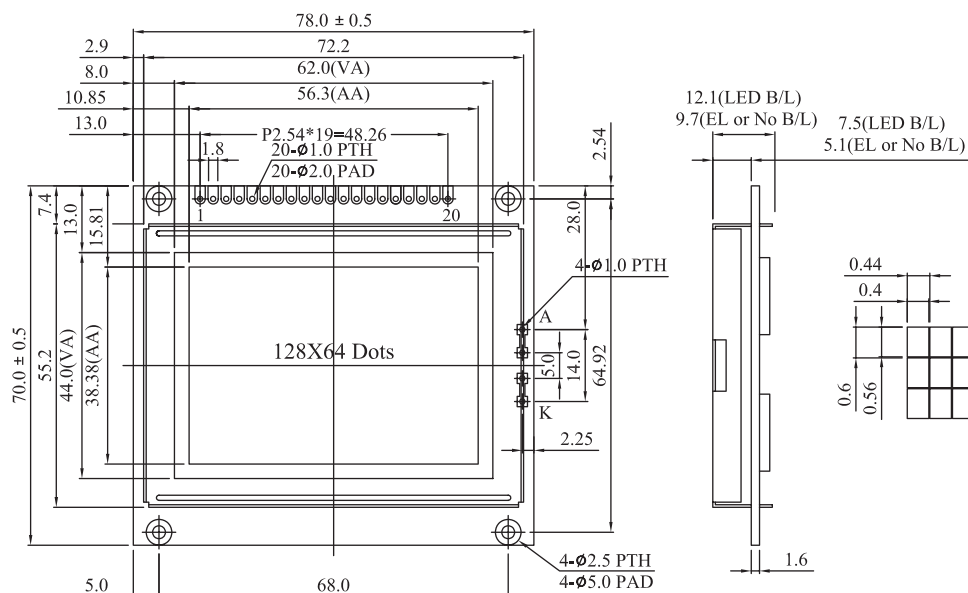
Pin Assignment

| Pin | Symbol | Function |
|------|--------|----------------------------|
| 1 | /CS1 | Chip select for IC1 |
| 2 | /CS2 | Chip select for IC2 |
| 3 | Vss | GND |
| 4 | Vdd | Power supply (+5V) |
| 5 | Vo | Contrast adjustment |
| 6 | D/I | Data / instruction |
| 7 | R/W | Data read/write |
| 8 | E | H -->L Enable signal |
| 9~16 | DB0~7 | Data bus line |
| 17 | /RST | Reset signal |
| 18 | Vee | Negative voltage output |
| 19 | A | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 9.0 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.1 | V |
| LED Forward Current | If | 25°C | 140 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension

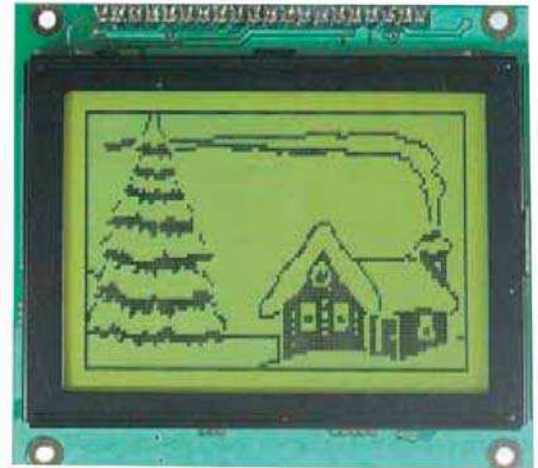


BG12864D



Feature

1. SMT with metal frame
2. Built-in controller UCi6963c or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: Temperature compensation
6. Option: LED array/edge B/L, EL B/L
7. Option: External negative voltage



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 78.0 x 70.0 | mm |
| Viewing Area | 62.0 x 44.0 | mm |
| Dot Size | 0.40 x 0.56 | mm |
| Dot Pitch | 0.44 x 0.60 | mm |

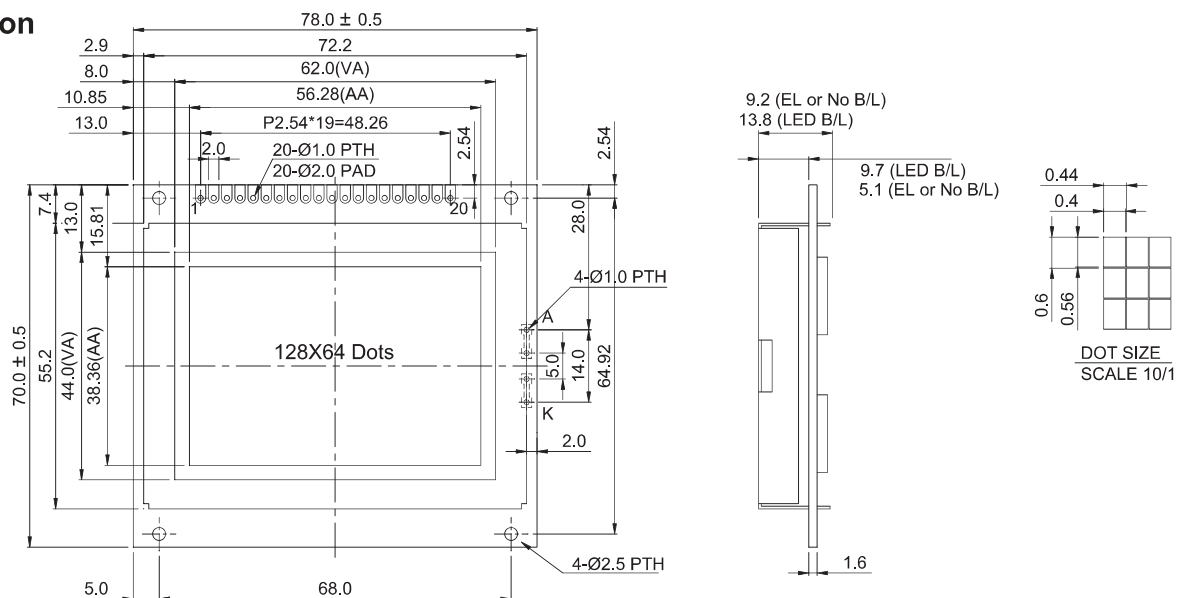
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|----------------------------------------|
| 1 | FG/Vee | Frame ground / Negative voltage output |
| 2 | Vss | Power supply(GND) |
| 3 | Vdd | Power supply(+5V) |
| 4 | Vo | Contrast Adjustment |
| 5 | /WR | Data write |
| 6 | /RD | Data read |
| 7 | /CE | Chip enable |
| 8 | C/D | Command/data |
| 9 | /RST | Controller reset |
| 10~17 | DB0~7 | Data bus line |
| 18 | FS | Font select(H: 6x8, L:8x8) |
| 19 | K | Power supply for B/L (GND) |
| 20 | A | Power supply for B/L (+) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-------------------------|--------|-------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 15 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.8 | V |
| LED Forward Voltage | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 480 | mA |
| EL Power Supply Current | Vel | Vel=110 Vac/400Hz | 5.0 | mA |

Dimension



BG12864E

Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. LED B/L pins:19/20, or A/K, or 1/2
6. Option: LED edge B/L, EL B/L
7. Option: +3V single power supply
8. Option: External negative voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 75.0 x 52.7 | mm |
| Viewing Area | 60.0 x 32.6 | mm |
| Dot Size | 0.39 x 0.39 | mm |
| Dot Pitch | 0.43 x 0.43 | mm |



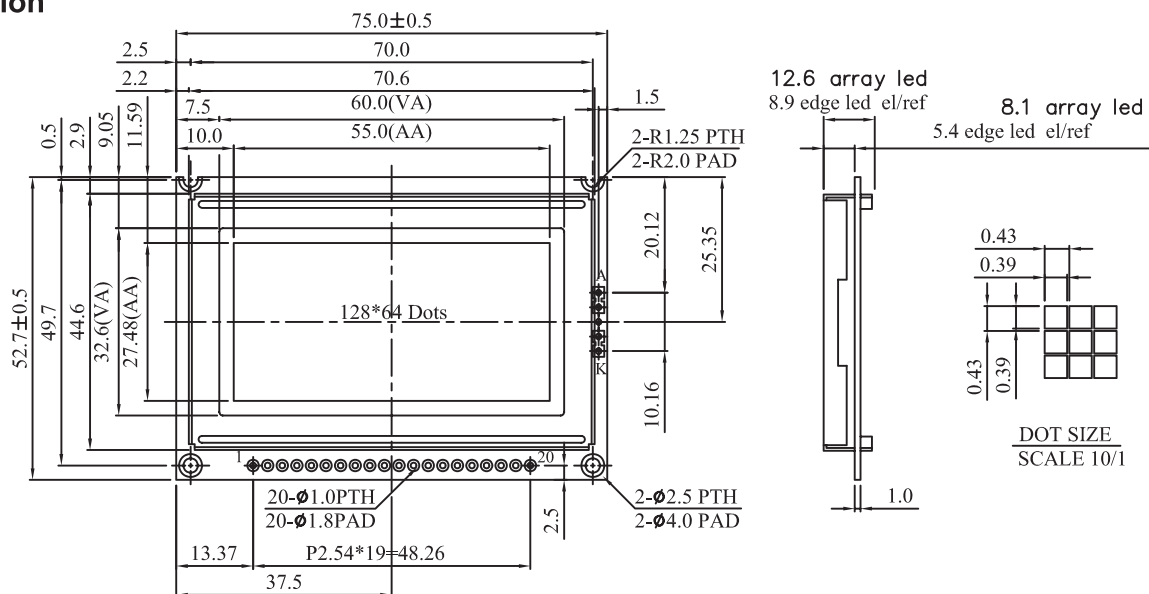
Pin Assignment

| Pin | Symbol | Function |
|------|--------|----------------------------|
| 1 | Vdd | Power supply (+5V) |
| 2 | GND | Power supply(GND) |
| 3 | Vo | Contrast adjustment |
| 4~11 | DB0~7 | Data bus line |
| 12 | /CS1 | Chip select IC1 |
| 13 | /CS2 | Chip select IC2 |
| 14 | /RST | Reset signal |
| 15 | R/W | Data read/write |
| 16 | D/I | Data / instruction |
| 17 | E | Enable signal |
| 18 | Vee | Negative voltage output |
| 19 | A | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.5 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 180 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension





BG12864F

Feature

1. SMT with metal frame
2. Built-in controller UCi6963c or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: LED array/edge B/L, EL B/L
6. Option: External negative voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 87.0 x 70.0 | mm |
| Viewing Area | 72.0 x 40.0 | mm |
| Dot Size | 0.48 x 0.48 | mm |
| Dot Pitch | 0.52 x 0.52 | mm |

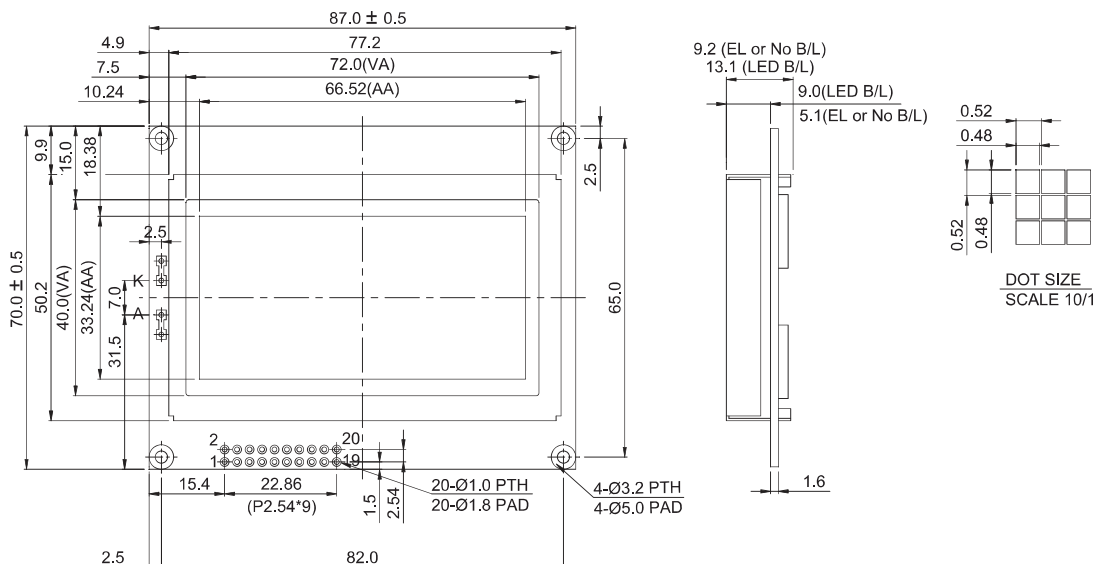


Pin Assignment

| Pin | Symbol | Function |
|------|--------|---------------------------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | Power supply(+5V) |
| 3 | Vo | Contrast adjustment |
| 4 | C/D | Command/data |
| 5 | /RD | Data read |
| 6 | /WR | Data write |
| 7~14 | DB0~7 | Data bus line |
| 15 | /CE | Chip enable |
| 16 | /RST | Reset signal |
| 17 | Vee | Negative voltage output -5V |
| 18 | MD2 | Column No. selection (H:32 column, L: 40 columns) |
| 19 | FS | Font selection (H:6x8,L:8x8) |
| 20 | HLT | H: normal L: stop clock oscillation |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.5 | V |
| LED Forward Voltage(yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 330 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |



BG12864H

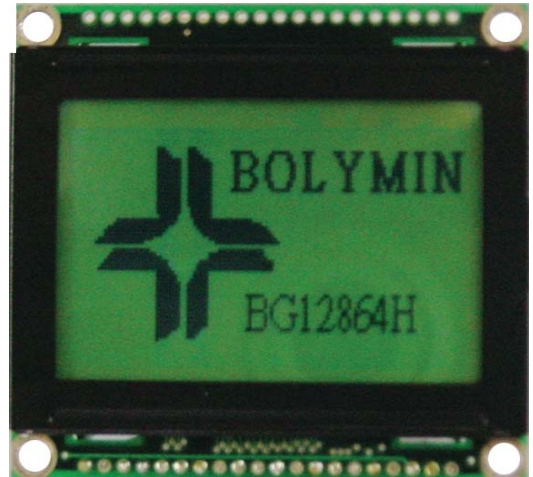


Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: EL backlight & EL inverter
6. Option: +3V single power supply
7. Option: external negative voltage
8. No LED Backlight Option

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 54.0 x 50.0 | mm |
| Viewing Area | 43.5 x 29.0 | mm |
| Dot Size | 0.28 x 0.35 | mm |
| Dot Pitch | 0.32 x 0.39 | mm |



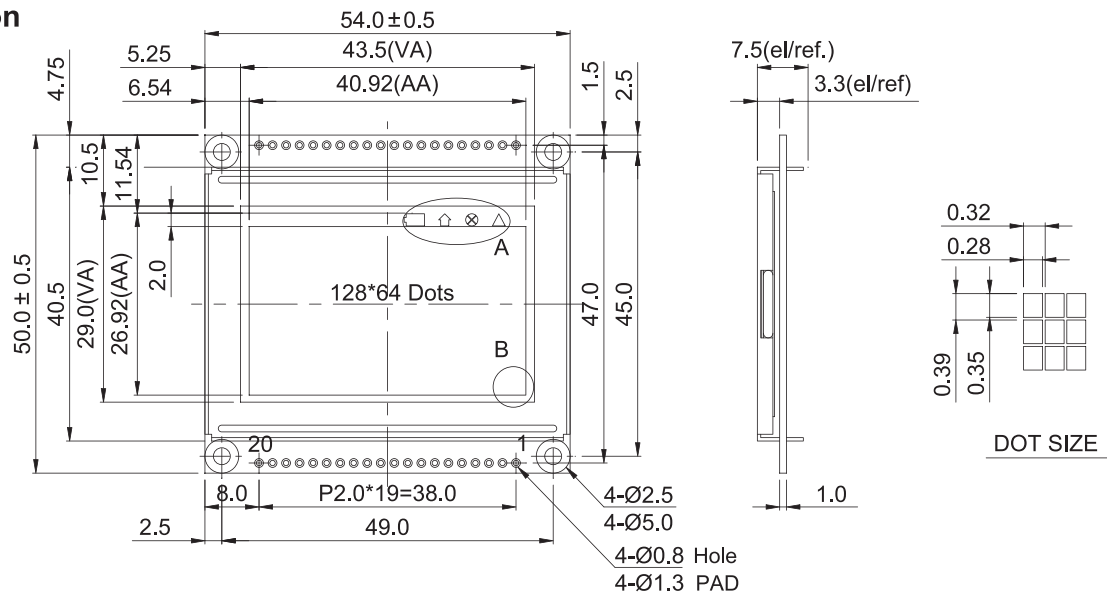
Pin Assignment

| Pin | Symbol | Function |
|------|--------|--------------------------------|
| 1 | Vss | Power supply GND |
| 2 | Vdd | +5V(+3V option) |
| 3 | Vo | Contrast adjustment |
| 4 | D/I | Data/ Instruction |
| 5 | R/W | Data read/write |
| 6 | E | Enable signal |
| 7~14 | DB0~7 | Data bus line |
| 15 | CS1 | Chip enable (segment 1 - 64) |
| 16 | CS2 | Chip enable (segment 65 - 128) |
| 17 | /RST | Reset signal |
| 18 | Vee | Negative voltage output(-10V) |
| 19 | BL+ | EL backlight power on/off |
| 20 | NC | No connection |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 10 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 7.8 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 30 | mA |

Dimension





BG12864J

Feature

1. COB with metal frame
2. Built-in controller SBN0064G/6400G
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. LED edge B/L
6. LED B/L pins: 23/24 or 1/2
7. Option: Temperature compensation circuit
8. Option: External negative voltage
9. DIP module



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 75.0 x 45.8 | mm |
| View Area | 61.0 x 38.0 | mm |
| Dot Size | 0.42 x 0.50 | mm |
| Dot Pitch | 0.44 x 0.52 | mm |



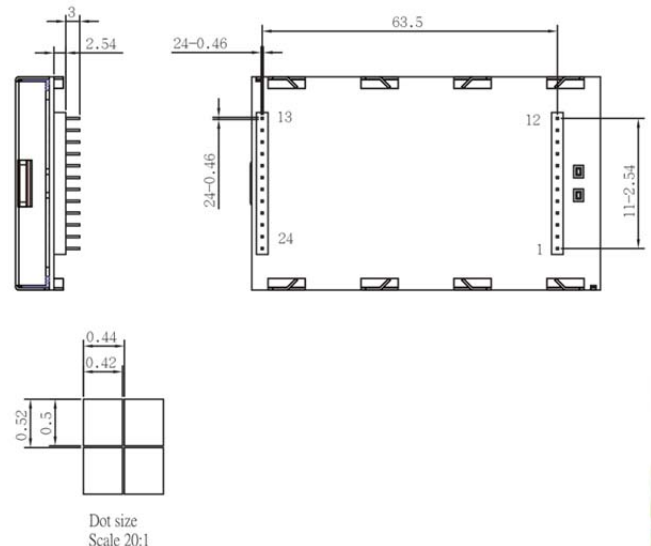
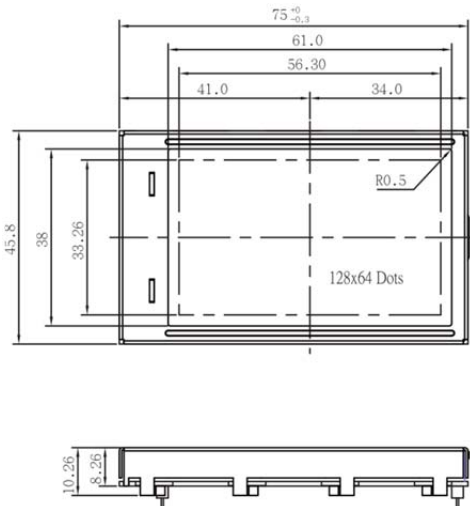
Pin Assignment

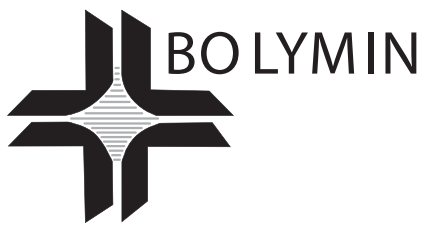
| Pin | Symbol | Function |
|-------|---------|-----------------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | Power supply |
| 3 | VO | Operating voltage for LCD |
| 4 | /RST | Reset signal |
| 5 | D/I | Data/Instruction |
| 6 | R/W | Data read/write |
| 7 | E1 | Enable signal for IC2 (segment 1~64) |
| 8 | E2 | Enable signal for IC3 (segment 65~128) |
| 9 | CS1L | Chip selection for IC2 (segment 1~64) |
| 10 | CS1H | |
| 11 | CS2L | Chip selection for IC3 (segment 65~128) |
| 12 | CS2H | |
| 13 | VEE | Negative voltage output |
| 14 | NC | No connection |
| 15~22 | DB0~BD7 | Data bus |
| 23 | A | Power supply for B/L (+) |
| 24 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|---------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5.0 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 10.0 | V |

Dimension





BG16032A



Feature

1. COB with metal frame
2. Built-in controller ST7920
3. +5V single power supply
4. 1/32 duty cycle
5. Option: +3V single power supply
6. Option: LED, EL B/L Display mode
Dot matrix (160x32 dots), Chinese Big5 or GB (16x16 dots), ASCII(8x16 dots)

Chinese Font



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 116.0 x 37.0 | mm |
| Viewing Area | 85.0 x 18.6 | mm |
| Dot Size | 0.45 x 0.45 | mm |
| Dot Pitch | 0.5 x 0.5 | mm |

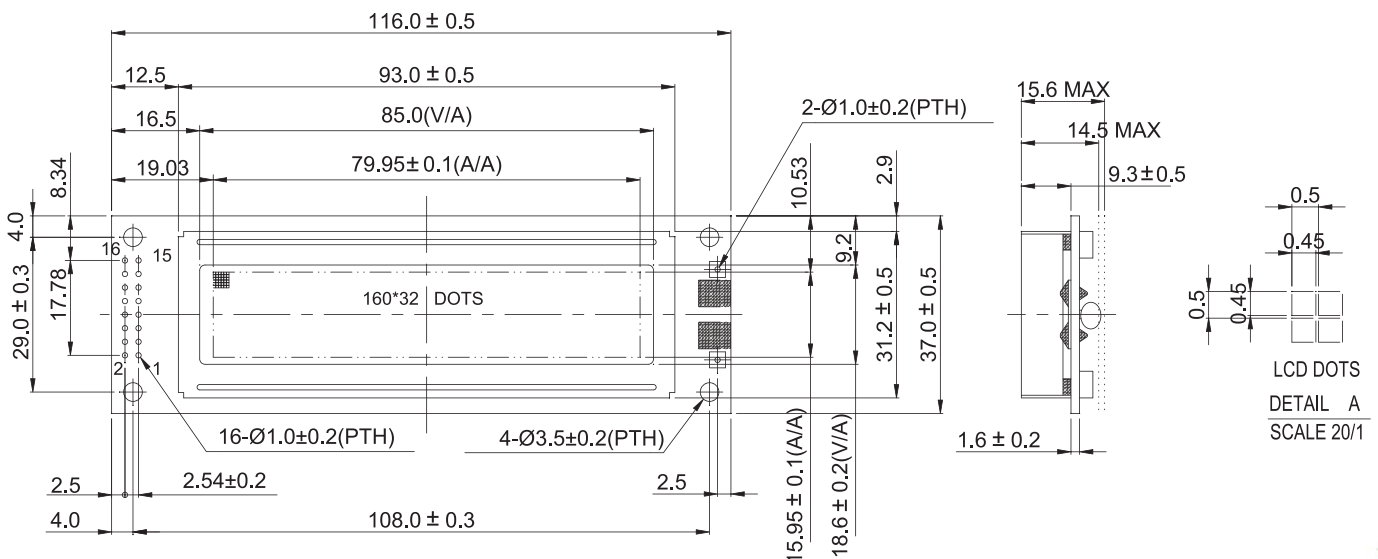
Pin Assignment

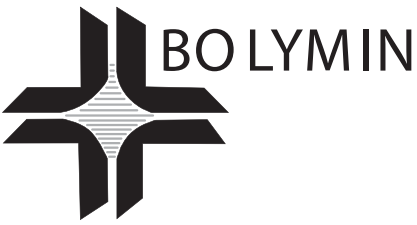
| Pin | Symbol | Function |
|------|--------|------------------------------------------------------|
| 1 | Vss | GND |
| 2 | Vdd | +5V(+3V option) |
| 3 | Vo | Contrast adjustment |
| 4 | RS | H/L register select signal |
| 5 | R/W | read/write signal |
| 6 | E | H-->L enable signal |
| 7~14 | DB0~7 | H/L bus line |
| 15 | A/Vee | Power supply for B/L (+)/ Positive voltage output |
| 16 | K | Power supply for B/L (GND) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5.0 | mA |
| LCD Driving Voltage | Vo-Vss | 25°C | 4.5 | V |
| LED Forward Voltage(yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 220 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension





[back to the list](#)

BG16080A



Feature

1. SMT PCB with metal frame, silver frame
2. Built-in controller
3. +5V single power supply, with built-in negative voltage
4. 1/80 duty cycle
5. Option: LED, EL B/L
6. Option: Built-in negative voltage

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 100.0 x 54.0 | mm |
| Viewing Area | 72.3 x 37.8 | mm |
| Dot Size | 0.39 x 0.39 | mm |
| Dot Pitch | 0.42 x 0.42 | mm |



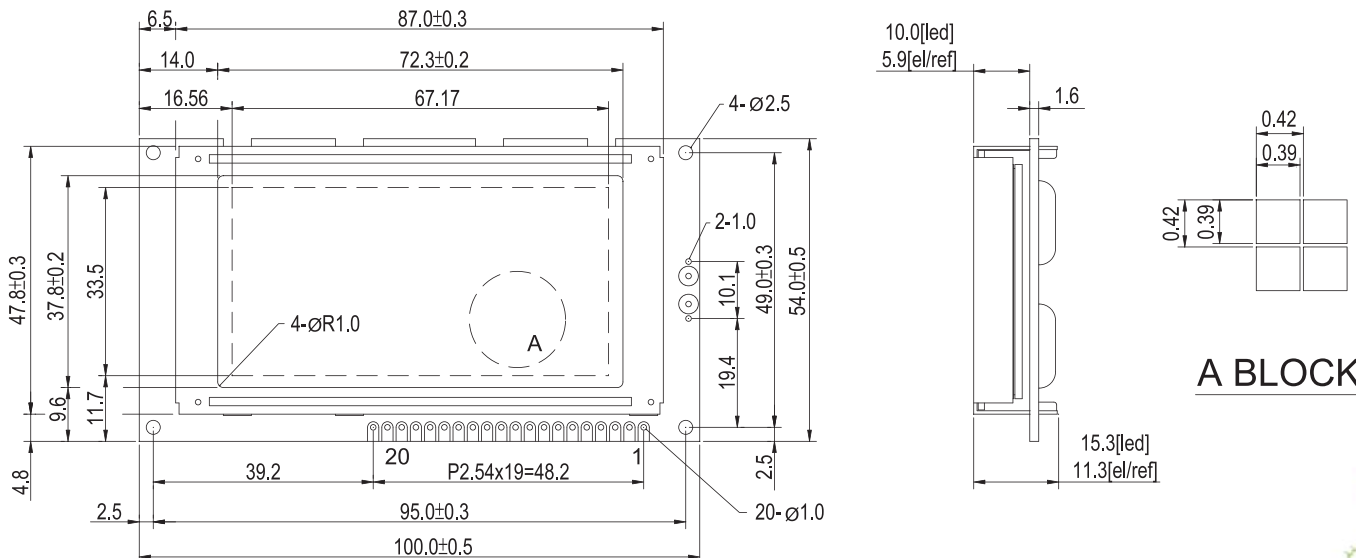
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|-------------------------------|
| 1 | Vee | Negative voltage output(-11V) |
| 2 | Vss | Power supply (GND) |
| 3 | Vdd | Power supply (+5V) |
| 4 | Vo | Contrast adjustment |
| 5 | /WR | L: data write |
| 6 | /RD | L: data read |
| 7 | /CE | Chip enable |
| 8 | C/D | Command/data read/white |
| 9 | /RES | Reset signal |
| 10~17 | DB0~7 | Data bus line |
| 18 | FS | Font selection(H: 6x8, L:8x8) |
| 19 | A | Power supply for B/L (+) |
| 20 | K | Power supply for B/L (GND) |

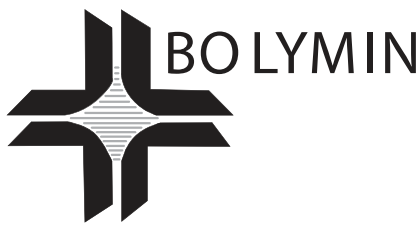
Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 30 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 13.9 | V |
| LED Forward Voltage(yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 330 | mA |

Dimension



A BLOCK



BG160128B



Feature

1. SMT PCB with metal frame
2. Built-in controller UCi6963c or equivalent
3. +5V single power supply
4. 1/128 duty cycle
5. Option: CCFL backlight, LED white backlight
6. Option: negative voltage



Mechanical Data

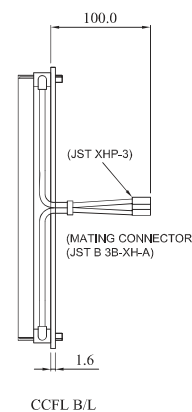
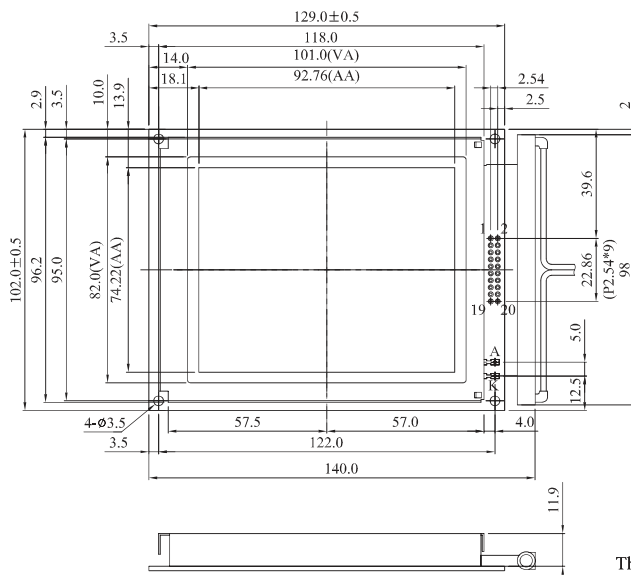
| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 129.0 x 102.0 | mm |
| Viewing Area | 101.0 x 82.0 | mm |
| Dot Size | 0.54 x 0.54 | mm |
| Dot Pitch | 0.58 x 0.58 | mm |

Pin Assignment

| Pin | Symbol | Function |
|-------|--------|---------------------------------|
| 1 | FGND | Frame ground |
| 2 | Vss | Logic power supply(GND) |
| 3 | Vdd | Logic power supply (+5V) |
| 4 | Vadj | Contrast Adjustment |
| 5 | Vee | Negative voltage output (-16V) |
| 6 | /WR | Data write |
| 7 | /RD | Data read |
| 8 | /CE | Chip enable |
| 9 | C/D | Command/Data read/write |
| 10 | /HALT | Clock halt signal |
| 11 | /RST | Reset LCD module signal |
| 12~19 | DB0~7 | Data bus line |
| 20 | NC | No connection |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------------|----------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 42 | mA |
| LCD Driving Voltage | Vdd-Vadj | 25°C | 18.9 | V |
| LED Forward Voltage(yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 650 | mA |
| CCFL Forward Voltage | Vf | 25°C | 256 | VAC |
| CCFL Forward Current | If | 25°C | 5.0 | mA |



The non-specified tolerance of dimension is ±0.3mm.

BG19264A



Feature

1. COB with metal frame
2. Built-in controller NT7107/NT7108 or equivalent
3. +5V single power supply, with built-in negative voltage
4. 1/64 duty cycle
5. Option: Temperature compensation circuit
6. LED B/L Pins: 19/20, or A/K, or 1/2
7. Option: LED array/edge B/L, EL B/L
8. Option: +3V single power supply
9. Option: External negative voltage



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 100.0 x 60.0 | mm |
| Viewing Area | 84.0 x 31.0 | mm |
| Dot Size | 0.36 x 0.36 | mm |
| Dot Pitch | 0.41 x 0.41 | mm |

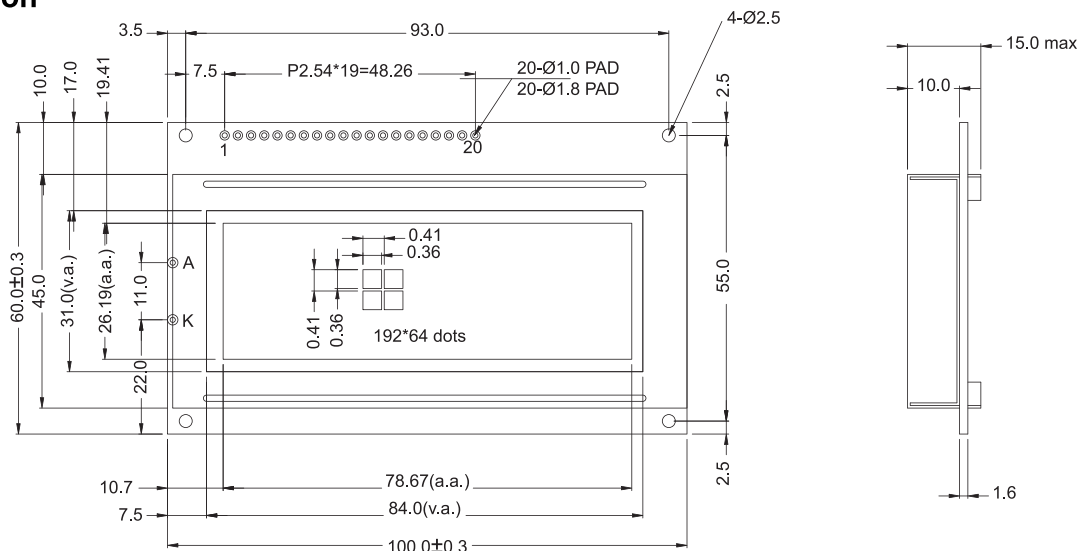
Pin Assignment

| Pin | Symbol | Function |
|------|---------|-------------------------------------|
| 1 | /CSA | Chip select A: |
| 2 | /CSB | Chip select B: |
| 3 | Vss | Ground |
| 4 | Vdd | Power supply for logic (+5V) |
| 5 | Vo | Power supply for LCD driver |
| 6 | D/I | Data or instruction select input |
| 7 | R/W | Read/Write control signal input pin |
| 8 | E | Chip Enable |
| 9~16 | DB0~DB7 | Data input / output |
| 17 | RST | Reset |
| 18 | Vee | Negative voltage output |
| 19 | LED(+) | Anode of backlight |
| 20 | LED(-) | Cathode of backlight |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|------------------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 5.0 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 8.6 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.1 | V |
| LED Forward Current | If | 25°C | 210 | mA |
| EL Power Voltage | Vel | Vel=110Vac/400Hz | | V |

Dimension



BG24064A



Feature

1. SMT PCB with metal frame
2. Built in controller UCi6963c or equivalent
3. +5V power supply
4. 1/64 duty
5. LED B/L pins: A / K
6. Option: temperature compensation
7. Option: LED, EL B/L
8. Option: negative voltage (built-in, external)



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 180.0 x 65.0 | mm |
| Viewing Area | 133.0 x 39.0 | mm |
| Dot Size | 0.49 x 0.49 | mm |
| Dot Pitch | 0.53 x 0.53 | mm |

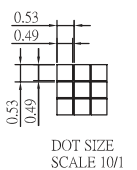
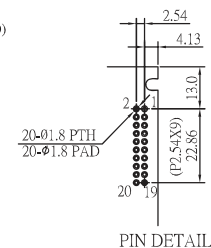
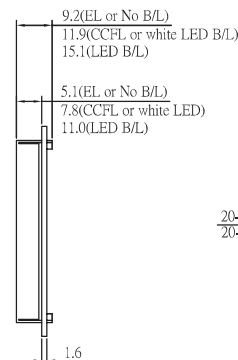
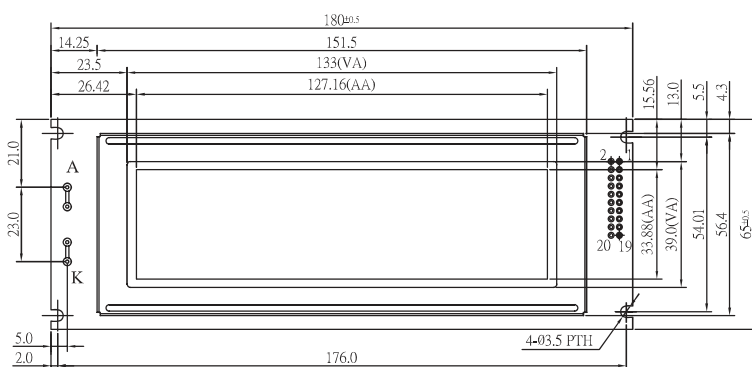
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|----------------------------------|
| 1 | FG | Frame ground |
| 2 | Vss | Power supply (GND) |
| 3 | Vdd | Power supply (+5V) |
| 4 | Vo | Contrast Adjustment |
| 5 | /WR | Data write |
| 6 | /RD | Data read |
| 7 | /CE | Chip enable |
| 8 | C/D | Command/data |
| 9 | Vee | Negative Voltage output (-13.6V) |
| 10 | /RST | Reset signal |
| 11~18 | DB0~7 | Data bus line |
| 19 | FS | Font select(H:6x8 L:8x8) |
| 20 | NC | No connection |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|------------------------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 30 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 12.8 | V |
| LED Forward Voltage (yellow-green) | Vf | 25°C | 4.2 | V |
| LED Forward Current | If | 25°C | 450 | mA |

Dimension



BG240128A



Feature

1. SMT PCB with metal frame
2. Built-in controller UCi6963c or equivalent
3. 1/128 duty cycle
4. Option: negative voltage
5. Option: LED Green, white B/L, EL B/L, CCFL



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 170.0 x 103.5 | mm |
| Viewing Area | 132.0 x 76.0 | mm |
| Dot Size | 0.47 x 0.47 | mm |
| Dot Pitch | 0.5 x 0.5 | mm |

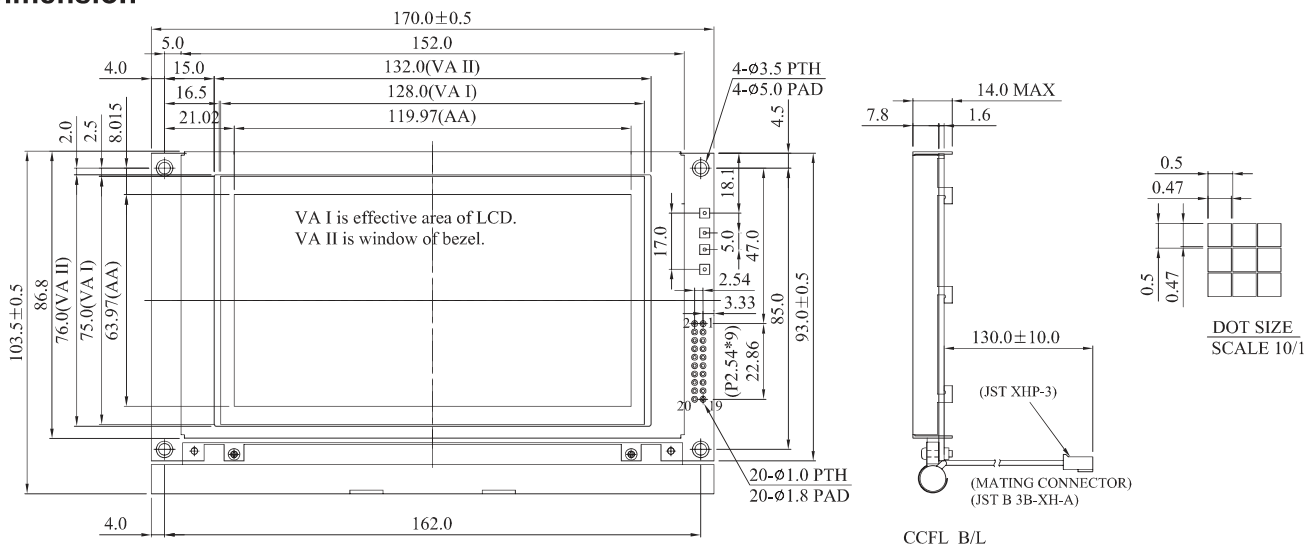
Pin Assignment

| Pin | Symbol | Function |
|-------|--------|----------------------------------------------|
| 1 | FGND | Frame GND |
| 2 | Vss | Power supply(GND) |
| 3 | Vdd | Power supply for logic(+5V) |
| 4 | Vo | Contrast adjustment |
| 5 | /WR | Data write |
| 6 | /RD | Data read |
| 7 | /CE | Chip enable |
| 8 | C/D | Code/Data |
| 9 | NC/Vee | No connection/Negative voltage output -16.0V |
| 10 | /RST | Controller reset |
| 11~18 | DB0-7 | Data bus line |
| 19 | FS | Font selection (H: 6x8, L:8x8) |
| 20 | RV | Reverse (H: reverse L: normal) |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|---------------------------|--------|-----------|---------------|-------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 50 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 18.7 | V |
| CCFL Lamp Supply Voltage | VL | 25°C | 390 | Vrms |
| CCFL Lamp Surrply Current | IL | 25°C | 5.0 | mArms |

Dimension





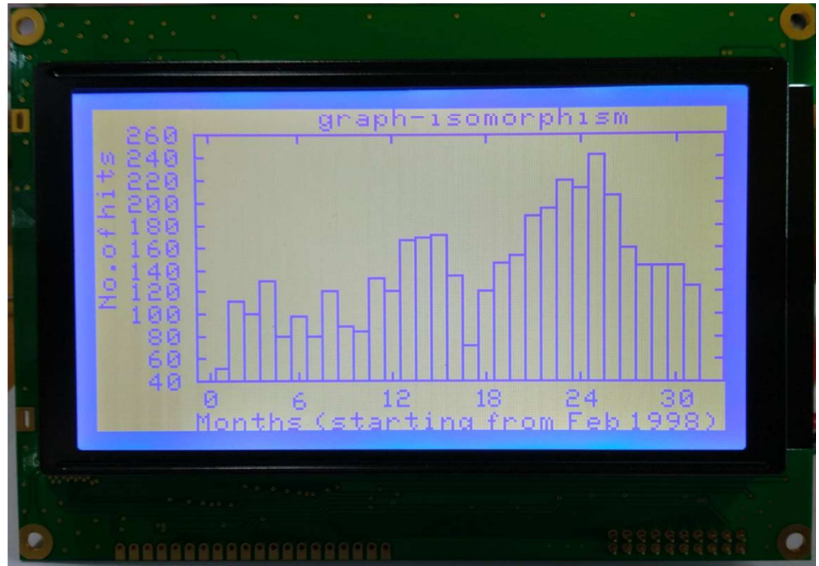
BG240128BA

Feature

1. SMT PCB with metal frame
2. Built-in controller WÔã JÎ H&
3. 1/128 duty cycle
4. +5V single power supply
5. Option: negative voltage
6. Option: LED edge/array B/L

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 144.0 x 104.0 | mm |
| View Area | 114.0 x 64.0 | mm |
| Dot Size | 0.42 x 0.42 | mm |
| Dot Pitch | 0.45 x 0.45 | mm |



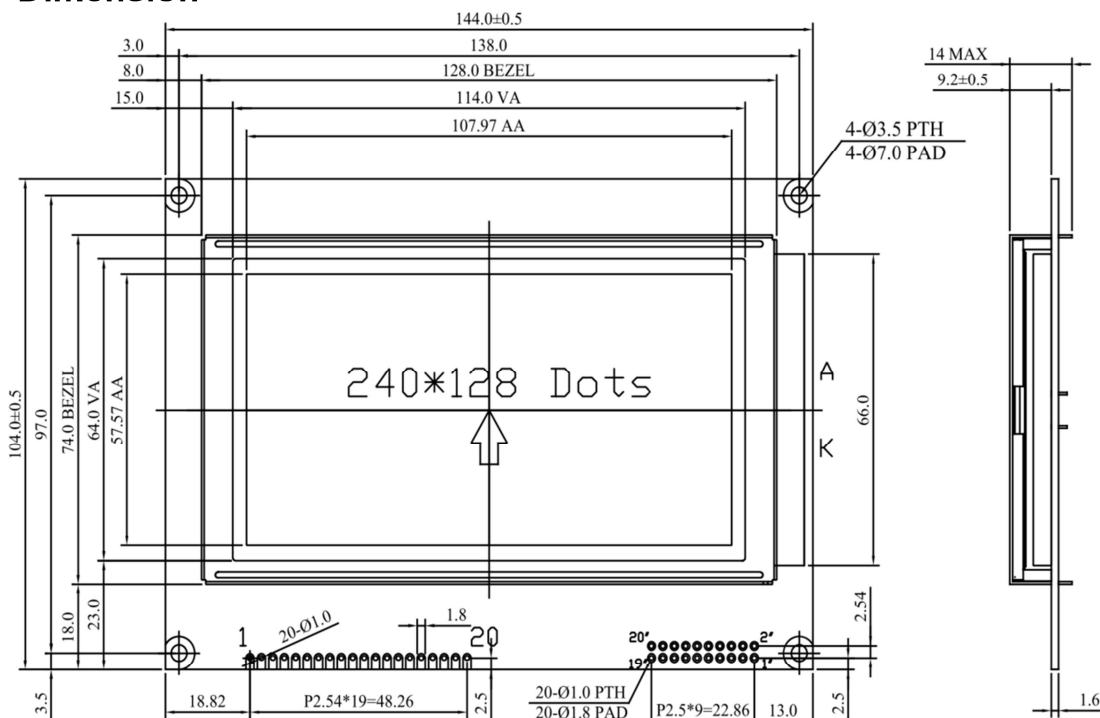
Pin Assignment

| Pin | Symbol | Description | Pin | Symbol | Description |
|-------|---------|-------------------------------------|---------|---------|-------------------------------------|
| 1 | FG | Frame GND | 1" | FG | Frame GND |
| 2 | VSS | GND | 2" | VSS | GND |
| 3 | VDD | Power supply (+5V) | 3" | VDD | Power supply (+5V) |
| 4 | V0 | Power supply for LCD driver | 4" | V0 | Power supply for LCD driver |
| 5 | /WR | Data write | 5" | /WR | Data write |
| 6 | /RD | Data read | 6" | /RD | Data read |
| 7 | /CE | L : Chip enable | 7" | /CE | L : Chip enable |
| 8 | C/D | Command/Data | 8" | C/D | Command/Data |
| 9 | /RST | H : Normal ; L : Initialize UCi6963 | 9" | VEE | Negative Voltage output -22 V |
| 10~17 | DB0~DB7 | Data bus line | 10" | /RST | H : Normal ; L : Initialize UCi6963 |
| 18 | FS | Font selection(H :6 x 8,L :8 x 8) | 11"~18" | DB0~DB7 | Data bus line |
| 19 | LEDA | Backlight Anode | 19" | FS | Font selection(H :6 x 8,L :8 x 8) |
| 20 | VEE | Negative Voltage output -22 V | 20" | NC | No connection |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------|--------|-----------|---------------|------|
| Supply Voltage For Logic | VDD | VDD=5.0V | 5.0 | V |
| Supply Current | IDD | VDD=5.0V | 185 | mA |
| Supply Voltage For LCD | VDD-V0 | 25°C | 18.4 | V |
| LED Forward Voltage (white) | VF | 25°C | 5.0 | V |

Dimension

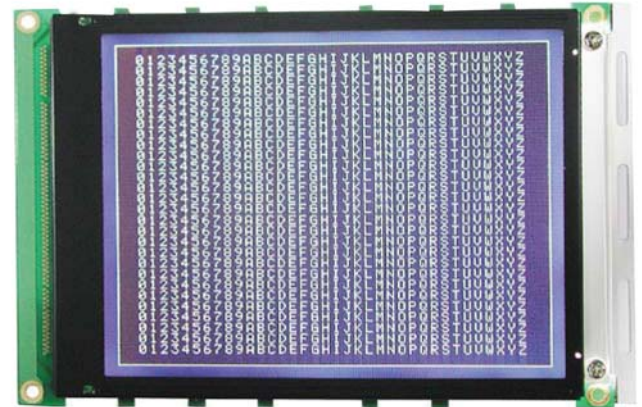


BG320240A



Feature

1. SMT PCB with metal frame
2. No controller, recommending RA8835
3. +5V single power supply
4. 1/240 duty cycle
5. Option: negative voltage
6. Option: LED edge B/L, CCFL
7. Option: +3V single power supply
8. Option: negative voltage (built-in, external)
9. Option: touch panel



Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 166.8 x 109.0 | mm |
| Viewing Area | 122.0 x 92.0 | mm |
| Dot Size | 0.34 x 0.34 | mm |
| Dot Pitch | 0.36 x 0.36 | mm |

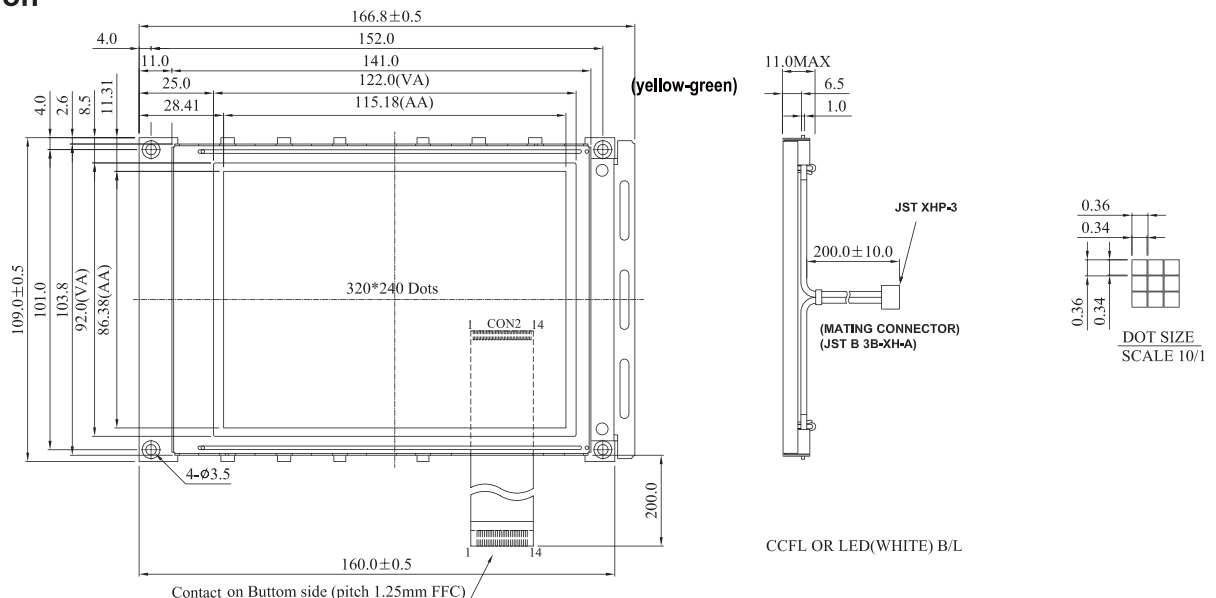
Pin Assignment

| Pin | Symbol | Function |
|-----|----------|-----------------------------------|
| 1~4 | DB0~3 | Data bus line |
| 5 | /DISPOFF | Display off signal (H:on L:off) |
| 6 | FLM | First line marker |
| 7 | NC | No connection |
| 8 | LP | Data latch |
| 9 | CP | Data shift |
| 10 | Vdd | +5V(+3V option) |
| 11 | Vss | Power supply (GND) |
| 12 | Vee | Negative voltage output (-21.3V) |
| 13 | Vo | Contrast adjustment |
| 14 | FGND | Frame Ground |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 65 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 23.5 | V |
| LED Forward Voltage (White) | Vf | 25°C | 3.5 | V |
| LED Forward Current | If | 25°C | 160 | mA |

Dimension



BG320240F

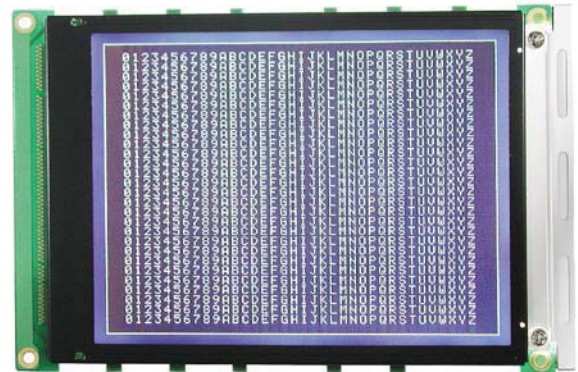


Feature

1. SMT PCB with metal frame
2. Built-in controller RA8835
3. +5V single power supply
4. 1/240 duty cycle
5. Option: LED edge B/L, CCFL
6. Option: +3V single power supply
7. Option: negative voltage (built-in, external)
8. Option: touch panel

Mechanical Data

| Item | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 166.8 x 109.0 | mm |
| Viewing Area | 122.0 x 92.0 | mm |
| Dot Size | 0.34 x 0.34 | mm |
| Dot Pitch | 0.36 x 0.36 | mm |



Pin Assignment

| Pin | Symbol | Function |
|------|----------|-------------------------------------|
| 1 | Vss | Power supply (GND) |
| 2 | Vdd | +5V(+3V option) |
| 3 | Vo | Contrast Adjustment |
| 4 | Ao | Data type select |
| 5 | /WR(R/W) | 80s: write signal 68s:R/W signal |
| 6 | /RD(E) | 80s: read signal 68s: enable clock |
| 7~14 | DB0-7 | Data bus line |
| 15 | /CS | Chip select |
| 16 | /RST | Reset signal |
| 17 | Vee | Negative voltage output(-21.3) |
| 18 | SEL | uP select (H:68 series L:80 series) |
| 19 | FGND | Frame Ground |
| 20 | NC | No connection |

Electronic Characteristics

| Item | Symbol | Condition | Typical Value | Unit |
|-----------------------------|--------|-----------|---------------|------|
| Input Voltage | Vdd | Vdd = +5V | 5.0 | V |
| Supply Current | Idd | Vdd = +5V | 70 | mA |
| LCD Driving Voltage | Vdd-Vo | 25°C | 23.9 | V |
| LED Forward Voltage (White) | Vf | 25°C | 3.5 | V |
| LED Forward Current | If | 25°C | 160 | mA |

Dimension

