

PC2002A-L (20x2) Character LCD Display

| | | | | | |
|--|--|--------|-----------|----------|------|
| Features *20 Character, 2 Line *View Angle 12H or 6H *TN or STN Fluid *Extended Temperature Range available *Several Character Types available *LED or EL Backlight available | Absolute Maximum Ratings at T_A = 25 °C | | | | |
| | Item | Symbol | Min | Max | Unit |
| | Power Supply (Logic) | Vdd | -0.3 | 7.0 | V |
| | Power Supply (LCD) | Vo | Vdd - 0.3 | Vdd 12.0 | V |
| | Input Voltage | Vi | - 0.3 | Vdd | V |
| | Operating Temperature (Standard) | Topr | 0 | 50 | °C |
| | Storage Temperature (Standard) | Tstg | - 20 | 70 | °C |
| | Extended Operating Temperature | Topr | - 20 | 70 | °C |
| | Extended Storage Temperature | Tstg | - 30 | 80 | °C |

Electrical Characteristics at T_A = 25 °C, Vdd=5V±0.25V

| Item | Symbol | Min | Typ | Max | Unit |
|----------------------|----------|-----|-----|-----|------|
| Power Supply (Logic) | Vdd-Vss | 4.7 | 5.0 | 5.3 | V |
| Supply Current | Idd | — | 3.2 | 6.0 | mA |
| LCD Driving Voltage | Vdd - Vo | 4.2 | 4.5 | 4.8 | V |
| Input Voltage "H" | Vih | 2.2 | — | Vdd | V |
| Input Voltage "L" | Vil | — | — | 0.6 | V |
| Output Voltage "H" | Voh | 2.4 | — | — | V |
| Output Voltage "L" | Vol | — | — | 0.4 | V |

Interface Pin Connection

| No | Symbol | Function | No | Symbol | Function |
|----|--------|-----------------------------|----|--------|------------------------------------|
| 1 | Vss | Power Supply (GND) | 9 | DB2 | Data Bus Line 2 |
| 2 | Vdd | Power Supply (+5V) | 10 | DB3 | Data Bus Line 3 |
| 3 | Vo | Contrast Adjust | 11 | DB4 | Data Bus Line 4 |
| 4 | RS | Instruction/Register Select | 12 | DB5 | Data Bus Line 5 |
| 5 | R/W | Read/Write | 13 | DB6 | Data Bus Line 6 |
| 6 | E | Enable Signal | 14 | DB7 | Data Bus Line 7 |
| 7 | DB0 | Data Bus Line 0 | 15 | A | Power Supply for LED Backlight (+) |
| 8 | DB1 | Data Bus Line 1 | 16 | K | Power Supply for LED Backlight (-) |

LED Backlight Specifications

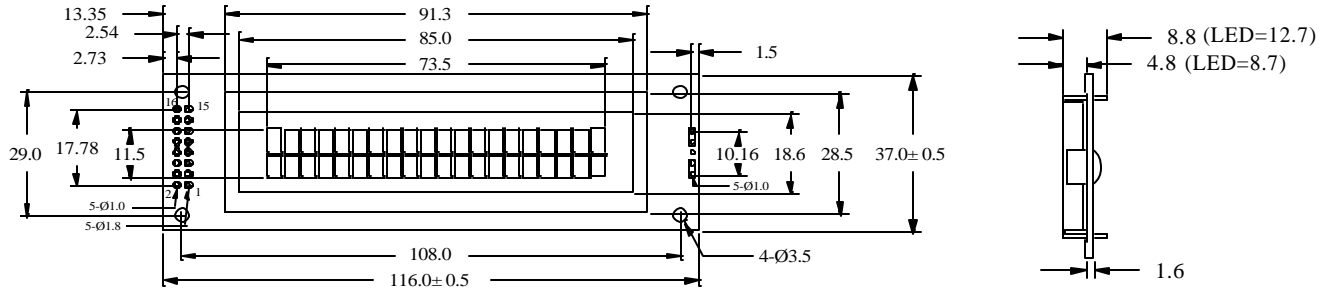
| Forward Voltage | Forward Current | Power Dissipation | Peak Wavelength |
|-----------------|-----------------|-------------------|-----------------|
| 4.2V (Typ) | 315mA (Max) | 1500mW (Max) | 570nm (Typ) |

Mechanical Specifications

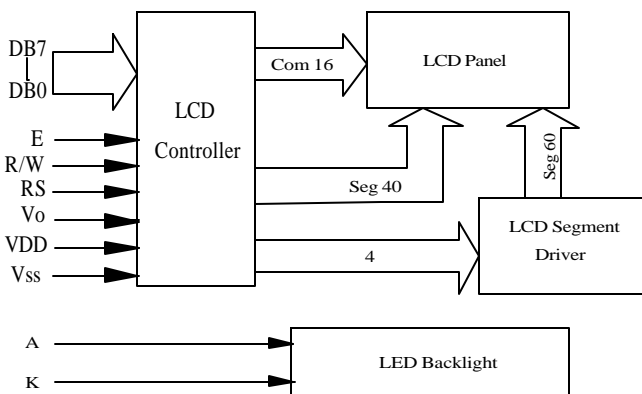
| Item | Overall Size | Viewing Area | Character Size | Character Pitch | Dot Size |
|----------------|---------------------------------|---------------|----------------|-----------------|---------------|
| Specifications | 116.0W x 37.0H x 8.8T (BL12.7T) | 85.0W x 18.6H | 3.20W x 5.55H | 3.70W x 5.95H | 0.60W x 0.65H |

All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified

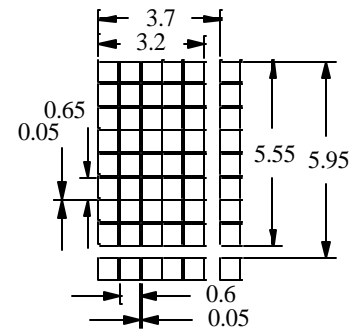
PC2002A-L (20x2) Character LCD Display



LCD Block Diagram



Dot Layout



PC2002B-O (20x2) Character LCD Display

| Features *20 Character, 2 Line *View Angle 12H or 6H *TN or STN *Extended Temperature Range available *Several Character Types available | Absolute Maximum Ratings at T _A = 25 °C | | | | |
|---|--|--------|------------|-----------|------|
| | Item | Symbol | Min | Max | Unit |
| | Power Supply (Logic) | Vdd | -0.3 | 7.0 | V |
| | Power Supply (LCD) | Vo | Vdd - 15.0 | Vdd + 0.3 | V |
| | Input Voltage | Vi | - 0.3 | Vdd | V |
| | Operating Temperature (Standard) | Topr | 0 | 50 | °C |
| | Storage Temperature (Standard) | Tstg | - 20 | 70 | °C |
| | Extended Operating Temperature | Topr | - 20 | 70 | °C |
| | Extended Storage Temperature | Tstg | - 30 | 80 | °C |

Electrical Characteristics at T_A = 25 °C, Vdd=5V±0.25V

| Item | Symbol | Min | Typ | Max | Unit |
|----------------------|----------|-----|-----|------|------|
| Power Supply (Logic) | Vdd | 4.5 | 5.0 | 5.5 | V |
| Supply Current | Idd | 2.0 | — | — | mA |
| LCD Driving Voltage | Vdd - Vo | — | — | 13.0 | V |
| Input Voltage “H” | Vih | 2.2 | — | Vdd | V |
| Input Voltage “L” | Vil | — | — | 0.6 | V |
| Output Voltage “H” | Voh | 2.4 | — | — | V |
| Output Voltage “L” | Vol | — | — | 0.4 | V |

Interface Pin Connection

| No | Symbol | Function | No | Symbol | Function |
|----|--------|-----------------------------|----|--------|------------------------------------|
| 1 | Vss | Power Supply (GND) | 9 | DB2 | Data Bus Line 2 |
| 2 | Vdd | Power Supply (+5V) | 10 | DB3 | Data Bus Line 3 |
| 3 | Vo | Contrast Adjust | 11 | DB4 | Data Bus Line 4 |
| 4 | RS | Instruction/Register Select | 12 | DB5 | Data Bus Line 5 |
| 5 | R/W | Read/Write | 13 | DB6 | Data Bus Line 6 |
| 6 | E | Enable Signal | 14 | DB7 | Data Bus Line 7 |
| 7 | DB0 | Data Bus Line 0 | 15 | A | Power Supply for LED Backlight (+) |
| 8 | DB1 | Data Bus Line 1 | 16 | K | Power Supply for LED Backlight (-) |

LED Backlight Specifications

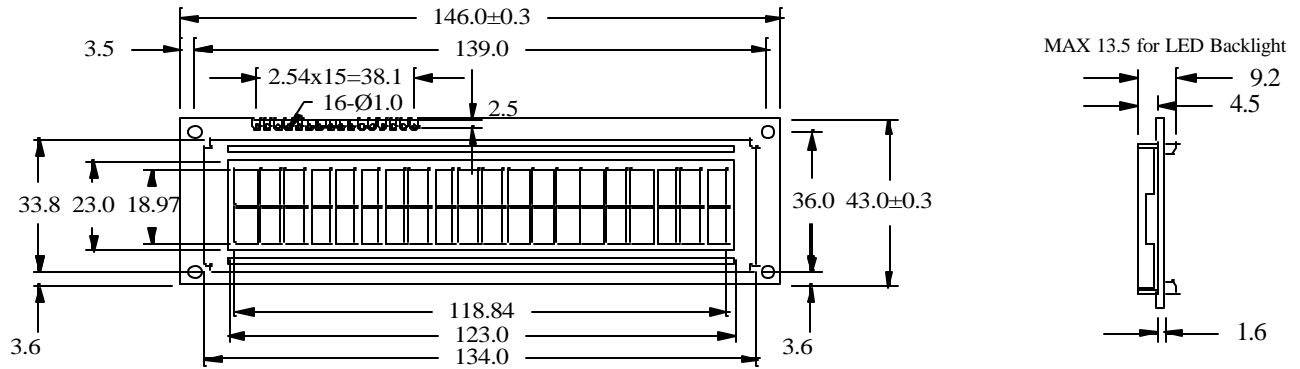
| Forward Voltage | Forward Current | Power Dissipation | Peak Wavelength |
|-----------------|-----------------|-------------------|-----------------|
| 4.2V (Typ) | 420mA (Typ) | 1750mW (Typ) | 570nm (Typ) |

Mechanical Specifications

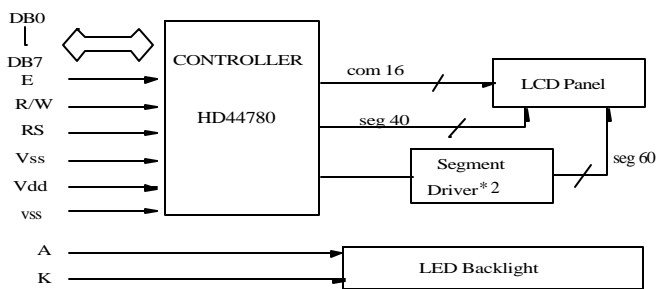
| Item | Overall Size | Viewing Area | Character Size | Character Pitch | Dot Size |
|----------------|---------------------------------|----------------|----------------|-----------------|--------------|
| Specifications | 146.0W x 43.0H x 9.2T (BL13.5T) | 123.0W x 23.0H | 4.84W x 9.22H | 6.0W x 9.75H | 0.92W x 1.1H |

All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified

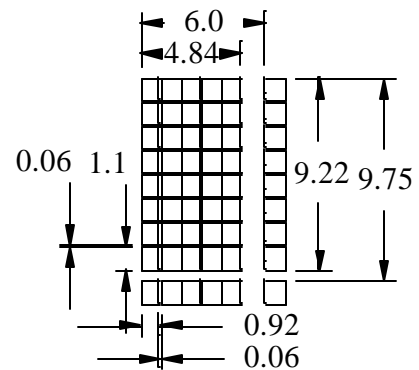
PC2002B-O (20x2) Character LCD Display



LCD Block Diagram



Dot Layout



All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified

PC2002C-L (20x2) Character LCD Display

| | | | | | |
|--|--|--------|-----------|----------|------|
| Features *20 Character, 2 Line *View Angle 12H or 6H *TN or STN Fluid *Extended Temperature Range available *Several Character Types available *LED or EL Backlight available | Absolute Maximum Ratings at T_A = 25 °C | | | | |
| | Item | Symbol | Min | Max | Unit |
| | Power Supply (Logic) | Vdd | -0.3 | 7.0 | V |
| | Power Supply (LCD) | Vo | Vdd - 0.3 | Vdd 12.0 | V |
| | Input Voltage | Vi | - 0.3 | Vdd | V |
| | Operating Temperature (Standard) | Topr | 0 | 50 | °C |
| | Storage Temperature (Standard) | Tstg | - 20 | 70 | °C |
| | Extended Operating Temperature | Topr | - 20 | 70 | °C |
| | Extended Storage Temperature | Tstg | - 30 | 80 | °C |

Electrical Characteristics at T_A = 25 °C, Vdd=5V±0.25V

| Item | Symbol | Min | Typ | Max | Unit |
|----------------------|----------|-----|-----|-----|------|
| Power Supply (Logic) | Vdd-Vss | 4.7 | 5.0 | 5.3 | V |
| Supply Current | Idd | — | 3.2 | 6.0 | mA |
| LCD Driving Voltage | Vdd - Vo | 4.2 | 4.5 | 4.8 | V |
| Input Voltage "H" | Vih | 2.2 | — | Vdd | V |
| Input Voltage "L" | Vil | — | — | 0.6 | V |
| Output Voltage "H" | Voh | 2.4 | — | — | V |
| Output Voltage "L" | Vol | — | — | 0.4 | V |

Interface Pin Connection

| No | Symbol | Function | No | Symbol | Function |
|----|--------|-----------------------------|----|--------|------------------------------------|
| 1 | Vss | Power Supply (GND) | 9 | DB2 | Data Bus Line 2 |
| 2 | Vdd | Power Supply (+5V) | 10 | DB3 | Data Bus Line 3 |
| 3 | Vo | Contrast Adjust | 11 | DB4 | Data Bus Line 4 |
| 4 | RS | Instruction/Register Select | 12 | DB5 | Data Bus Line 5 |
| 5 | R/W | Read/Write | 13 | DB6 | Data Bus Line 6 |
| 6 | E | Enable Signal | 14 | DB7 | Data Bus Line 7 |
| 7 | DB0 | Data Bus Line 0 | 15 | A | Power Supply for LED Backlight (+) |
| 8 | DB1 | Data Bus Line 1 | 16 | K | Power Supply for LED Backlight (-) |

LED Backlight Specifications

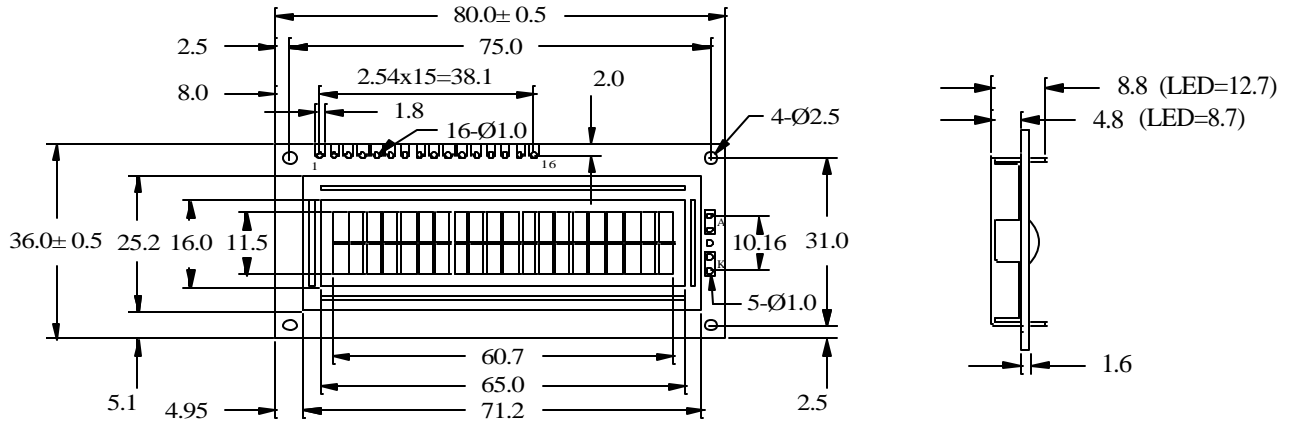
| Forward Voltage | Forward Current | Power Dissipation | Peak Wavelength |
|-----------------|-----------------|-------------------|-----------------|
| 4.2V (Typ) | 315mA (Max) | 1500mW (Max) | 570nm (Typ) |

Mechanical Specifications

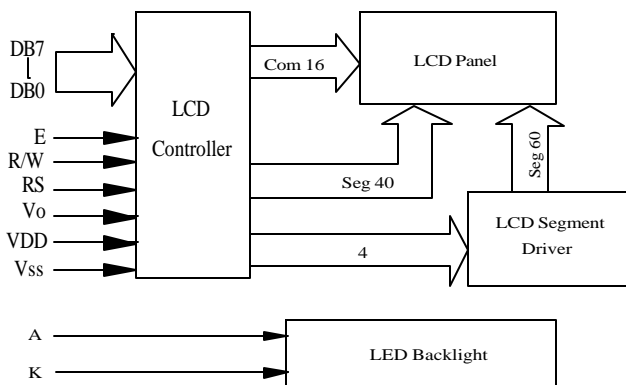
| Item | Overall Size | Viewing Area | Character Size | Character Pitch | Dot Size |
|----------------|--------------------------------|---------------|----------------|-----------------|---------------|
| Specifications | 80.0W x 36.0H x 8.8T (BL12.7T) | 65.0W x 16.0H | 2.56W x 5.56H | 3.06W x 5.94H | 0.48W x 0.66H |

All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified

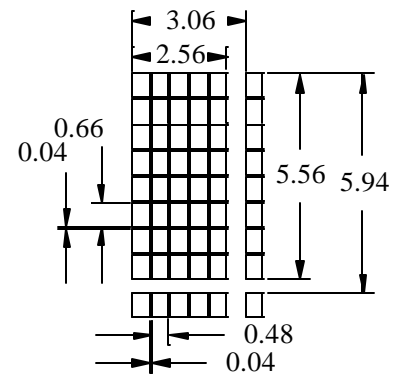
PC2002C-L (20x2) Character LCD Display



LCD Block Diagram



Dot Layout



All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified

PC2002D-O (20x2) Character LCD Display

| | | | | | |
|--|--|--------|------------|-----------|------|
| Features *20 Character, 2 Line *View Angle 12H or 6H *TN or STN Fluid *Extended Temperature Range available *Several Character Types available | Absolute Maximum Ratings at T_A = 25 °C | | | | |
| | Item | Symbol | Min | Max | Unit |
| | Power Supply (Logic) | Vdd | -0.3 | 7.0 | V |
| | Power Supply (LCD) | Vo | Vdd - 15.0 | Vdd + 0.3 | V |
| | Input Voltage | Vi | - 0.3 | Vdd | V |
| | Operating Temperature (Standard) | Topr | 0 | 50 | °C |
| | Storage Temperature (Standard) | Tstg | - 20 | 70 | °C |
| | Extended Operating Temperature | Topr | - 20 | 70 | °C |
| | Extended Storage Temperature | Tstg | - 30 | 80 | °C |

Electrical Characteristics at T_A = 25 °C, Vdd=5V±0.25V

| Item | Symbol | Min | Typ | Max | Unit |
|----------------------|----------|-----|-----|------|------|
| Power Supply (Logic) | Vdd | 4.5 | 5.0 | 5.5 | V |
| Supply Current | Idd | 2.0 | — | — | mA |
| LCD Driving Voltage | Vdd - Vo | — | — | 13.0 | V |
| Input Voltage “H” | Vih | 2.2 | — | Vdd | V |
| Input Voltage “L” | Vil | — | — | 0.6 | V |
| Output Voltage “H” | Voh | 2.4 | — | — | V |
| Output Voltage “L” | Vol | — | — | 0.4 | V |

Interface Pin Connection

| No | Symbol | Function | No | Symbol | Function |
|----|--------|-----------------------------|----|--------|------------------------------------|
| 1 | Vss | Power Supply (GND) | 9 | DB2 | Data Bus Line 2 |
| 2 | Vdd | Power Supply (+5V) | 10 | DB3 | Data Bus Line 3 |
| 3 | Vo | Contrast Adjust | 11 | DB4 | Data Bus Line 4 |
| 4 | RS | Instruction/Register Select | 12 | DB5 | Data Bus Line 5 |
| 5 | R/W | Read/Write | 13 | DB6 | Data Bus Line 6 |
| 6 | E | Enable Signal | 14 | DB7 | Data Bus Line 7 |
| 7 | DB0 | Data Bus Line 0 | 15 | A | Power Supply for LED Backlight (+) |
| 8 | DB1 | Data Bus Line 1 | 16 | K | Power Supply for LED Backlight (-) |

LED Backlight Specifications

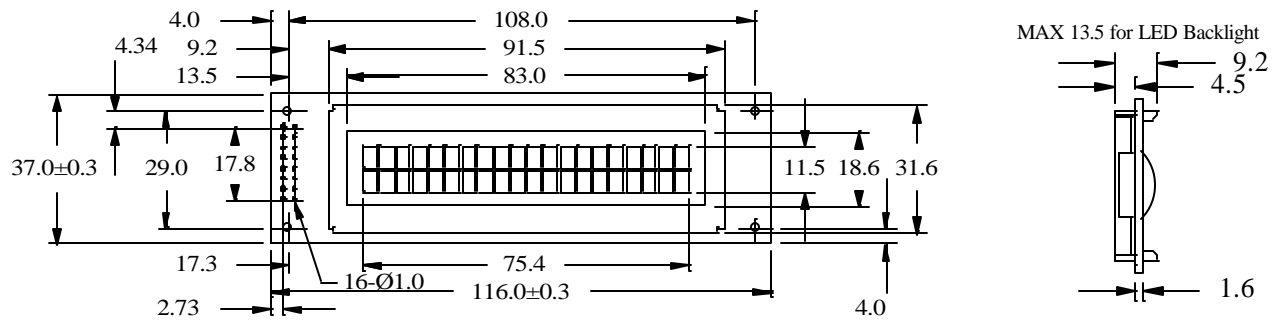
| Forward Voltage | Forward Current | Power Dissipation | Peak Wavelength |
|-----------------|-----------------|-------------------|-----------------|
| 4.2V (Typ) | 275mA (Typ) | 1200mW (Typ) | 570nm (Typ) |

Mechanical Specifications

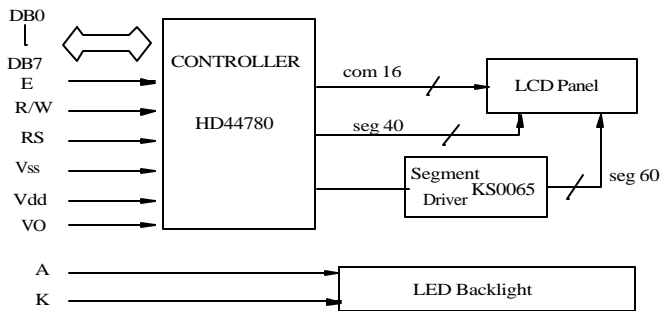
| Item | Overall Size | Viewing Area | Character Size | Character Pitch | Dot Size |
|----------------|---------------------------------|---------------|----------------|-----------------|---------------|
| Specifications | 116.0W x 37.0H x 9.2T (BL13.5T) | 83.0W x 18.6H | 3.2W x 5.55H | 3.8W x 5.95H | 0.60W x 0.65H |

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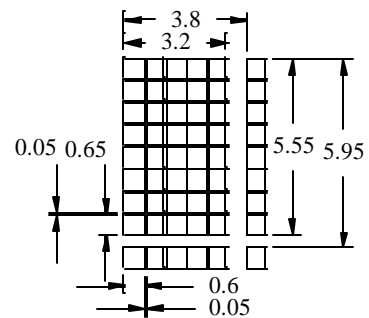
PC2002D-O (20x2) Character LCD Display



LCD Block Diagram



Dot Layout



All dimensions are in mm. Tolerance is ± 0.3 Unless otherwise specified