

## AND501GST/GST-LED

### 20 Characters x 2 Lines

### Intelligent Alphanumeric Displays

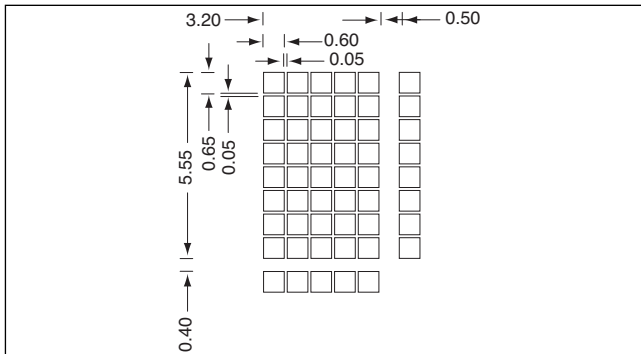
The AND501GST/GST-LED devices are compact, LCD modules that have an on-board LCD controller and driver circuit. These devices can display 160 characters (numerals, letters, symbols and Kana letters), as well as eight custom characters.

#### Features

• RoHS Compliant

- AND501GST: Super Twist Technology
- AND501GST-LED: STNwith LED backlight
- Low voltage, +5V single power supply
- Controller on board (HD44780)
- RoHS compliant
- 11 commands for control

#### Dot Matrix Dimensions



#### Mechanical Characteristics

| Item               | Specification             | Unit |
|--------------------|---------------------------|------|
| Outline Dimensions | 116 (H) x 37 (V) x 11 (D) | mm   |
| Character Size     | 3.20 (H) x 5.55 (V)       | mm   |
| Viewing Area       | 83.0 (H) x 18.6 (V)       | mm   |
| Dot Size           | 0.60 (H) x 0.65 (V)       | mm   |
| Dot Pitch          | 0.65 (H) x 0.70 (V)       | mm   |

#### Absolute Maximum Ratings

| Item                  | Symbol   | Rating                      | Unit |
|-----------------------|----------|-----------------------------|------|
| Supply Voltage        | $V_{DD}$ | 7.0                         | V    |
| Input Voltage         | $V_{IN}$ | $0 \leq V_{IN} \leq V_{DD}$ | V    |
| LED Forward Current   | $I_F$    | 275                         | mA   |
| LED Reverse Voltage   | $V_R$    | 8                           | V    |
| LED Power Dissipation | $P_D$    | 1270                        | mW   |

#### Absolute Maximum Ratings (Continued)

| Item                  | Symbol    | Rating     | Unit |
|-----------------------|-----------|------------|------|
| Operating Temperature | $T_{op}$  | 0 to +50   | °C   |
| Storage Temperature   | $T_{stg}$ | -20 to +60 | °C   |

#### Electrical Characteristics (TA = 25°C)

| Item                                     | Symbol                                | Min.     | Typ. | Max. | Unit |
|------------------------------------------|---------------------------------------|----------|------|------|------|
| Supply Voltage                           | $V_{DD}$                              | 4.75     | 5.0  | 5.25 | V    |
|                                          | GND                                   | -        | 0    | -    |      |
| LED Forward Voltage<br>( $I_F = 200$ mA) | $V_F$                                 | 3.8      | 4.1  | 4.4  | V    |
| LED Reverse Current<br>( $V_R = 8$ V)    | $I_R$                                 | -        | -    | 2.2  | mA   |
| Input Voltage                            | "High" Level<br>( $V_{DD} = 5.0$ V)   | $V_{IH}$ | 2.2  | -    | V    |
|                                          | "Low" Level<br>( $I_{OH} = 0.2$ mA)   | $V_{IL}$ | 0    | -    |      |
| Output Voltage                           | "High" Level<br>( $-I_{OH} = 0.2$ mA) | $V_{OH}$ | 2.4  | -    | V    |
|                                          | "Low" Level<br>( $I_{OL} = 1.2$ mA)   | $V_{OL}$ | -    | -    |      |

#### Optical Characteristics (TA = 25°C, $\phi = 0^\circ$ , $\theta = 0^\circ$ )

| Item          | Symbol    | Min. | Typ. | Max. | Unit   |
|---------------|-----------|------|------|------|--------|
| Viewing Angle | $\phi$    | -10  | 25   | 40   | degree |
| Contrast      | K         | -    | 3.0  | -    | -      |
| Turn On       | $T_{on}$  | -    | 200  | 400  | ms     |
| Turn Off      | $T_{off}$ | -    | 250  | 400  | ms     |

Product specifications contained herein may be changed without prior notice. It is therefore advisable to contact Purdy Electronics before proceeding with the design of equipment incorporating this product.

## Connector Pin Assignment

| Pin No. | Signal          | Function                                                                       |
|---------|-----------------|--------------------------------------------------------------------------------|
| 1       | GND             | Ground                                                                         |
| 2       | V <sub>DD</sub> | +5 Power Supply                                                                |
| 3       | V <sub>D</sub>  | LCD Drive Voltage                                                              |
| 4       | RS              | "H" Data Input<br>"L" Command Input                                            |
| 5       | R/W             | Read/Write                                                                     |
| 6       | E               | Enable Signal                                                                  |
| 7       | DB0             | Data Bus<br>DB0-DB7 are for 8-bit operation<br>DB4-DB8 are for 4-bit operation |
| 8       | DB1             |                                                                                |
| 9       | DB2             |                                                                                |
| 10      | DB3             |                                                                                |
| 11      | DB4             |                                                                                |
| 12      | DB5             |                                                                                |
| 13      | DB6             |                                                                                |
| 14      | DB7             |                                                                                |
| 15      | LED             | LED Anode                                                                      |
| 16      | LED             | LED Cathode                                                                    |

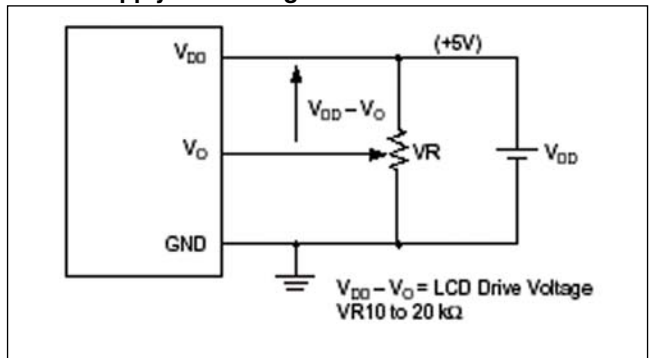
## Power Supply

LCD panel is driven by the voltage V<sub>DD</sub>-V<sub>O</sub>, so an adjustable V<sub>O</sub> is required for contrast control and temperature compensation.

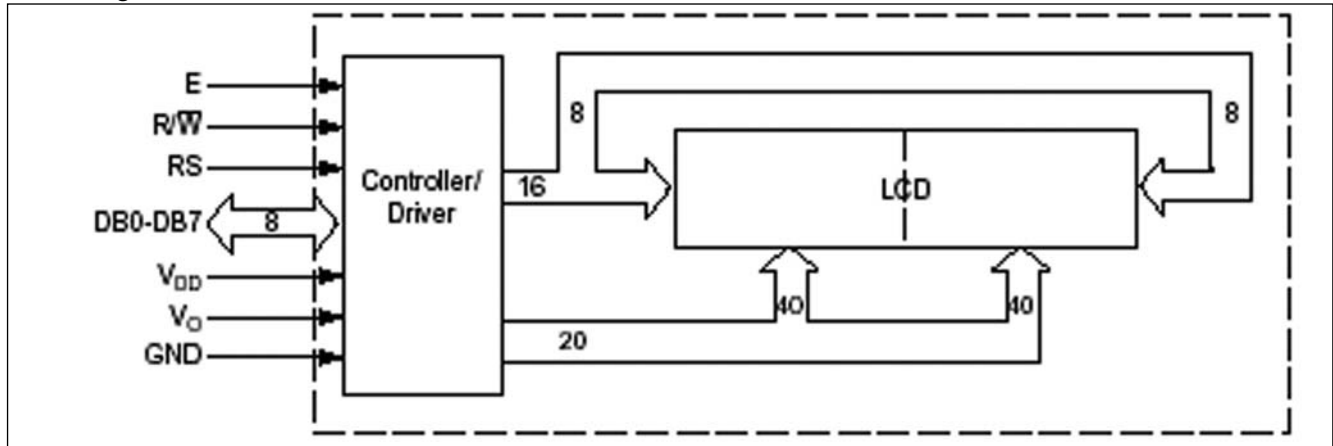
## Temperature Variations

| Temperature | V <sub>DD</sub> -V <sub>O</sub> |
|-------------|---------------------------------|
| 0°C         | 4.80                            |
| +25°C       | 4.65                            |
| +50°C       | 4.35                            |

## Power Supply Block Diagram



## Block Diagram



## Dimensional Outline

