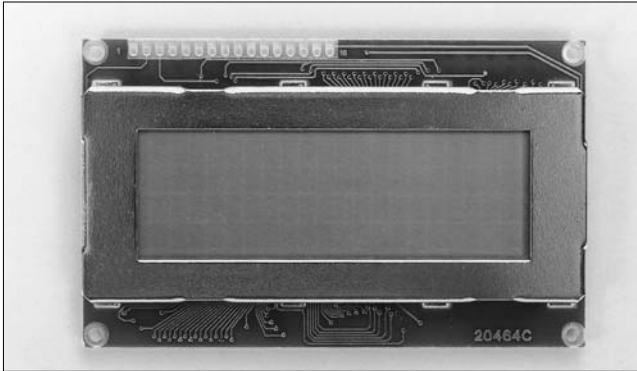




## AND721GST/GST-LED Intelligent Character Display

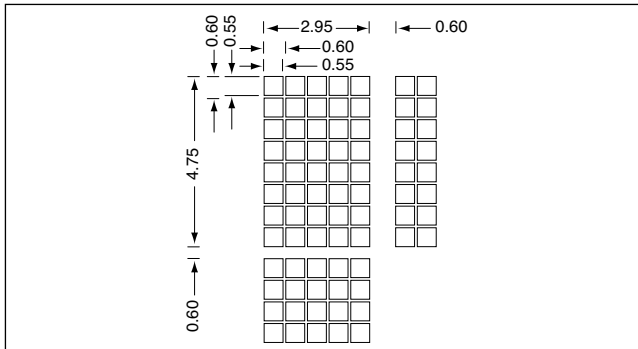


### Features

• RoHS Compliant

- AND721GST: Super Twist Technology
- AND721GST-LED: STN with LED backlight
- Low voltage, +5V single power supply
- Controller on board (HD44780)
- RoHS compliant
- 11 commands for control
- Wide temperature range option (WGST)

### Dot Matrix Dimensions



### Mechanical Characteristics

| Item               | Specification            | Unit |
|--------------------|--------------------------|------|
| Outline Dimensions | 98 (W) x 60 (H) x 12 (D) | mm   |
| Character Size     | 2.95 (W) x 4.75 (H)      | mm   |
| Viewing Area       | 76.0 (W) x 25.2 (H)      | mm   |
| Dot Size           | 0.55 (W) x 0.55 (H)      | mm   |
| Dot Pitch          | 0.60 (W) x 0.60 (H)      | 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 | $I_F$    | 480                         | mA   |

## AND721GST/GST-LED

### 4 Lines x 20 Characters Intelligent Character Display

The AND721GST/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.

### Absolute Maximum Ratings (Continued)

| Item                  | Symbol    | Rating     | Unit |
|-----------------------|-----------|------------|------|
| LED Reverse Voltage   | $V_R$     | 8          | V    |
| LED Power Dissipation | $P_D$     | 1900       | mW   |
| 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    |
|                                               | $V_{DD}-V_O$ | 3.0  | —    | 6.3      |      |
| High Level In Voltage ( $V_{DD} = 5.0V$ )     | $V_{IN}$     | —    | —    | $V_{DD}$ | V    |
| Low Level In Voltage ( $I_{OH} = 0.2$ mA)     | $V_{IH}$     | 0    | —    | 0.6      | V    |
| High Level Output Volt. ( $-I_{OH} = 0.2$ mA) | $V_{OH}$     | 2.4  | —    | —        | V    |
| Low Level Output Volt. ( $I_{OL} = 1.2$ mA)   | $V_{OL}$     | —    | —    | 0.4      | V    |
| LED Forward Voltage ( $I_F = 230$ mA)         | $V_F$        | 3.8  | 4.1  | 4.4      | V    |
| LED Reverse Current ( $V_R = 8$ V)            | $I_R$        | —    | —    | 2.4      | mA   |

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

| Item          | Symbol    | Min. | Typ. | Max. | Unit   |
|---------------|-----------|------|------|------|--------|
| Viewing Angle | $f$       | —    | 50   | —    | degree |
| Contrast      | K         | —    | 6.0  | —    | —      |
| 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.



# AND721GST/GST-LED Intelligent Character Display

## Connector Pin Assignment

| Pin # | Signal          | Function                                                                       |
|-------|-----------------|--------------------------------------------------------------------------------|
| 1     | GND             | Ground                                                                         |
| 2     | V <sub>DD</sub> | +5 Power Supply                                                                |
| 3     | V <sub>O</sub>  | LCD Drive Voltage                                                              |
| 4     | RS              | "H" Data Input<br>"L" Command Input                                            |
| 5     | R/W             | Read/Write                                                                     |
| 6     | E               | Enable                                                                         |
| 7     | DB0             | Data Bus<br>DB0-DB7 are for 8-bit operation<br>DB4-DB7 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 Ground                                                             |

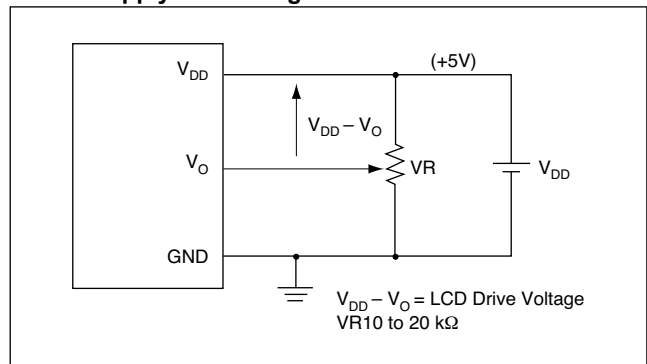
## Power Supply

The LCD panel is driven by the voltage  $V_{DD}-V_O$ , so an adjustable  $V_O$  is required for contrast control and temperature compensation.

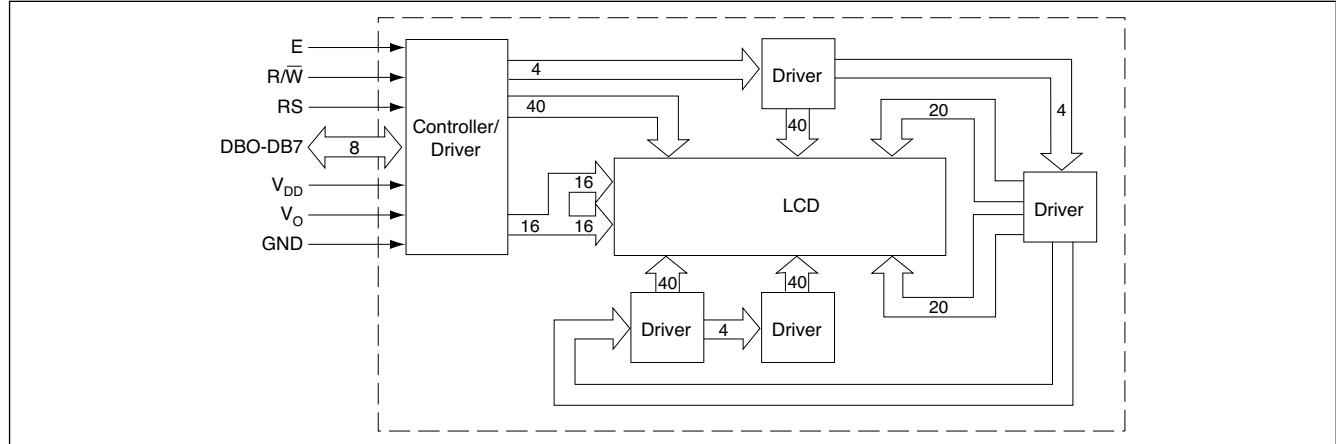
## Temperature Variations

| Temperature | V <sub>DD</sub> -V <sub>O</sub> |
|-------------|---------------------------------|
| 0°C         | 5.00                            |
| +25°C       | 4.75                            |
| +50°C       | 4.50                            |

## Power Supply Block Diagram



## Block Diagram



## Dimensional Outline

