

AND491GST3-3V-W-LED Intelligent Character Display

The AND491GST3-3V-W-LED is an STN Positive Graye liquid crystal display. It has a transfective rear polarizer, white LED backlight, 6 o'clock viewing angle and a wide temperature range with a 3.3V single supply voltage.

Features

- STN Positive Gray
- Transfective Rear Polarizer
- White LED Backlight
- 6 O'clock Viewing Direction
- Wide Temperature Range, 3.3V, Single Supply Voltage
- Silver Frame
- **ROHS Compliant**

Mechanical Characteristics

| Item | Standard Value | Unit |
|----------------|---|------|
| Module Size | 80.0 (W) x 36.0 (H) x 8.8.0 (12.7) (D) (max.) | mm |
| Viewing Area | 65.0 (W) x 16.0 (H) | mm |
| Dot Size | 0.56 (W) x 0.56 (H) | mm |
| Dot Pitch | 0.60 (W) x 0.70 (H) | mm |
| Display Format | 16 characters (W) x 2 lines (H) | – |
| Duty Ratio | 1/16 Duty | – |
| Controller | ST7066U or equivalent | – |

Electrical Absolute Maximum Ratings

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--|-----------|-------------------------|------|------|------|------|
| Power Supply for Logic | VDD - VSS | – | 2.7 | 3.3 | 4.5 | V |
| Input Voltage | VIL | L Level | 0 | – | 0.6 | V |
| | VIH | H Level | 2.2 | – | VDD | V |
| LCM Recommend LCD Module driving Voltage | VDD-V0 | Ta = 0°C | – | – | – | V |
| | | Ta=25°C | 2.7 | 3.3 | 4.5 | |
| | | Ta=50°C | – | – | – | |
| Power Supply Current for LCM | IDD | VDD = 3.3V, VDD-V0=3.3V | – | 2.0 | 3.0 | mA |
| LED Forward Voltage | VF | iF = 20 mA | – | 3.4 | 3.6 | V |
| LED Frward Current | IF | – | – | 20 | – | mA |
| LED Reverse Voltage | IR | VR=5V | – | – | 0.2 | mA |

Product specifications contained herein may be changed without prior notice.

□

Electrical Characteristics

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit | |
|------------------------|-----------------------|------------|------|------|------|------|---|
| Power Supply for Logic | VDD-VSS | - | 2.97 | 3.30 | 3.63 | V | |
| Input Voltage | VIL | L Level | 0 | - | 0.6 | V | |
| | VH | H Level | 2.2 | - | VDD | V | |
| | VDD-VO Bias - 1/12 | Ta = -20°C | - | - | - | - | V |
| | | Ta = 25°C | 15.8 | 16.3 | 16.8 | V | |
| Ta = 70°C | | - | - | - | V | | |
| LED Forward Voltage | VF | If=160 mA | - | 3.4 | 3.6 | V | |
| LED Forward Current | IF | - | - | 160 | - | mA | |
| LED Reverse Current | IR | VR=5V | - | - | 0.3 | mA | |

Optical Specifications (Ta = 25 °C)

| Item | Symbol | Remarks | Specifications | | | Units |
|--------------------------|------------------|-----------------------------|----------------------|----------------------|----------------------|-------------------|
| | | | Min. | Typ. | Max. | |
| Viewing Angle | Φ f (12 o'clock) | When CR ≥ 1.4 | - | 20 | - | deg |
| | Φ b (6 o'clock) | | - | 40 | - | |
| | Φ l (9 o'clock) | | - | 30 | - | |
| | Φ r (3 o'clock) | | - | 30 | - | |
| Rise Time | Tr | VDD-VO = 3.3 V Ta = 25°C | - | 200 | - | mS |
| Fall Time | Tf | | - | 250 | - | |
| Frame Frequency | Frm | | - | 64 | - | Hz |
| Contrast | Cr | | - | 3.0 | - | - |
| Brightness of Backlight | L | IF = 20 mA | 120 | 180 | - | cd/m ² |
| Peak Emission Wavelength | λ P | | x = 0.29 y = 0.30 | x = 0.31 y = 0.32 | x = 0.33 y = 0.34 | nm |

Environmental Absolute Maximum Ratings

| Item | Wide Temperature | | | |
|---------------------------------|------------------|--------|----------|--------|
| | Operating | | Storage | |
| | Min. | Max. | Min. | Max. |
| Ambient Temperature | -20 °C | +70 °C | -30 °C | +80 °C |
| Humidity (without condensation) | Note 4, 5 | | Note 4,6 | |

Note 4: Background color changes slightly depending on ambient temperature. This phenomenon is reversible.

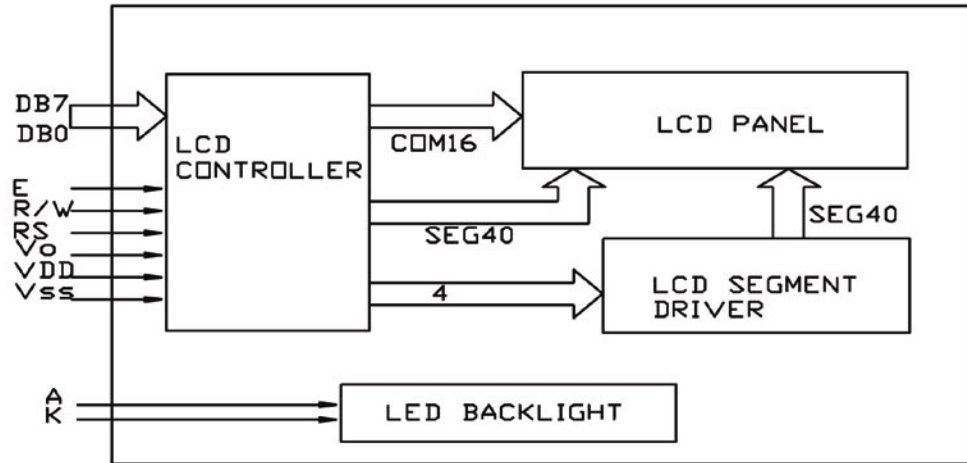
Note 5: Ta ≤ 70°C: 75 RH max; Ta > 70°C: absolute humidity must be lower than the humidity of 75% RH at 70°C.

Note 6: Ta at -30°C will be <48 hrs, at 80°C will be < 120 hrs when humidity is higher than 75%.

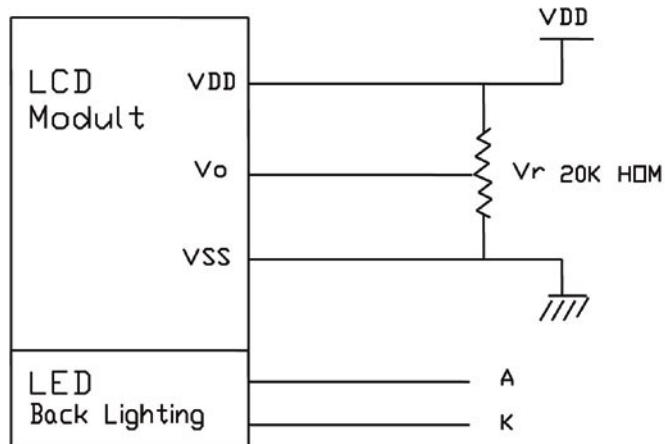
Interface Pin Assignment

| Pin No. | Pin Out | Level | Function Description | Pin No. | Pin Out | Level | Function Description |
|---------|---------|----------|----------------------|---------|---------|-------|----------------------|
| 1 | VSS | 0V | Power Supply Ground | 9 | DB2 | H/L | Data Bit 2 |
| 2 | VDD | 3.3V | Power Supply Voltage | 10 | DB3 | H/L | Data Bit 3 |
| 3 | V0 | — | Contrast Adjustment | 11 | DB4 | H/L | Data Bit 4 |
| 4 | RS | H/L | Register Select | 12 | DB5 | H/L | Data Bit 5 |
| 5 | R/W | H/L | Read/ Write | 13 | DB6 | H/L | Data Bit 6 |
| 6 | E | H, H → L | Enable Signal | 14 | DB7 | H/L | Data Bit 7 |
| 7 | DB0 | H/L | Data Bit 0 | 15 | A | 3.5V | LED Power Supply (+) |
| 8 | DB1 | H/L | Data Bit 1 | 16 | K | 0V | LED Power Supply (-) |

Block Diagram



Power Supply



Mechanical Dimensions

