

## 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.  
It is therefore advisable to contact Purdy Electronics before proceeding with the design of equipment incorporating this product.

### Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Power Supply for Logic	VDD-VSS	-	4.5	5.0	5.5	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 <sup>2</sup>	
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.

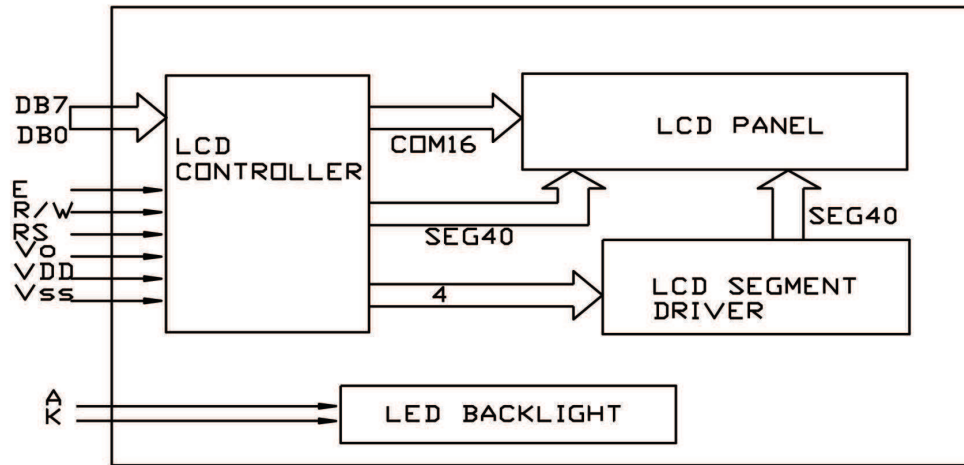
Note 5: Ta ≤ 70°C: 75 RH max; Ta > 70°C: absolute humidity must be lower than the humidity of 75% RH at 70°C.

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

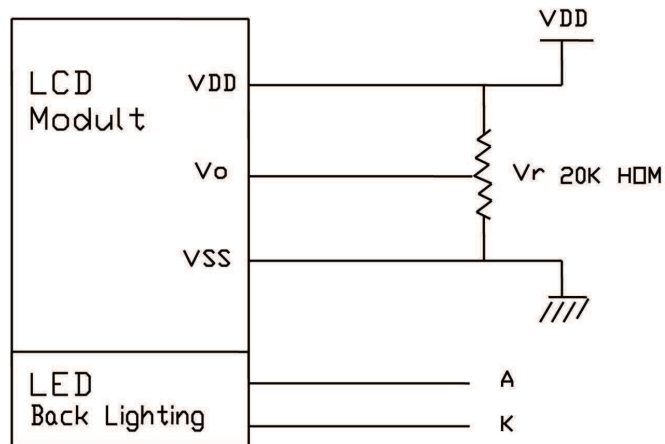
### Interface Pin Assignment

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

