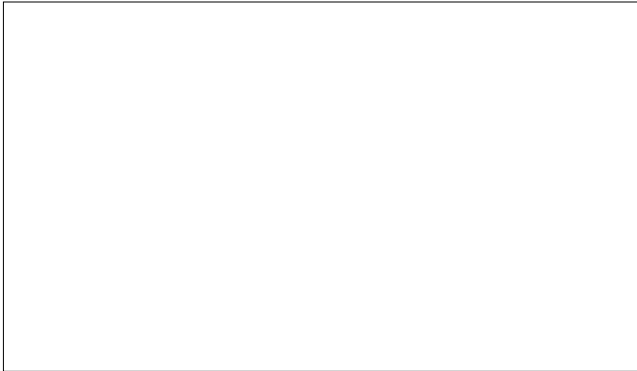




## AND1263WGST/WGST-LED Intelligent Character Display



### AND1263WGST/WGST-LED

192 x 128 Dots

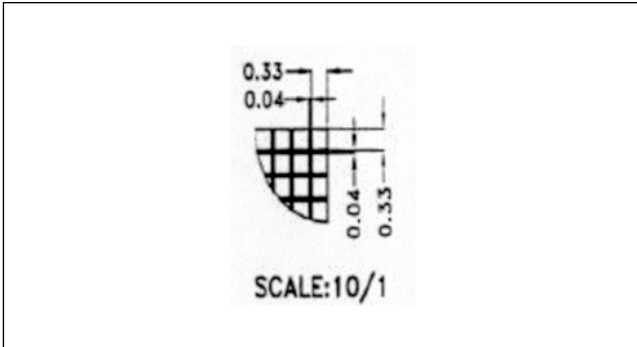
Smart Graphic Display

The AND1263WGST/WGST-LED devices are compact, full dot matrix, LCD modules that have a built-in control functions, Data RAM and display memory (RAM). The AND1263WGST/WGST-LED can display TEXT information, numerals, letters and symbols, as well as GRAPHIC patterns. These devices are suitable for medical and measurement equipment, point-of-sale terminals, portable equipment, and marine instrumentation.

#### Features

- λ 192 x 128 dot graphic display
- λ STN, gray, transfective, positive, extended temperature LCD type
- λ 1/128 duty, 1/12 bias driver condition
- λ 6 o'clock viewing direction
- λ YG LED B/L backlight
- λ 103 grams
- λ Available with LED backlighting (-LED option)

#### Dot Matrix Dimensions



#### Mechanical Characteristics

Item	Specification	Unit
Outline Dimensions	98.0 (H) x 86.0 (V) x 12.7 (D)	mm
# of Dots	192 x 128	
Viewing Area	77.5 (H) x 54.0 (V)	mm
Active Area	71.0(H) x 47.32 (V)	mm
Dot Size	0.33 (H) x 0.33 (V)	mm
Dot Pitch	0.37 (H) x 0.37 (V)	mm
Weight	103	gram

#### Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit
Pwr Supply for Logic	$V_{DD}-V_{SS}$	-0.3	7.0	V
Pwr Supply for LCD	$V_{DD}-V_{EE}$	0	14.0	V
Input Voltage	$V_I$	-0.3	$V_{DD}$	V
LED Pwr Dissipation	$P_{AD}$	—	2.65	W
LED Forward Current	$I_{AF}$	—	660	mA
LED Reverse Voltage	$V_{IN}$		8	V
Operating Temperature	$T_{op}$	-20	+70	°C
Storage Temperature	$T_{stg}$	-30	+80	°C

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

Item	Symbol	Min.	Max.	Unit
Pwr Supply Voltage	$V_{DD}$	-0.3	7.0	V
LCD Driver Supply Voltage	$V_{DD}-V_{EE}$	0	22.0	V
Input Voltage	$V_{IN}$	-0.3	$V_{DD}-0.3$	
Operating Temperature (Excluded B/L)	$T_{op}$	-20	70	°C
Storage Temperature (Excluded B/L)	$T_{ST}$	-30	80	°C
Storage Humidity (Ta < 40 °C)	$H_D$	—	90	%RH

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.



## **AND1263WGST/WGST-LED** **Intelligent Character Display**

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## **AND1263WGST/WGST-LED Intelligent Character Display**

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## AND1263WGST/WGST-LED Intelligent Character Display

### Optical Characteristics

(LCD Panel: 1/128 Duty, 1/12 Bias, VLCD = 17.5V,  
Ta 5 = 25°C)

Item	Symbol	Min.	Typ.	Max.	Unit
View Angle ( $C \geq 2.0$ , $\phi = 0^\circ$ )	$\theta$	40°	—	—	degree
Contrast Ratio ( $\theta = 5^\circ$ , $\phi = 0^\circ$ )	C	5	7	—	ms
Fall Time ( $\theta = 5^\circ$ , $\phi = 0^\circ$ )	Tr	—	150 ms	—	
Frame Frequency ( $\theta = 5^\circ$ , $\phi = 0^\circ$ )	Tf	—	300 ms	—	Hz

### Connector Pin Assignment

Pin #	Signal	Function
1	DB3	Display Data input
2	DB2	Display Data input
3	FLM	One-frame timing signal
4	M	Liquid crystal AC drive control signal
5	CL1	One-common-line timing signal
6	CL2	Display Data shift clock
7	DB1	Display Data input
8	DB0	Display Data input
9	V <sub>DD</sub>	Power Supply (V <sub>DD</sub> > V <sub>SS</sub> )
10	V <sub>SS</sub>	Power Supply (V <sub>SS</sub> = 0)
11	V <sub>LC</sub>	Operating voltage for LCD
12	FGND	Frame ground
13	K	Power supply LED backlight (-)
14	A	Power supply LED backlight (+)

### DC Electrical Characteristics

(V<sub>DD</sub> = 5.0V ± 10%, V<sub>SS</sub> = 0V, Ta 5 = 25°C)

Item	Symbol	Condition	Min.	Typ.	Max	Unit
Logic Supply Voltage	V <sub>DD</sub>	—	4.5	5.0	5.5	V
“H” Input Voltage	V <sub>IH</sub>	—	0.8 V <sub>DD</sub>	—	—	V
“L” Input Voltage	V <sub>IL</sub>	—	0	—	0.2 V <sub>DD</sub>	V
“H” Output Voltage	V <sub>OH</sub>	—	V <sub>DD</sub> - 0.4	—	—	V
“L” Output Voltage	V <sub>OL</sub>	—	—	—	0.4	V
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> = 5.0V f <sub>OSC</sub> = 3.0 MHz	—	3.5	—	mA
LCM Driver Voltage	V <sub>OP</sub>	V <sub>DD</sub> - V <sub>O</sub> (20 °C)	—	—	—	V
		V <sub>DD</sub> - V <sub>O</sub> (25 °C)	—	13.8	—	
		V <sub>DD</sub> - V <sub>O</sub> (70 °C)	—	—	—	

### LCD Module with LED Backlight Maximum Ratings

Item	Symbol	Min.	Max	Unit
Forward Current (Ta = 25 °C)	IF	—	350	mA
Reverse Voltage (Ta = 25 °C)	VR	—	8	V
Power Dissipation (Ta = 25 °C)	PO	—	1.54	W
Operating Temperature	T <sub>OP</sub>	-20	70	°C
Storage Temperature	T <sub>ST</sub>	-40	80	°C
Solder Temp. for 3 seconds	—	—	260	°C

### LCD Module with LED Backlight Electrical/Optical Characteristics (Ta 5 = 25°C)

Item	Symbol	Min.	Typ.	Max	Unit
Forward Voltage (IF=140 mA)	VF	—	4.0	4.4	V
Reverse Current (VR=8V)	IR	—	—	0.2	mA
Avg. Brightness (w/ LCD) (IF=140 mA)	IV	—	—	—	cd/m <sup>2</sup>
Wavelength (IF=140 mA)	$\lambda_p$	571	—	576	nm
Luminous Intensity (w/out LCD) (IF=140 mA)	IV	14.4	18	—	cd/m <sup>2</sup>
Color	Yellow-green				



## AND1263WGST/WGST-LED Intelligent Character Display

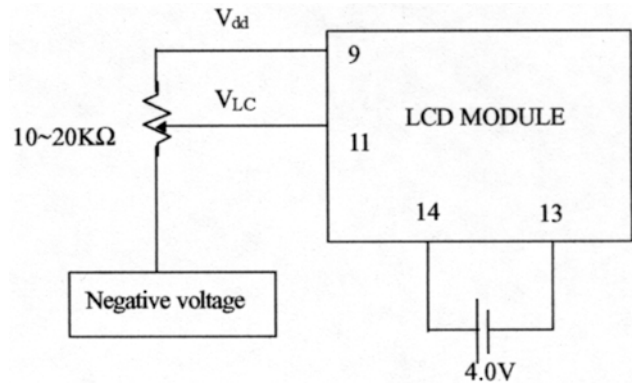
### Power Supply

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.

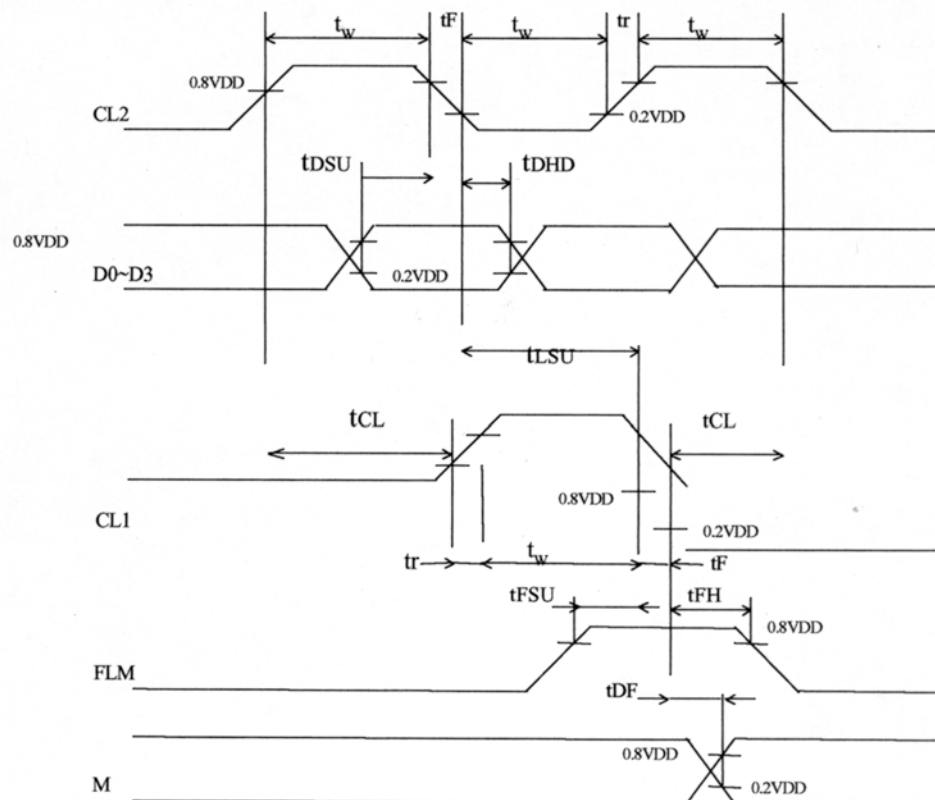
#### Temperature Variations

Temperature	$V_{DD}-V_O$
-20°C	5.00
+25°C	13.8
+70°C	4.50

Power Supply Block Diagram



### Timing Chart





# AND1263WGST/WGST-LED Intelligent Character Display

## Dimensional Outline

