

AND791GST/GST-LED

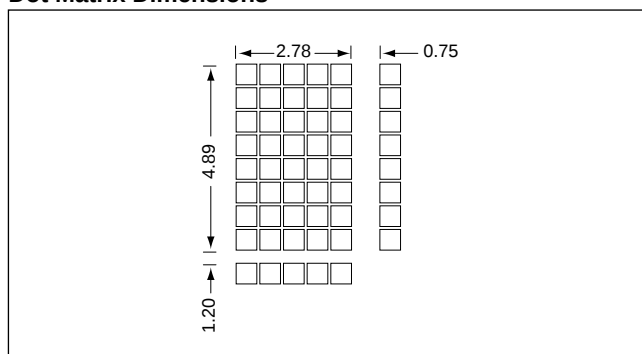
4 Lines x 40 Characters Intelligent Character Display

The AND791GST/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

- AND791GST: Super Twist Technology
- AND791GST-LED: STN with LED backlight
- Low voltage, +5V single power supply
- Controller on board (HD44780)
- Direct interface to 4- or 8-bit CPU
- 11 commands for control
- Wide temperature range option (WGST)

Dot Matrix Dimensions



Mechanical Characteristics

Item	Specification	Unit
Outline Dimensions	190.0 (W) x 54.0 (H) x 10 (D)	mm
Character Size	2.78 (W) x 4.89 (H)	mm
Viewing Area	147.0 (W) x 29.5 (H)	mm
Dot Size	0.50 x 0.55	mm
Dot Pitch	0.57 x 0.62	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	960	mA
LED Reverse Voltage	V_R	8	V

Absolute Maximum Ratings (Continued)

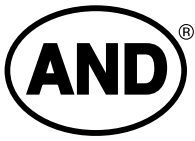
Item	Symbol	Rating	Unit
LED Power Dissipation	P_D	4160	mW
Operating Temperature	T_{op}	0 to +50	°C
Storage Temperature	T_{stg}	-20 to +70	°C

Electrical Characteristics (TA = 25°C)

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V_{DD}	4.75	5.00	5.25	V
	$V_{DD}-V_O$	3.0	—	6.3	
High Level In Voltage	$V_{IH\ 1}$	2.2	—	V_{DD}	V
Low Level In Voltage ($I_{OH} = 0.2\text{ mA}$)	$V_{IL\ 1}$	0	—	0.6	V
High Level Output Volt. ($-I_{OH} = 0.2\text{ mA}$)	$V_{OH\ 1}$	2.4	—	—	V
Low Level Output Volt. ($I_{OL} = 1.2\text{ mA}$)	$V_{OL\ 1}$	—	—	0.4	V
LED Forward Voltage ($I_F = 480\text{ mA}$)	V_F	3.8	4.1	4.4	V
LED Reverse Current ($V_R = 8\text{ V}$)	I_R	—	—	4.8	mA

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

Item	Symbol	Min.	Typ.	Max.	Unit
Viewing Angle	ϕ	—	50	—	degree
Contrast	K	—	6.0	—	—
Responsetime (rise)	T_{on}	—	140	170	ms
Response time (fall)	T_{off}	—	160	190	ms



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Connector Pin Assignment

Pin No.	Signal	Function
1	DB ₇	Data bus line DB0-DB7 are for 8-bit operation DB4-DB7 are for 4-bit operation
2	DB ₆	
3	DB ₅	
4	DB ₄	
5	DB ₃	
6	DB ₂	
7	DB ₁	
8	DB ₀	
9	E ₁	Enable (for upper 2 lines)
10	R/ $\overline{W}$	L: Data write from MPU to LCM. H: Data read from LCM to MPU
11	RS	L: Instruction code input. H: Data input
12	V ₀	Liquid crystal driving voltage
13	GND	Ground
14	V _{DD}	Power supply voltage + 5V
15	E ₂	Enable (for lower 2 lines)
16	NC	No Connect

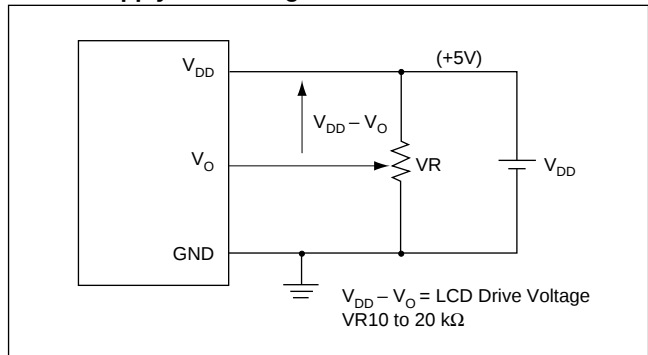
Power Supply

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

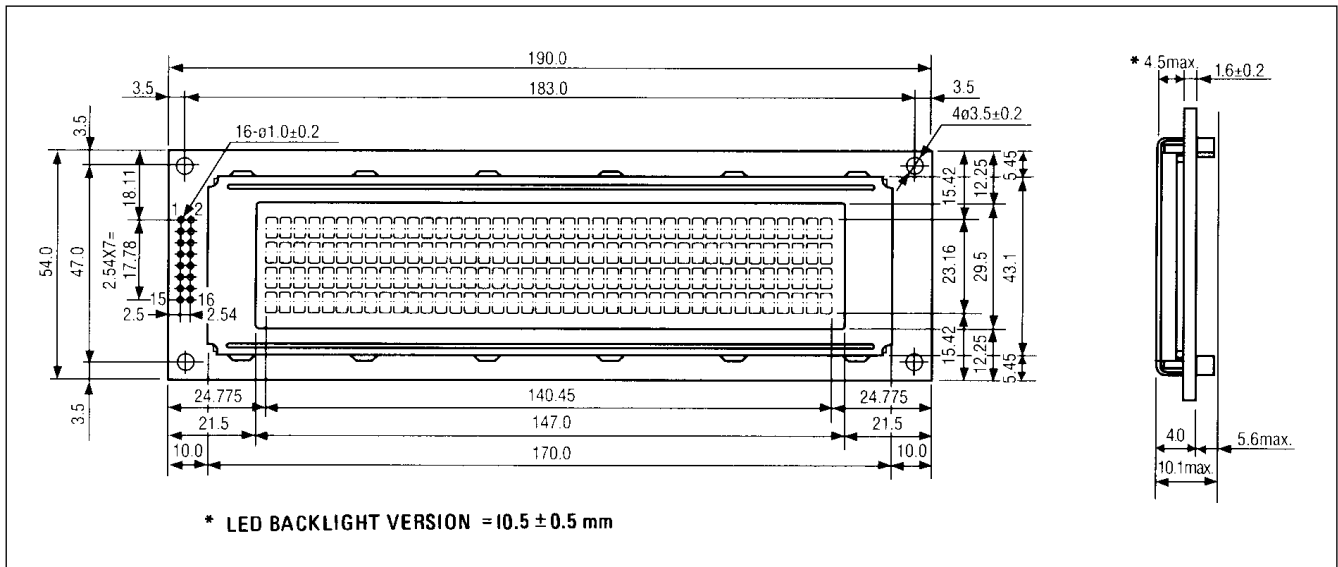
Temperature Variations

Temperature	$V_{DD}-V_O$
0°C	5.00
+25°C	4.75
+50°C	4.50

Power Supply Block Diagram



Dimensional Outline





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