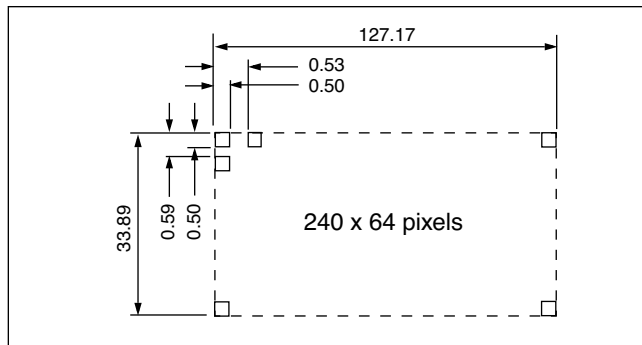




Features

- Blue and white (BST) transmissive mode
- Built-in CCFL backlight
- RoHS compliant
- 40 characters x 8 line capability
- 240 x 64 dot graphic display
- Excellent readability and high-contrast ratio
- Built-in LCD controller (T6963C)
- Wide operating temperature range (0° to 50°C)
- User-selectable fonts: 6 x 8 or 8 x 8

Dot Matrix Dimensions



Mechanical Characteristics

Item	Specification	Unit
Outline Dimensions	180.0 (W) x 65.0 (H) x 9.7 Max (D)	mm
Number of Dots	240 x 64 Dots	
# of Characters	40 x 8 (480), 6 x 8 font	
Viewing Area	127.16 (W) x 33.88 (H)	mm
Bezel Opening	134.0 (W) x 52.4 (H)	mm
Dot Size	0.49 (W) 0.49 (H)	mm
Dot Pitch	0.53 (W) 0.53 (H)	mm
Weight (approx.)	170	gram

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.

AND1781BST2-CH

240 x 64 Dots

Intelligent Graphics Display

The AND1781BST2-CH devices are compact, full dot matrix, with "white page" appearance, LCD modules that have an on-board LCD controller (T6963C) and display memory (RAM). The AND1781 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.

Absolute Maximum Ratings

Item	Symbol	Specifications		Unit
		Min	Max	
Power Supply to Logic	$V_{DD} - V_{SS}$	-0.3	5.5	V
Power Supply to LCD	$V_{DD} - V_{EE}$	0	24.0	V
CCFL Input Current	I_{FL}	—	7.0	mA
CCFL Driving Voltage ⁽¹⁾	V_{FL}	—	500	V _{rms}
CCFL Drive Frequency	f_{FL}	—	85	kHz
Input Voltage	V_I	-0.3	V_{DD}	V
Storage Temperature	T_{stg}	-20	70	°C
Operating Temperature	T_{OP}	0	50	°C
Humidity ⁽²⁾	—	10	80	% RH

1. 1 minute maximum.

2. Wet bulb temperature $\leq 50^\circ\text{C}$, no condensation of water.

Electrical Characteristics (TA = 25°C)

Item	Symbol	Cond.	Specifications			Unit
			Min.	Typ.	Max.	
Power Supply - Logic	$V_{DD} - V_{SS}$	—	4.5	5.0	5.5	V
Input Voltage	V_{IL}	L Level	0	—	0.6	V
	V_{IH}	H Level	2.8	—	V_{DD}	
	$T_a = 25^\circ\text{C}$	10.8	4.5	12.2	13.1	
Power Supply Current for LCM	I_{DD}	$V_{DD} = 5.0\text{V}$	—	16.0	25.0	mA
	I_{EE}	$V_{DD} - V_{EE} = 12.2\text{V}$	—	2.4	—	
CCFL Starting V	V_{FLS}	—	—	750	—	V rms
CCFL Driving V	V_{FLD}	—	—	360	—	
CCFL Driving Current	I_{FLD}	$V_{FLD} = 450\text{Vrms}$	—	5.0	—	mA
CCFL Driving Freq.	f_{FL}	$f_{FL} = 30\text{kHz}$	15	30	85	kHz
CCFL Saturation Time	t_{SAT}	$T_a = 25^\circ\text{C}$	—	1	—	min.

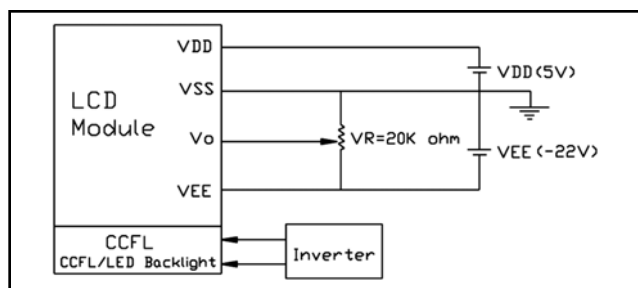


AND1781BST2-CH Intelligent Graphics Display

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

Item	Symbol	Specifications			Unit
		Min.	Typ.	Max.	
Viewing Angle Range	Φf (12 o'clock)	—	20	—	degree
	Φb (6 o'clock)	—	40	—	
	Φl (9 o'clock)	—	30	—	
	Φr (3 o'clock)	—	30	—	
Rise Time	Tr	—	230	—	mS
Fall Time	Tf	—	250	—	
Frame Freq.	Frm	—	64	—	Hz
Contrast	Cr	—	1.5	—	

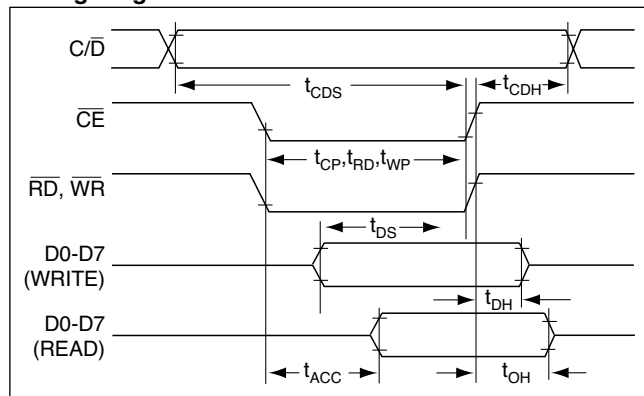
Power Supply



AC Characteristics (VDD=5.0V±10%, VSS=0V, Ta=0 to 50°C)

Item	Symbol	Min.	Max.	Unit
C/D Set Up Time	t _{CDS}	100	—	ns
C/D Hold Time	t _{CDH}	10	—	
CE, RD, WR Pulse Width	t _{CDS}	80	—	
Data Set Up Time	t _{DS}	80	—	
Data Hold Time	t _{DH}	40	—	
Access Time	t _{ACC}	—	150	
Output Hold Time	t _{OH}	10	50	

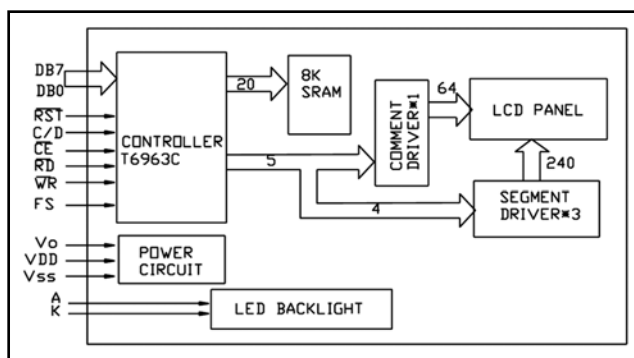
Timing Diagram



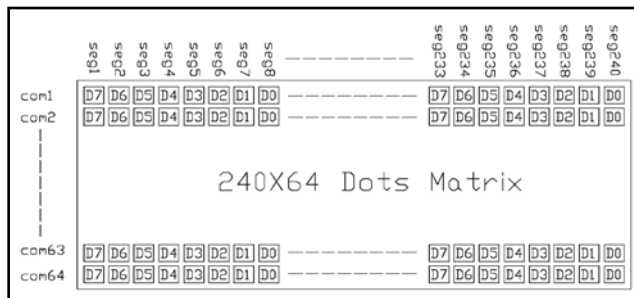
Interface Pin Assignment

Pin No.	Pin Out	Function Description
1	FGND	For GND
2	VSS	Power Supply Ground
3	VDD	Power Supply Voltage
4	Vo	Contrast Adjustment Voltage
5	/WR	Data Write
6	/RD	Data Read
7	/CE	Enable Signal
8	C/D	H : Data , L : Instruction Code
9	NC	No Connection
10	/RST	Reset Signal
11	DB0	Data Bit 0
12	DB1	Data Bit 1
13	DB2	Data Bit 2
14	DB3	Data Bit 3
15	DB4	Data Bit 4
16	DB5	Data Bit 5
17	DB6	Data Bit 6
18	DB7	Data Bit 7
19	FS	H : 6*8/L : 8*8 Select of Font
20	NC	No Connection

Block Diagram



Display Pattern





The drawing shows the JH-3 Molex connector with the following dimensions and features:

- Top View Dimensions:**
 - Overall width: 180 ± 0.5
 - Internal width 1: 160.0
 - Internal width 2: 134.0
 - Internal width 3: 127.16
 - Pin pitch (P): 2.54
 - Pin array width: 4.13
 - Pin array height: 2.54
 - Pin array diameter: $20 - \phi 1.0$
 - Pin array pitch: $(P) 2.54 \times 9$
 - Pin array height segments: 22.86 , 33.88 , 40.4 , 52.4 , 54.0
 - Pin array total height: 65.0 ± 0.5
 - Pin array offset: 4.5
 - Pin array offset: 9.7
 - Pin array offset: 13.8
 - Pin array offset: 9.2
 - Pin array offset: 1.6
 - Pin array offset: 1.6
- Side View Dimensions:**
 - Overall height: 220.0
 - Internal height 1: 10.0
 - Internal height 2: 23.0
 - Internal height 3: 26.42
 - Internal height 4: 7.0 ± 0.3
 - Internal height 5: 2.0
 - Internal height 6: $4 - R1.75$
 - Internal height 7: 176.0
- Detail View:**
 - Overall diameter: 0.04
 - Internal diameter: 0.49
 - Internal diameter: 0.04
 - Internal diameter: 0.49

The graph plots three parameters (B, W, EZ) against temperature in degrees Celsius. The x-axis ranges from -10 to 50, and the y-axis ranges from 0 to 150. The legend indicates: B: Brightness, W: Power Consumption, EZ: Breakdown Voltage.

Temp (°C)	B (Brightness)	W (Power Consumption)	EZ (Breakdown Voltage)
-10	~160	~100	~20
0	~140	~100	~40
10	~120	~100	~60
20	~100	~100	~80
30	~80	~100	~100
40	~60	~100	~120
50	~40	~100	~140