



AND1781BST2

240 x 64 Dots

Intelligent Graphics Display

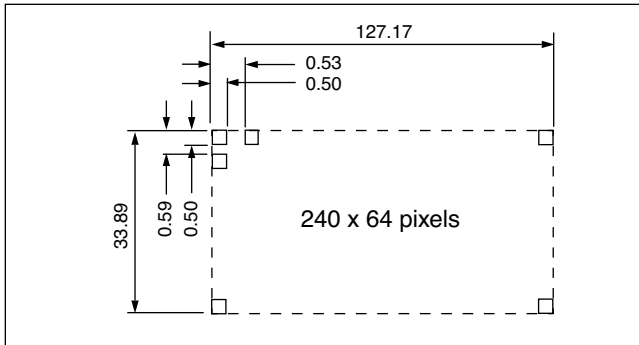
The AND1781BST2 devices are compact, full dot matrix, with “white page” appearance, LCD modules that have an on-board LCD controller (T6963C) and display memory (RAM). The AND1781 can display TEXT information, numerals, letters and symbols, as well as GRAPHIC patterns. These devices are suitable for medical and measurement equipment, point-of-sale terminals, portable equipment, and marine instrumentation.

Features

• RoHS Compliant

- Blue and white (BST) transmissive mode
- Built-in CCFL backlight
- 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.

Absolute Maximum Ratings

Item	Symbol	Specifications		Unit
		Min	Max	
Power Supply fo Logic	$V_{DD} - V_{SS}$	-0.3	5.5	V
Power Supply fo 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 $\leq 50^\circ C$, 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}	
	$T_a = 25^\circ C$		10.8	4.5	12.2	
Power Supply Current for LCM	I_{DD}	$V_{DD} = 5.0V$	-	16.0	25.0	mA
	I_{EE}	$V_{DD} - V_{EE} = 12.2V$	-	2.4	-	
CCFL Starting V	V_{FLS}	-	-	750	-	V_{rms}
CCFL Driving V	V_{FLD}	-	-	360	-	
CCFL Driving Current	I_{FLD}	$V_{FLD} = 450V_{rms}$	-	5.0	-	mA
CCFL Driving Freq.	f_{FL}	$f_{FL} = 30kHz$	15	30	85	kHz
CCFL Saturation Time	t_{SAT}	$T_a = 25^\circ C$	-	1	-	min.

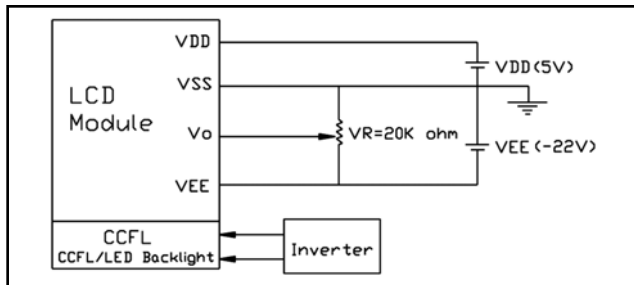


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Optical Characteristics (TA = 25°C, φ = 0°, θ = 0)

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	-	

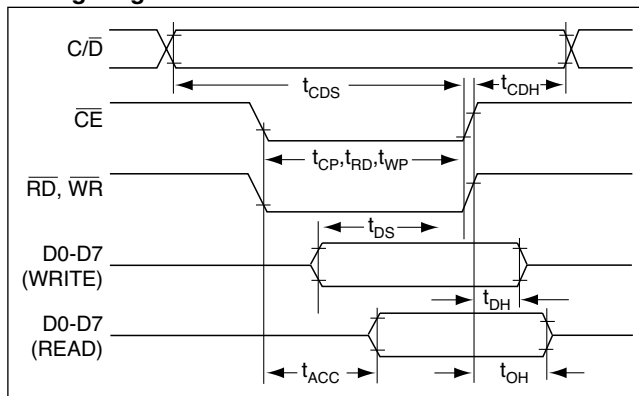
Power Supply



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	

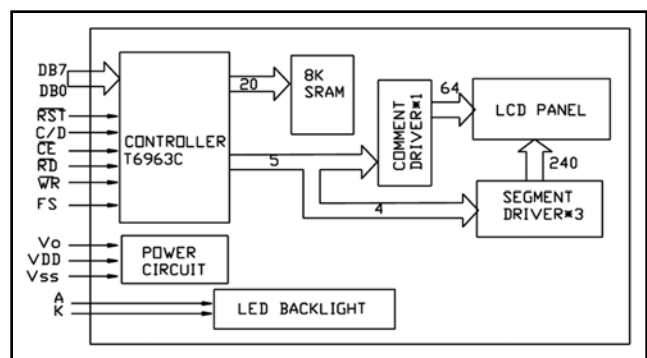
Timing Diagram



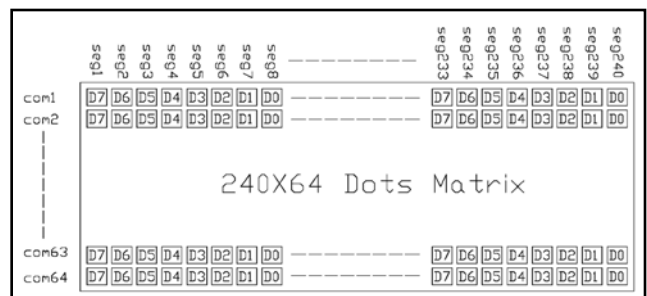
Interface Pin Assignment

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



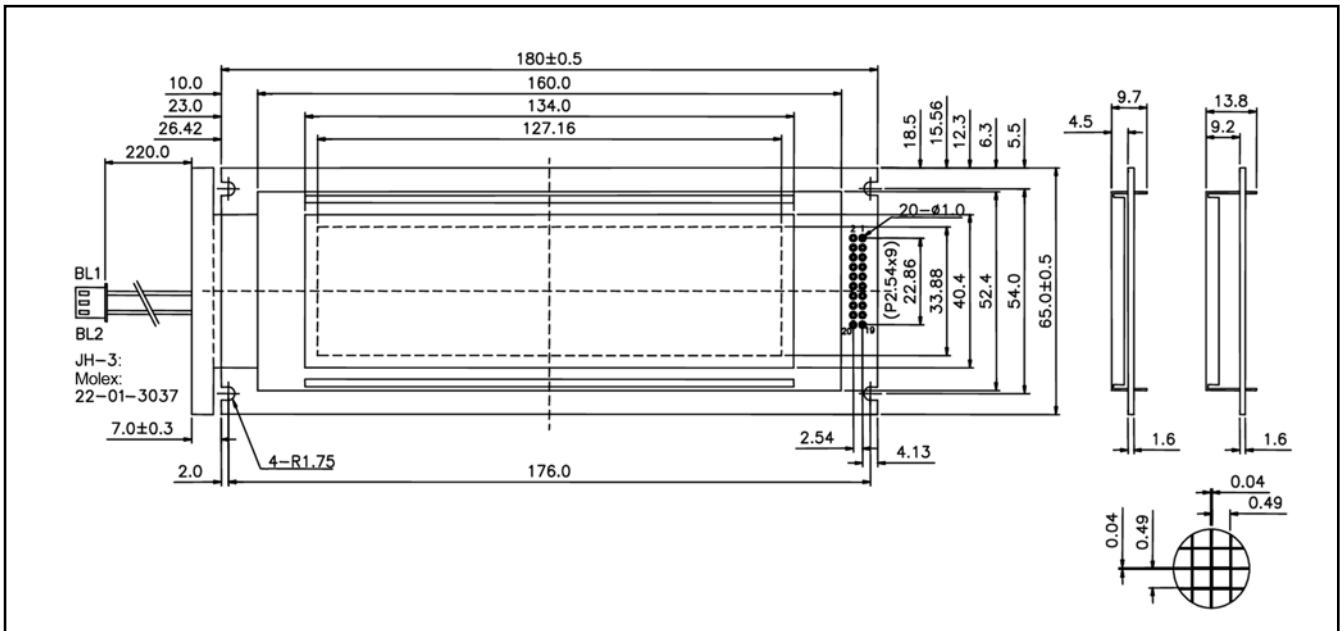
Display Pattern





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Mechanical Drawing



CCFL Backlight

