



# AND12C285-DHB

## 12.1" SVGA Color TFT LCD Module

### Features

• RoHS Compliant

- 12.1" SVGA color display with Super High Luminance
- High Brightness 500cd/m<sup>2</sup> with 4-CCFL sidelight
- Built-in Long Life Lamps (MTTF:50,000 h)  
(Condition/ $T_a$ :25°C,  $I_{FL}$ :6mA(rms)(continuous lighting),  
 $f_{FL}$ :40kHz)
- Mounting hole compatible with AND12C289
- Replaceable structure of lamp units
- RoHS compliant
- Applications: Display Terminals, Scientific Instruments, Medical Instruments, Test and Measurement Instruments, Process Control/Factory Automation Equipment, Office Automation Equipment

### Mechanical Specifications

Item	Specification	Unit
Outline Dimensions	278.3 (W) x 216.0 (H) x 113.5 max (D)	mm
Number of Pixels	800 (W) x 600 (H)	pixels
Active Area	246 (W) x 184.5 (H)	mm
Pixel Pitch	0.3075 (W) x 0.3075 (H)	mm
Weight (approx.)	900	gram
Backlight	4-CCFL, Sidelight type	—

### Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Supply Voltage	$V_{DD}$	-0.3	4.0	V
	$V_{FL}$	0	2.0	kV(rms)
FL Driving Frequency	$f_{FL}$	0	100	kHz
Input Signal Voltage	$V_{IN}$	-0.3	$V_{DD} + 0.3$	V
Operating Ambient Temperature (web bulb temp should be 39°C Max., and no condensation of water.)	$T_{op}$	0	50	°C
Operating Temperature for Panel (surface temp caused by self heat radiation of cell itself is specified here)	$T_{op}$	0	60	°C
Storage Temperature	$T_{stg}$	-20	60	°C
Humidity (Max. wet bulb temp = 39°C)	—	10	90	%RH

### Electrical Specifications ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage ( $I_{FL}=6\text{mA}$ )	$V_{DD}$	3.0	3.3	3.6	V
	$V_{FL}$	580	630	680	V(rms)
FL Start Voltage ( $T_a = 0^\circ\text{C}$ )		1400	—	1900	V(rms)
High Level Input Voltage	$V_{IH}$	$0.8V_{DD}$	—	$V_{DD}$	—
Low Level Input Voltage	$V_{IL}$	0	—	$0.2V_{DD}$	V
Current Consumption	$I_{DD}(*1)$	—	(280)	(450)	mA
	$I_{FL}(*2)$	3.0	—	6.0	mA(rms)
Power Consumption (*1, *2) $I_{FL} = 6.0\text{mA(rms)}$	P	—	(16)	—	W

\*1: 8 color bars pattern

\*2: Except the efficiency of FL inverter

### Optical Specifications ( $T_a = 25^\circ\text{C}$ )

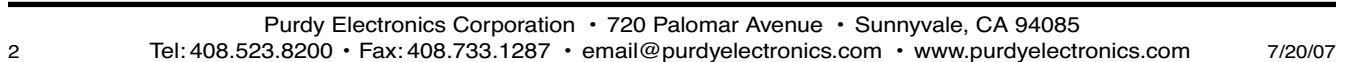
Item	Symbol	Min	Typ	Max	Unit
Contrast	CR	100	250	—	—
Response	$t_{on}$	—	—	50	ms
	$t_{off}$	—	—	50	ms
Luminance	L	(400)	(500)	—	cd/m <sup>2</sup>

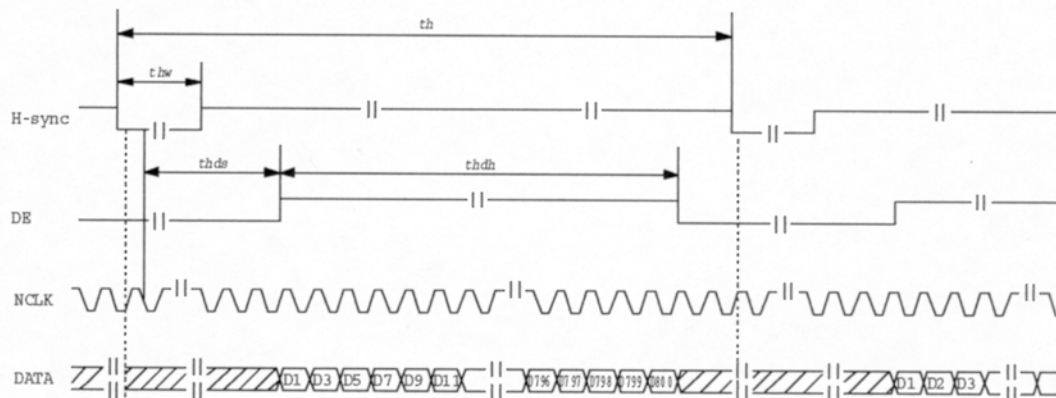
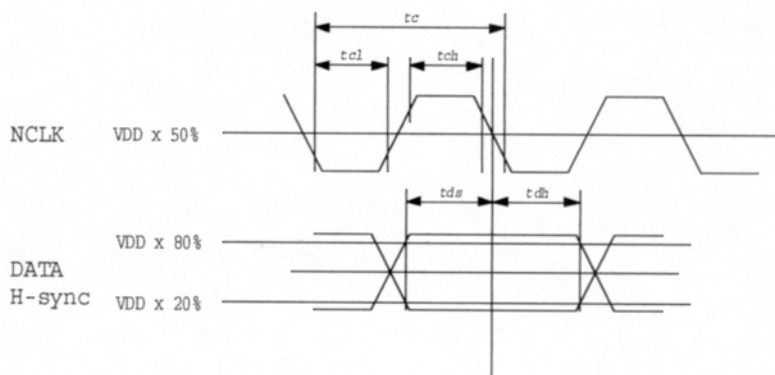
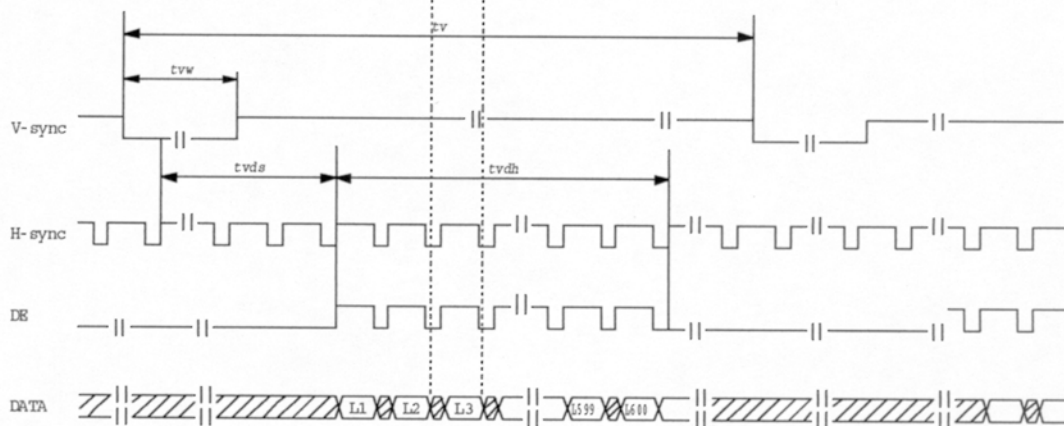
Product specifications contained herein may be changed without prior notice.

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



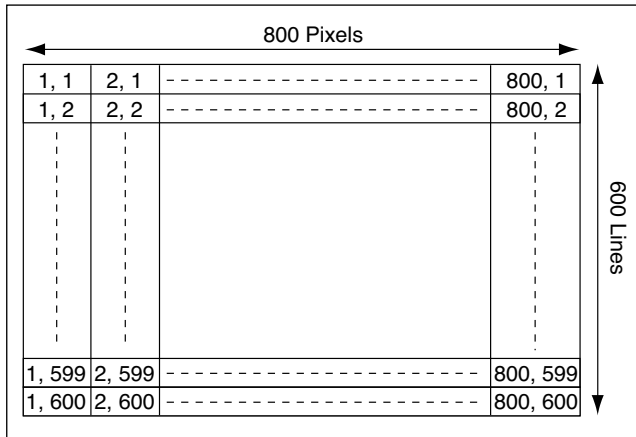
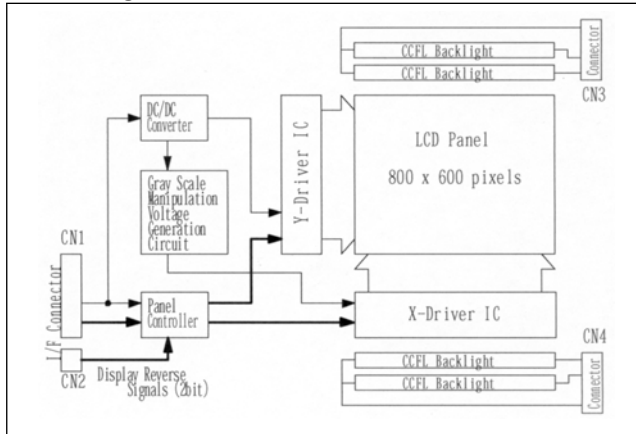
Unit: mm  
Standard Tolerance: 0.5mm



**Timing Chart**
**(1) Horizontal Timing**

**(2) Vertical Timing**




## Block Diagram



## Connector Pin Assignment for Interface

### CN2 Input Signal

(DF14A-2P-1.25H/Hirose Electric Co., Ltd.; Mating Connector: DF14-2S-1.25C, Contact Pin: DF14-2628SCF)

Terminal No.	Symbol	Function
1	U/D	Vertical Reverse ("L" level or Open; normal, "H" level; reverse)
2	R/L	Horizontal Reverse ("L" level or Open; normal, "H" level; reverse)

### CN3/4 CCFL Power Source

(BHR-04VS-1/Japan Solderless Terminal Mfg Co., Ltd.; Mating Connector<sup>3)</sup>: SM04(4.0)B-BHS-1/JPSTM)

Terminal No.	Symbol	Function
1	VFLH1/3	CCFL Power Supply (High Voltage)
2	VFLH2/4	CCFL Power Supply (High Voltage)
3	NC <sup>1)</sup>	Non Connection (Open)
4	VFL1/2	CCFL Power Supply (High Voltage)

### CN1 Input Signal (1) See notes at bottom of page

(DF14A-30P-1.25H/Hirose Electric Co., Ltd.; Mating Connector: DF14-30S-1.25C, Contact Pin: DF14-2628SCF)

Terminal No.	Symbol	Function
1	GND	
2	NCLK	Sampling Clock
3	H-Sync <sup>1)</sup>	Horizontal Sync.
4	V-Sync <sup>1)</sup>	Vertical Sync.
5	GND	
6	R0 <sup>(2)</sup>	Red Display Data (LSB)
7	R1 <sup>(2)</sup>	Red Display Data
8	R2 <sup>(2)</sup>	Red Display Data
9	R3 <sup>(2)</sup>	Red Display Data
10	R4 <sup>(2)</sup>	Red Display Data
11	R5 <sup>(2)</sup>	Red Display Data (MSB)
12	GND	
13	G0 <sup>(2)</sup>	Green Display Data (LSB)
14	G1 <sup>(2)</sup>	Green Display Data
15	G2 <sup>(2)</sup>	Green Display Data
16	G3 <sup>(2)</sup>	Green Display Data
17	G4 <sup>(2)</sup>	Green Display Data
18	G5 <sup>(2)</sup>	Green Display Data (MSB)
19	GND	
20	B0 <sup>(2)</sup>	Blue Display Data (LSB)
21	B1 <sup>(2)</sup>	Blue Display Data
22	B2 <sup>(2)</sup>	Blue Display Data
23	B3 <sup>(2)</sup>	Blue Display Data
24	B4 <sup>(2)</sup>	Blue Display Data
25	B5 <sup>(2)</sup>	Blue Display Data (MSB)
26	DE	Data Enable
27	GND	
28	VDD	+3.3V Power Supply
29	VDD	+3.3V Power Supply
30	GND	

### NOTES:

Note 1: NC terminal should be open.

Note 2: See next page.

Note 3: Take away terminal No. 3 of the mating connector. If you do not take it away, it may cause smoke burn of electrical parts by high voltage.



Note (2): 256 colors are displayed by the combinations of 18 data bits.

	Display	R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0	Gray Scale Level	
Basic Color	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	—	
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	—	
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	—	
	Lt. Blue	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	—	
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	—	
	Purple	H	H	H	H	H	H	L	L	L	L	L	L	H	H	H	H	H	H	—	
	Yellow	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	L	L	—	
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	—	
Gray Scale of Red	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	Dark ↕	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L1
		L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
	Light	H	H	H	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L61
		H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L62
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	Red L63
Gray Scale of Green	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	Dark ↕	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L1
		L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
	Light	L	L	L	L	L	L	H	H	H	H	L	H	L	L	L	L	L	L	L	L61
		L	L	L	L	L	L	H	H	H	H	H	L	L	L	L	L	L	L	L	L62
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	L	Green L63
Gray Scale of Blue	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	Dark ↕	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
	Light	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	L	H	L	L61
		L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	L	L	L62
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	Blue L63
Gray Scale of White & Black	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	Dark ↕	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L	L1
		L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
	Light	H	H	H	H	L	H	H	H	H	L	H	L	H	H	H	H	L	H	L	L61
		H	H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	L	L62
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	White L63