



PRODUCT SPECIFICATIONS Module No.: NTD-7.0S1024600R100C

TFT(Thin-Film-Transistor) Color Liquid Crystal Display Module

General Specification

- 7.0 inch Diagonal
- 1024xRGBx600 resolution
- 24 bit RGB interface
- LED Blacklight (450cd/m²)
- 16.7 M colors Normally Black
- Wide Viewing Angles
- RoHS Compliant

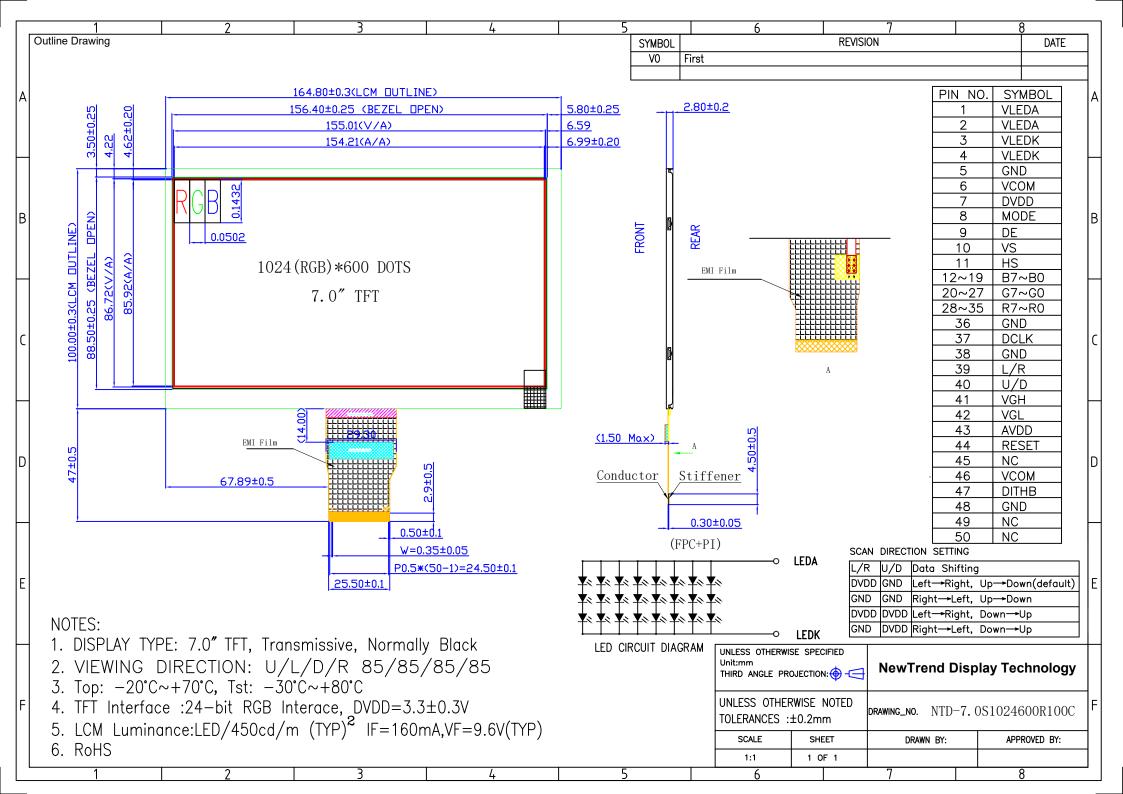
For Customer's Acceptance:

Approved By	Comment

From: NewTrend Display Technology Co., Ltd.	

Document Revision History

Revision	Date	Description	Changed by
0		Initial Release	



Pin No.	Symbol	Function Description	Remark
1~2	LEDA	LED backlight (Anode).	
3~4	LEDK	LED backlight (Cathode).	
5	GND	Ground.	
6	VCOM	Common Voltage.	
7	DVDD	Digital Power.	
8	MODE	DE/SYNC mode select. Normally pull high. H: DE mode. L: HSD/VSD mode.	
9	DE	Data enable input. Active high to enable the input data bus.	
10	VSYNC	Vertical sync input. Negative polarity.	
11	HSYNC	Horizontal sync input. Negative polarity.	
12~19	B7~B0	Blue Data Input	
20~27	G7~G0	Green Data Input	
28~35	R7~R0	Red Data Input	
36	GND	Ground	
37	DCLK	Clock Input	
38	GND	Ground	
39	L/R	Left or Right Display Control.	NOTE1
40	U/D	Up / Down Display Control.	NOTE1
41	VGH	Positive Power for TFT.	
42	VGL	Negative Power for TFT.	
43	AVDD	Analog Power.	
44	RESET	Global reset pin. Active low to enter reset state. Suggest to connecting with an RC reset circuit for stability. Normally pull high.(R=10K Ω , C=1 μ F)	
45	NC	No connection	
46	VCOM	Common Voltage.	
47	DIHTB	Dithering function enable control. (Normally pull high) DITHB="L", to enable internal dithering function. DITHB="H", to disable internal dithering function.	
48	GND	Ground.	
49~50	NC	No connection.	

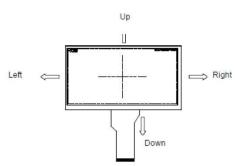
Pin Description:

[Note1] L/R : left or right setting

L/R	U/D	Data shifting
DVDD	GND	Left \rightarrow Right, Up \rightarrow Down(default)
GND	GND	Right \rightarrow Left, Up \rightarrow Down
DVDD	DVDD	Left \rightarrow Right, Down \rightarrow Up
GND	DVDD	Right \rightarrow Left, Down \rightarrow Up

Definition of scanning direction:

Definition of scanning direction:



Item	Symbol	Condition	Min.	Тур.	Max.	Unit
Operating Temperature Range	Тор	Absolute Max	-20	-	+70	°C
Storage Temperature Range	Ts⊤	Absolute Max	-30	-	+80	°C
Digital Supply Voltage	DVdd	-	3.0	3.3	3.6	V
Analog Supply Voltage	AVDD	-	8.9	9.7	10.5	V
Gate On Voltage	VGH	-	16	18	19	V
Gate Off Voltage	VGL	-	-7.1	-6.0	-5.5	V
Common Voltage	VCOM		3.0	3.6	4.0	V
Input logic high voltage	Vін	-	0.7*DVDD	-	DVdd	V
Input logic low voltage	VIL	-	GND	-	0.3*DVDD	V

DC Electrical Characteristics

Note 1: Please adjust VCOM to make the flicker level be minimum. Typ VCOM Voltage value is only for reference, subject to the actual effect (adjustable according to FLICKER status)

ltem	Symbol	Condition	Min.	Тур.	Max.	Unit
Backlight Supply Voltage	Vf	Top=25°C If=160mA	8.1	9.6	9.9	V
Backlight Supply Current	lf		-	160		mA
Backlight Lifetime	-	Top=25°C If=160mA		50000		Hrs

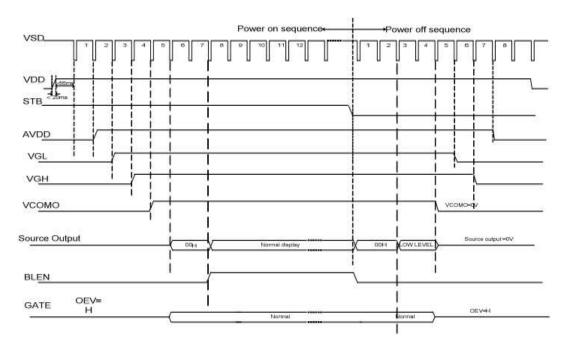
*Backlight lifetime is rated as Hours until half-brightness, under normal operating conditions. The LED of the backlight is driven by current drain, drive voltage is for reference only. Drive voltage must be selected to ensure backlight current drain is below MAX level stated.

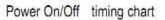
Item	Item		Condition	Min.	Тур.	Max.	Unit
	Тор	-			85	-	
Operating	Bottom	-			85	-	Dog
Viewing Angles	Left	-	CR≥10		85	-	Deg
	Right	-			85	-	
Contrast Ratio		CR	Center	600	800	-	-
Luminance		Lv		400	450		cd/m ²
Response Time		Tr+Tf			25	40	ms
	Red	XR	-		0.600		-
	Reu	YR			0.340		
	Green	Xg	-		0.364		-
Chromoticity	Green	Yg		TYP-	0.578	TYP+0.05	
Chromaticity	Blue	Хв	-	0.05	0.149	116+0.05	-
	Diue	Υв			0.114		
	White	Xw	-		0.318		-
	white	Yw	-		0.356		-

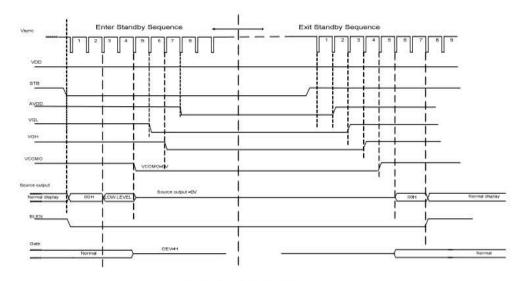
Optical Characteristics

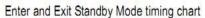
Note (1) Measurement Setup: The LCD module should be stabilized at given temp. 25°C for 15 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 15 minutes in a windless room.

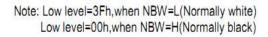
Power Sequence



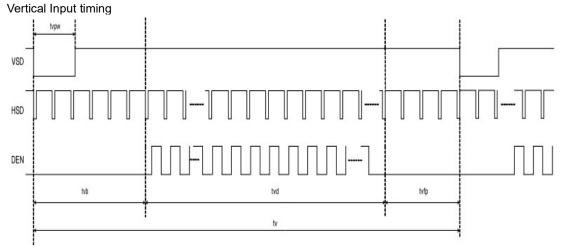




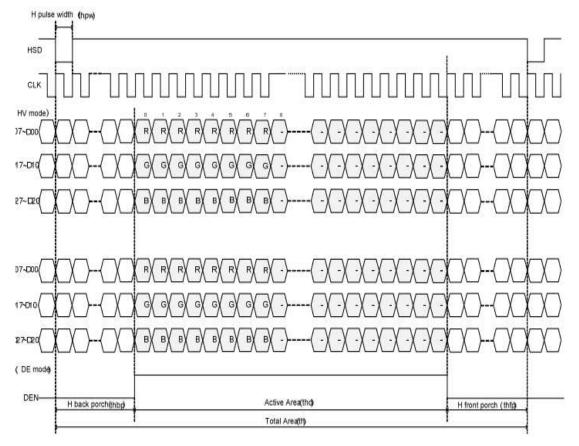




AC Electrical Characteristics







Horizontal input timing

DE mode

Parameter	Cumhal	Value			A REAL
Parameter	Symbol	Min.	Typ.	Max.	Unit
DCLK frequency @Frame rate=60hz	fclk	40.8	51.2	67.2	Mhz
Horizontal display area	thd		1024		DCLK
HSYNC period time	th	1114	1344	1400	DCLK
HSYNC blanking	thb+thfp	90	320	376	DCLK
Vertical display area	tvd		600		Н
VSYNC period time	tv	610	635	800	н
VSYNC blanking	tvb+tvfp	10	35	200	н

HV mode

Parameter		Symbol		Value		Unit
Horizontal display area		thd		DCLK		
DCLK frequency@ Frame rate=60hz		6.11	Min.	Typ.	Max.	
		fclk	44.9 51.2 63	Mhz		
1 Horizontal Line		th	1200	1344	1400	8
	Min.		thpw _			- DCLK
HSYNC pulse width	Typ.	thpw				
	Max.		140			
HSYNC back porch		thbp	160	160	160	
HSYNC front por	h	thfp	16	160	216	

Parameter	Cumhal		11.44		
	Symbol -	Min.	Typ.	Max.	Unit
Vertical display area	tvd	-	600	-1 -	H
VSYNC period time	tv	624	635	750	Н
VSYNC pulse width	tvpw	1	6.00	20	н
VSYNC back porch	tvb	23	23	23	Н
VSYNC front porch	tvfp	1	12	127	Н

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No	Test Item	Test condition	Criterion
1	High Temperature Storage	80℃±2℃ 96H Restore 4H at 25℃,Power off	 1. After testing, cosmetic and electrical defects should not happen. 2. Total current consumption should not be more than twice of initial value.
2	Low Temperature Storage	-30℃±2℃ 96H Restore 4H at 25℃,Power off	
3	High Temperature Operation	70℃±2℃ 96H Restore 4H at 25℃,Power on	
4	Low Temperature Operation	-20℃±2℃ 96H Restore 4H at 25℃,Power on	
5	High Temperature/Humidity Storage	50℃±2℃ 90%RH 96H Power off	
6	Temperature Cycle	$\begin{array}{ccc} -30^{\circ}\mathbb{C} \rightarrow +25^{\circ}\mathbb{C} \rightarrow 80^{\circ}\mathbb{C} \rightarrow +25^{\circ}\mathbb{C} \\ (30mins) & (5mins) & (30mins) & (5mins) \\ \bullet & 5 \text{ Cycle} \\ \hline \\ \text{Restore 4H at } 25^{\circ}\mathbb{C}, \text{ Power off} \end{array}$	

Reliability Test Items and Criteria

Precautions for Use of LCD Modules

1. Handling Precautions

1.1 The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

1.2 If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

1.3 Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

1.4 The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

1.5 If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

— Isopropyl alcohol — Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

- Water - Ketone - Aromatic solvents

1.6 Do not attempt to disassemble the LCD Module.

1.7 If the logic circuit power is off, do not apply the input signals.

1.8 To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

a. Be sure to ground the body when handling the LCD Modules.

b. Tools required for assembly, such as soldering irons, must be properly ground.

c. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

d. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

2. Storage precautions

2.1 When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.2.2 The LCD modules should be stored under the storage temperature range. If the LCD modules will be stored for a long time, the recommend condition is:

Temperature : 10° C ~ 40° C

Relatively humidity: ≤60%

- 2.3 The LCD modules should be stored in the room without acid, alkali and harmful gas.
- 3. The LCD modules should be no falling and violent shocking during transportation, and also should

avoid excessive press, water, damp and sunshine.