



NHD-4.3-480272EF-ATXL#-T

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

NHD- Newhaven Display 4.3" Diagonal

480272- 480xRGBx272 pixels

EF- Model

A- Built-in driver / No Controller

T- White LED backlight

X- TFT

L- 6:00 optimum view, Wide Temp

#- RoHS Compliant

T- 4-wire Resistive touch panel

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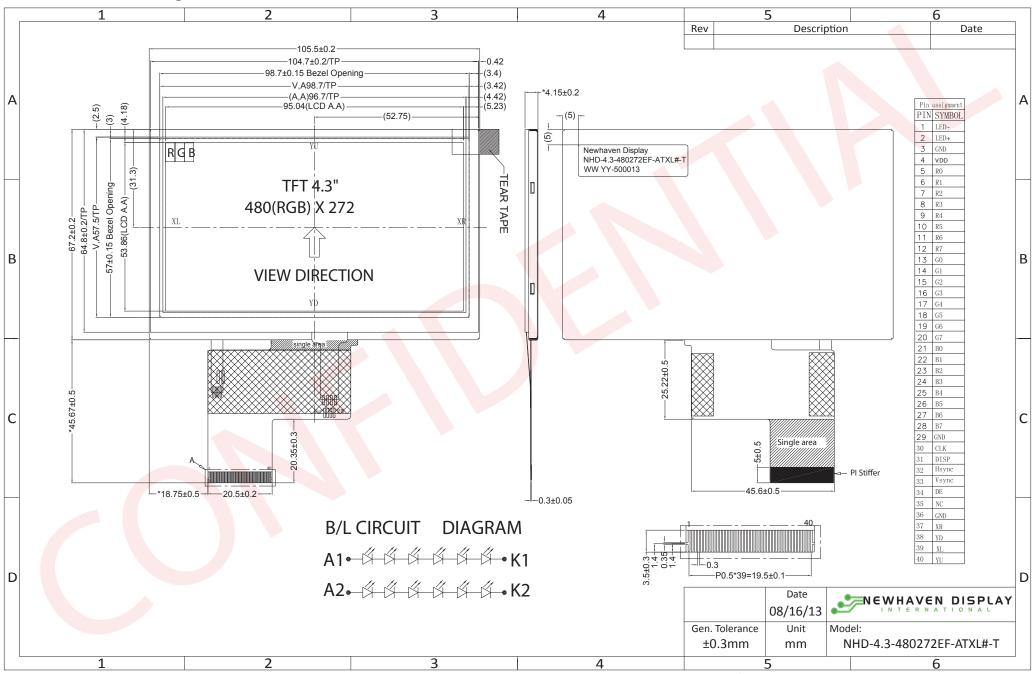
Document Revision History

Revision	Date	Description	Changed by
0	8/29/2012	Initial Release	AK
1	7/12/2013	Mechanical, Optical, Touch panel Characteristics updated	KA
2	8/16/2013	Mechanical drawing updated	KA

Functions and Features

- 480xRGBx272 resolution, up to 16.7M colors
- 12-LED backlight
- 24 bit RGB interface
- 4-wire Resistive touch panel

Mechanical Drawing



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Pin Description

Pin No.	Symbol	External	Function Description
		Connection	
1	LED-	Power Supply	Ground for Backlight
2	LED+	Power Supply	Backlight Power Supply (40mA @ 19.2V)
3	GND	Power Supply	Ground
4	VDD	Power Supply	Power supply for LCD and logic (3.3V)
5-12	[R0-R7]	MPU	Red Data Signals
13-20	[G0-G7]	MPU	Green Data Signals
21-28	[B0-B7]	MPU	Blue Data Signals
29	GND	Power Supply	Ground
30	CLK	MPU	Data sample Clock signal
31	DISP	MPU	Display ON/OFF signal
32	HSYNC	MPU	Line synchronization signal
33	VSYNC	MPU	Frame synchronization signal
34	DE	MPU	Data Enable signal
35	NC	-	No Connect
36	GND	Power Supply	Ground
37	XR	Touch Controller	Touch Panel Right
38	YD	Touch Controller	Touch Panel Down
39	XL	Touch Controller	Touch Pane Left
40	YU	Touch Controller	Touch Panel Up

Recommended LCD connector: 0.5mm pitch 40-Conductor FFC. Molex p/n: 54132-4097

Electrical Characteristics

Item	Symbol	Condition	Min.	Тур.	Max.	Unit
Operating Temperature Range	Тор	Absolute Max	-20	-	+70	°C
Storage Temperature Range	Tst	Absolute Max	-30	1	+80	°C
Supply Voltage	VDD		3.0	3.3	3.6	V
Supply Current (White screen)	IDD		-	24.24	28.78	mA
Supply Current (Black screen)	IDD		-	25.76	30.30	mA
"H" level input	Vih		0.8*VDD	ı	VDD	V
"L" level input	Vil		0	ı	0.2*VDD	V
Backlight Supply Voltage	VLED		-	19.2	22	V
Backlight Supply Current	ILED		-	40	-	mA
Backlight Power Consumption	PBL		-	768	-	mW

Optical Characteristics

Item	Symbol	Condition	Min.	Тур.	Max.	Unit
Viewing Angle – Top			1	70	1	0
Viewing Angle – Bottom		Cr ≥10	-	50	-	0
Viewing Angle – Left		Ct 510	-	70	-	0
Viewing Angle – Right			-	70	-	0
Contrast Ratio	Cr		400	500	-	
Luminance	YL		-	340	-	cd/m²
Response Time	Tr+Tf	-	-	25	30	ms

Viewing angles based on 12:00 gray scale inversion

Touch Panel Characteristics

Item	Min.	Тур.	Max.	Unit
Linearity	-1.5	-	1.5	%
Circuit Resistance – X-Axis	350	-	1050	Ω
Circuit Resistance – Y-Axis	100	-	450	Ω
Insulation Resistance	20	-	-	MΩ
Operating Voltage	-	-	10	V
Chattering	-	-	15	ms
Transmittance	80	-	-	%
Activation Force	20	-	80	g
Pen Writing Durability	100,000	-	-	Characters
Pitting Durability	1,000,000	-	-	Touches
Surface Hardness	3	-	-	Н
Haze	4	7	10	%

Driver Information

Built-in Himax HX8257-A

Please download specification at http://www.newhavendisplay.com/app notes/HX8257.pdf

Timing Characteristics

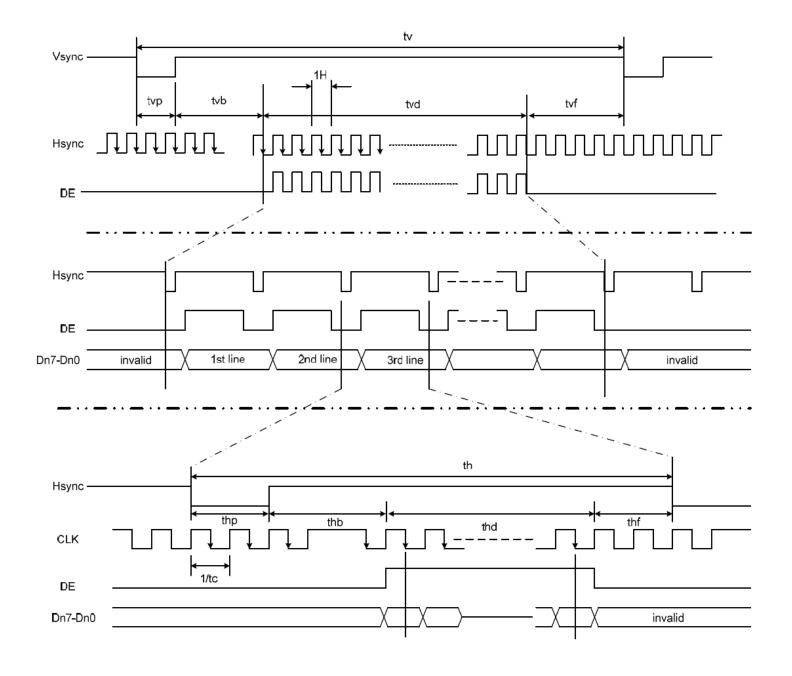
Parallel RGB input timing requirement

 $(480RGBx272, T_A=25°C, VDDIO=1.8V to 3.6V, DVSS=0V)$

Parameter	Symbol		Unit		
r atailletei		Min.	Тур.	Max.	Offic
Clock cycle	f _{CLK} ⁽¹⁾	-	9	15	MHz
Hsync cycle	1/th	-	17.14	_	KHz
Vsync cycle	1/tv	-	59.94	-	Hz
Horizontal Signal					
Horizontal cycle	th	525	525	605	CLK
Horizontal display period	thd	480	480	480	CLK
Horizontal front porch	thf	2	2	82	CLK
Horizontal pulse width	thp ⁽²⁾	2	41	41	CLK
Horizontal back porch	thb ⁽²⁾	2	2	41	CLK
Vertical Signal					
Vertical cycle	tv	285	286	511	H ⁽¹⁾
Vertical display period	tvd	272	272	272	$H^{(1)}$
Vertical front porch	tvf	1	2	227	H ⁽¹⁾
Vertical pulse width	tvp ⁽²⁾	1	10	11	H ⁽¹⁾
Vertical back porch	tvb ⁽²⁾	1	2	11	H ⁽¹⁾

Note: (1) Unit: $CLK=1/f_{CLK}$, H=th,

⁽²⁾It is necessary to keep tvp+tvb=12 and thp+thb=43 in sync mode. DE mode is unnecessary to keep it.



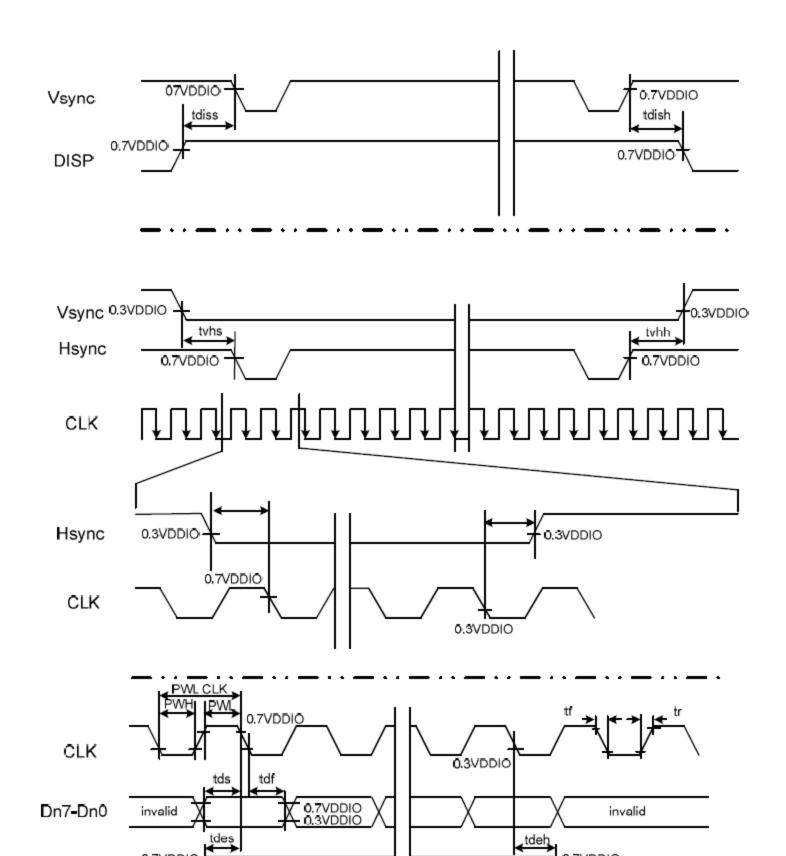
Input setup timing requirement

 $(T_A = 25 \,{}^{\circ}\text{C}, VDDIO = 1.8V \text{ to } 3.6V, DVSS = 0V, \text{ tr}^{(1)} = \text{tf}^{(1)} = 2\text{ns})$

Parameter	Symbol		Unit		
r at attletet		Min.	Тур.	Max.	Offic
DISP setup time	t _{dis s}	10	-	-	ns
DISP hold time	t _{dish}	10	-	-	ns
Clock period	PW _{CLK} ⁽²⁾	66.7	-	-	ns
Clock pulse high period	PWH ⁽²⁾	26.7	-	-	ns
Clock pulse low period	PWL ⁽²⁾	26.7	-	-	ns
Hsync setup time	t _{hs}	10	-	-	ns
Hsync hold time	t _{hh}	10	-	-	ns
Data setup time	t _{ds}	10	-	-	ns
Data hold time	t _{dh}	10	-	-	ns
DE setup time	t _{des}	10	-	_	ns
DE hold time	t _{deh}	10	-	-	ns
Vsync setup time	t _{vhs}	10	-	-	ns
Vs ync hold time	t _{vhh}	10	-	-	ns

Note: (1) tr, tf is defined 10% to 90% of signal amplitude.

⁽²⁾ For parallel interface, maximum clock frequency is 15MHz.



0.7VDDIO

0.7VDDIO

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Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high	+80°C , 200hrs	2
	storage temperature for a long time.		
Low Temperature storage	Endurance test applying the low storage	-30°C , 200hrs	1,2
	temperature for a long time.		
High Temperature	Endurance test applying the electric stress	+70°C 200hrs	2
Operation	(voltage & current) and the high thermal		
	stress for a long time.		
Low Temperature	Endurance test applying the electric stress	-20°C , 200hrs	1,2
Operation	(voltage & current) and the low thermal		
	stress for a long time.		
High Temperature /	Endurance test applying the electric stress	+60°C, 90% RH, 96hrs	1,2
Humidity Operation	(voltage & current) and the high thermal		
	with high humidity stress for a long time.		
Thermal Shock resistance	Endurance test applying the electric stress	-20°C,30min -> 25°C,5min -	
	(voltage & current) during a cycle of low	>70°C,30min = 1 cycle	
	and high thermal stress.	10 cycles	
Vibration test	Endurance test applying vibration to	10-55Hz , 15mm amplitude.	3
	simulate transportation and use.	60 sec in each of 3 directions	
		X,Y,Z	
		For 15 minutes	
Static electricity test	Endurance test applying electric static	VS=800V, RS=1.5kΩ, CS=100pF	
	discharge.	One time	

Note 1: No condensation to be observed.

Note 2: Conducted after 4 hours of storage at 25°C, 0%RH.

Note 3: Test performed on product itself, not inside a container.

Precautions for using LCDs/LCMs

See Precautions at www.newhavendisplay.com/specs/precautions.pdf

Warranty Information and Terms & Conditions

http://www.newhavendisplay.com/index.php?main_page=terms