

# NHD-4.3-480272MF-ATXI#-1

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

NHD-	Newhaven Display
4.3-	4.3" Diagonal
480272-	480xRGBx272 pixels
MF-	Model
A-	Built-in driver / NO Controller
T-	White LED backlight
X-	TFT
I-	6:00 viewing angle, Wide Temp
#-1	<b>RoHS Compliant</b>

**Newhaven Display International, Inc.**

2511 Technology Drive, Suite 101

Elgin IL, 60124

Ph: 847-844-8795

Fax: 847-844-8796

[www.newhavendisplay.com](http://www.newhavendisplay.com)

[nhtech@newhavendisplay.com](mailto:nhtech@newhavendisplay.com)

[nhsales@newhavendisplay.com](mailto:nhsales@newhavendisplay.com)

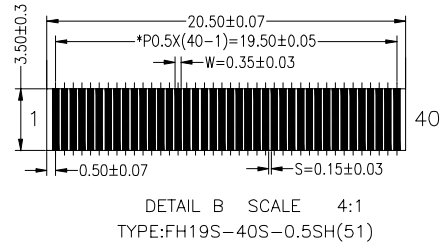
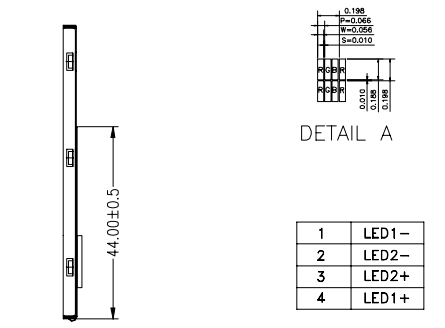
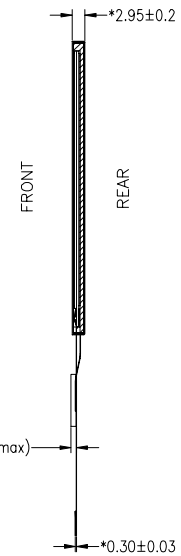
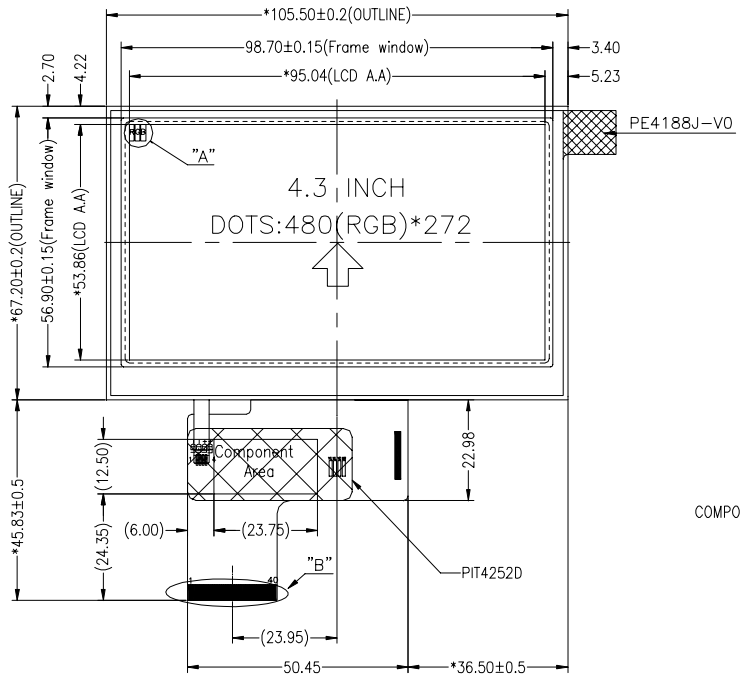
## Document Revision History

Revision	Date	Description	Changed by
0	7/8/2009	Initial Release	CL
1	7/29/2009	Updated Touch panel information	CL
2	7/29/2009	MECHANICAL DRAWING UPDATE – change FFC shape	BE
3	8/5/2009	Increase LEDs from 7 to 12	CL
4	7/6/2010	Electrical characteristics updated	BE
5	10/15/2010	For better reliability, VDD min = 3.0V	BE
6	6/7/2011	Built-in driver information updated	AK
7	2/3/2012	Mechanical drawing updated	AK

## Functions and Features

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

# Mechanical Drawing

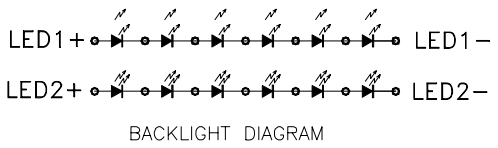


## PIN FUNCTION

PIN	description
1	VLED-
2	VLED+
3	GND
4	VDD
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1
15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	PCLK
31	DISP
32	HSYNC
33	VSYSN
34	DE
35	AVDD
36	GND
37	XR
38	YD
39	XL
40	YU

### NOTES:

1. DISPLAY TYPE:TFT 16.7M color
2. VIEWING DIRECTION: 6 O'CLOCK
3. POLARIZER: TRANSMISSIVE/POSITIVE
4. MODULE BRIGHTNESS: 280cd/m2 MIN
5. OPERATING TEMP: -20°C ~70°C
6. STORAGE TEMP: -30°C ~80°C
7. IC: COG HX8257
8. GENERAL TOLERANCE: ±0.2



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## Pin Description

Pin No.	Symbol	External Connection	Function Description
1	LED-	LED Power Supply	Ground for Backlight
2	LED+	LED Power Supply	Backlight Power Supply (32mA @ 20~22V)
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	PCLK	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	AVDD	-	No Connect
36	GND	Power Supply	Ground
37	XR	-	No Connect
38	YD	-	No Connect
39	XL	-	No Connect
40	YU	-	No Connect

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

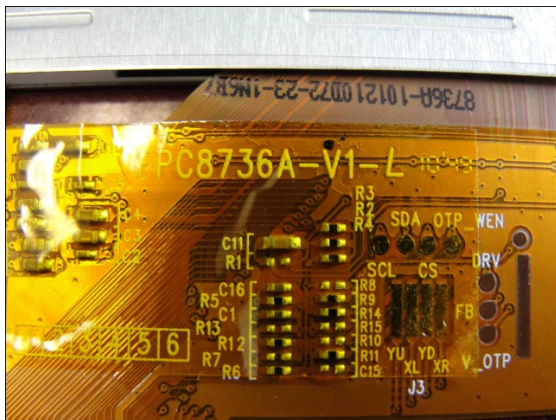
**Backlight connector:** on LCD connector      **Mates with:** ---

**\*\*Note:**

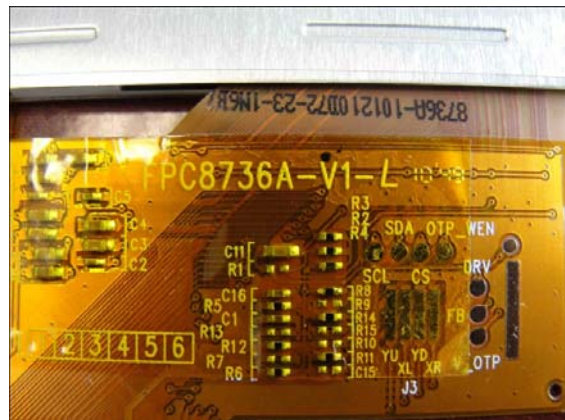
*This display recently had a driver change.*

*The old driver ([HX8257](#)) accepted both SYNC mode and SYNC+DE mode simply by reading what was on the DE pin. The new driver (OTA5180A) accepts both SYNC mode and SYNC+DE mode, but the mode must be selected by a hardware setting.*

*You may move the resistor from position R9 (default: SYNC+DE mode) to position R8 (SYNC mode). See below:*



Resistor on position 9



Resistor moved to position 8

*If you are unable to move this resistor you can send the displays to us for service.*

## Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Temperature Range	Top	Absolute Max	-20	-	+70	°C
Storage Temperature Range	Tst	Absolute Max	-30	-	+80	°C
Supply Voltage	VDD		3.0	3.3	3.6	V
Power Dissipation (White screen)		fV=60Hz	-	80	95	mW
Power Dissipation (Black screen)		fV=60Hz	-	85	100	mW
VSYNC frequency	fV		-	60	70	Hz
HSYNC frequency	fH		-	17.26	-	kHz
PCLK frequency	fPCLK		-	9.2	-	MHz
Backlight Supply Voltage	VLED		20	-	22	V
Backlight Supply Current	ILED	VLED=21.0V	-	32	40	mA
Backlight Power Consumption	PBL		-	650	-	mW

## Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Viewing Angle –Top		Cr ≥10	-	15	-	°
Viewing Angle –Bottom		Cr ≥10	-	35	-	°
Viewing Angle – Left		Cr ≥ 10	-	45	-	°
Viewing Angle – Right		Cr ≥ 10	-	45	-	°
Contrast Ratio	Cr		-	400	-	
Luminance	YL		380	-	480	cd/m <sup>2</sup>
Response Time (rise)	Tr	-	-	5	15	ms
Response Time (fall)	Tr	-	-	15	30	ms

## Driver Information

Built-in OTA5180A.

For specific timing and color information, please download specification at

[http://www.newhavendisplay.com/app\\_notes/OTA5180A.pdf](http://www.newhavendisplay.com/app_notes/OTA5180A.pdf)

## Quality Information

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

## Warranty Information and Terms & Conditions

[http://www.newhavendisplay.com/index.php?main\\_page=terms](http://www.newhavendisplay.com/index.php?main_page=terms)