

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	RoHS Compliant

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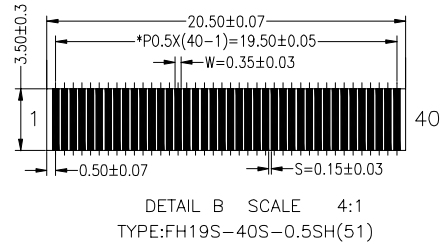
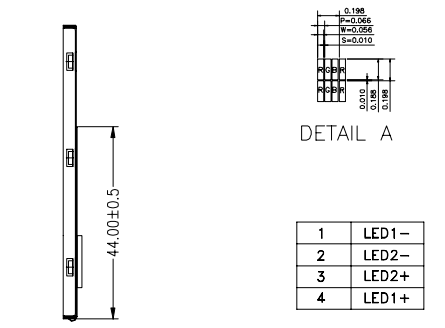
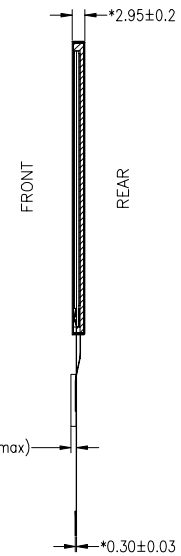
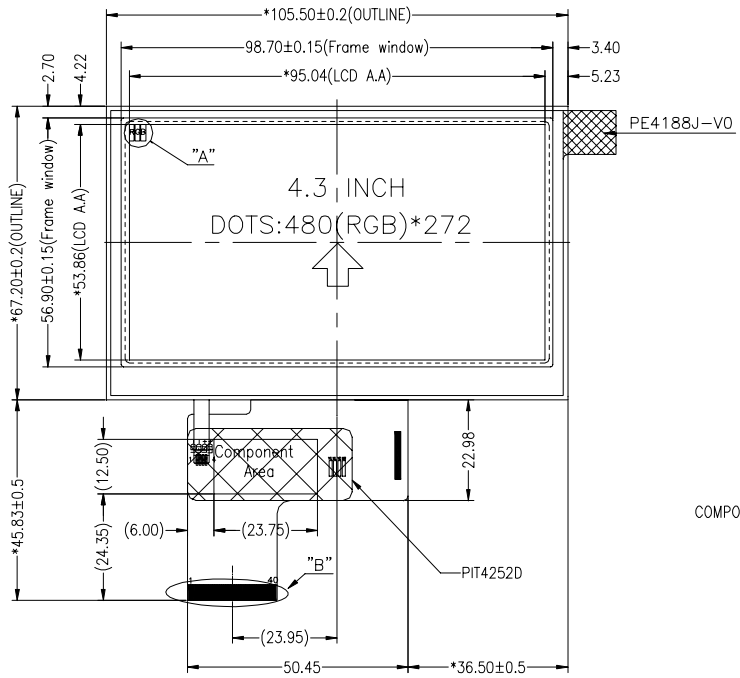
Document Revision History

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

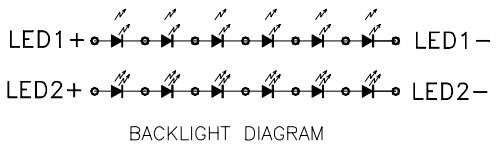


PIN FUNCTION

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



NEWHAVEN DISPLAY
 INTERNATIONAL
NHD-4.3-480272MF-ATXI#-1

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	VSYSN	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

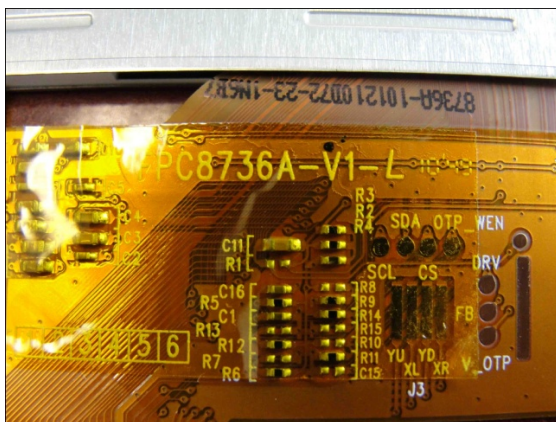
Backlight connector: on LCD connector **Mates with:** ---

****Note:**

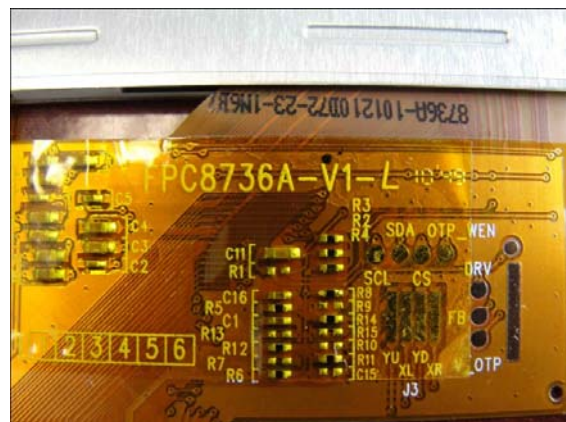
This display recently had a driver change.

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 ²
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

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

Warranty Information and Terms & Conditions

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