Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

NHD-1.8-128160TF-CTXI#

TFT (Thin-Film Transistor) Liquid Crystal Display Module

NHD-	Newhaven Display
1.8-	1.8" diagonal
128160-	128 x 160 pixels (portrait mode)
TF-	Model
C-	Built-in Controller
T-	White LED backlight
X-	Transmissive TFT
I-	Wide Temp (-20C to +70C), 12:00 view direction
#-	**RoHS Compliant**

Newhaven Display International, Inc.
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Document Revision History

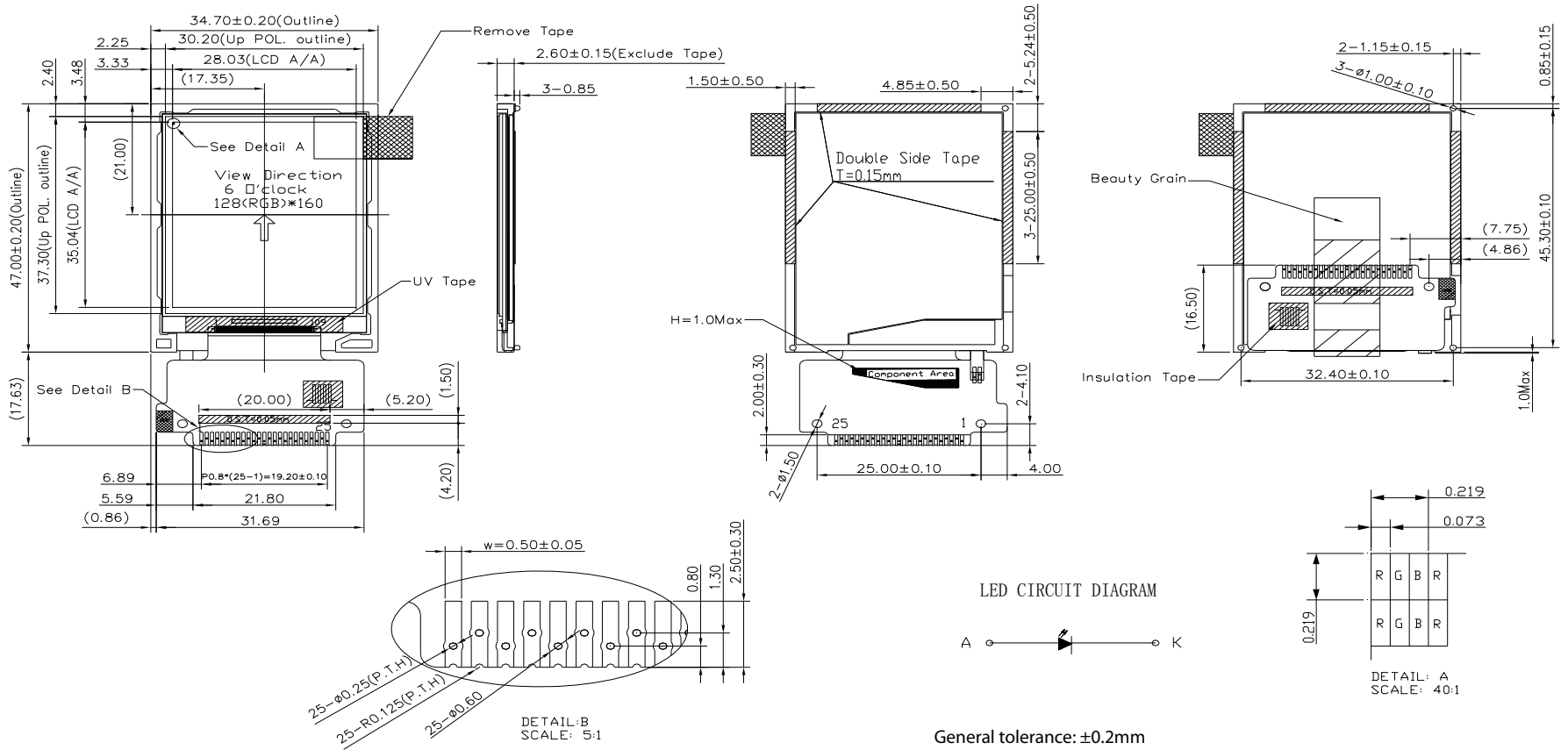| Revision	Date	Description	Changed by
0	8/10/2011	Initial Release	-
1	4/13/2012	Pin description updated	AK

Functions and Features

- **128 x 160 pixels (portrait mode)**
- **LED backlight**
- **2.8V power supply**
- **8-bit Parallel interface**
- **Built-in HX8353D driver**

Mechanical Drawing

No.	Symbol
1	GND
2	NC(XR)
3	NC(YU)
4	NC(XL)
5	NC(YD)
6	GND
7	VDD
8	/CS
9	RS
10	/WS
11	/RD
12	D0
13	D1
14	D2
15	D3
16	D4
17	D5
18	D6
19	D7
20	/LCD-RESET
21	GND
22	NC
23	LEDA
24	NC
25	LEDK

REV	DC/EC NUMBER	DESCRIPTION	DATE

Remove Tape

34.70±0.20(Outline)
30.20(Up POL. outline)
28.03(LCD A/A)
(17.35)
2.25
3.33
2.40
3.48

2.60±0.15(Exclude Tape)
3-0.85

47.00±0.20(Outline)
37.30(Up POL. outline)
35.04(LCD A/A)
(21.00)

See Detail A

View Direction
6 O'clock
128(RGB)*160

UV Tape

(17.63)
See Detail B
(20.00)   (5.20)   (1.50)

6.89
5.59
(0.86)
P0.8*(25-1)=19.20±0.10
21.80
31.69
(4.20)

w=0.50±0.05
0.80
1.30
2.50±0.30

25-Ø0.25(P.T.H)
25-R0.125(P.T.H)
25-Ø0.60
DETAIL:B
SCALE: 5:1

1.50±0.50
4.85±0.50
2-5.24±0.50

Double Side Tape
T=0.15mm

3-25.00±0.50

H=1.0Max

Component Area

2.00±0.30
2-Ø1.50
2-4.10
25   1
25.00±0.10   4.00

LED CIRCUIT DIAGRAM

A ——⊳⊢—— K

2-1.15±0.15
3-Ø1.00±0.10
0.85±0.15

Beauty Grain

(7.75)
(4.86)
45.30±0.10

(16.50)

Insulation Tape

32.40±0.10
1.0Max

0.219
0.073
0.219

R G B R
R G B R

DETAIL: A
SCALE: 40:1

General tolerance: ±0.2mm
*: Critical dimension

NOTES:
1.Display Type: TFT
2.Backlight:1-chips LED
3.Gray Scale Inversion: 12 o'clock;
4.Driver IC: HX8353D
5.General Talerance: ±0.2
6.Requirements on Environment Protection: Q/S0002
7.Suggested case open area:each side out expand 0.5mm of LCD.AA.dimension

NEWHAVEN DISPLAY INTERNATIONAL

DRAWING NO.			
NHD-1.8-128160TF-CTXI#			
UNIT	mm	SCALE	FIT
3rd Angle		SHEET 1 OF 1	

Pin Description

Pin No.	Symbol	External Connection	Function Description
1	GND	Power Supply	Ground
2	NC	-	No Connect
3	NC	-	No Connect
4	NC	-	No Connect
5	NC	-	No Connect
6	GND	Power Supply	Ground
7	VDD	Power Supply	Power Supply for LCD and logic (2.8V)
8	/CS	MPU	Active LOW Chip Select signal
9	RS	MPU	Register Select: 0= write command, 1= write data
10	/WR	MPU	Active low Write signal
11	/RD	MPU	Active low Read signal
12	D0	MPU	Bi-directional data bus lines
13	D1	MPU	
14	D2	MPU	
15	D3	MPU	
16	D4	MPU	
17	D5	MPU	
18	D6	MPU	
19	D7	MPU	
20	/RST	MPU	Active LOW Reset signal
21	GND	Power Supply	Ground
22	NC	-	No Connect
23	LED+	Power Supply	Backlight Anode
24	NC	-	No Connect
25	LED-	Power Supply	Backlight Cathode

LCD connector: Hot-bar solder directly to PCB

Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Temperature Range	Top	Absolute Max	-20	25	+70	⁰C
Storage Temperature Range	Tst	Absolute Max	-30	25	+80	⁰C
Supply Voltage	VDD		2.3	2.8	3.3	V
Supply Current	IDD	VCC=2.8V		25.5		mA
"H" Level input	Vih		0.8VDD		VDD	V
"L" Level input	Vil		0		0.2VDD	V
"H" Level output	Voh		0.8VDD		VDD	V
"L" Level output	Vol		0		0.2VDD	V
Backlight Supply Voltage	Vled			3.2		V
Backlight Supply Current	Iled			25		mA
Brightness		Iled=25mA	140	180		cd/m2

Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Viewing Angle –Top		Cr ≥ 10	-	70	-	⁰
Viewing Angle –Bottom		Cr ≥ 10	-	55	-	⁰
Viewing Angle – Left		Cr ≥ 10	-	70	-	⁰
Viewing Angle –Right		Cr ≥ 10	-	70	-	⁰
Contrast Ratio	Cr		400	500	-	-
Response Time (rise)	Tr		-	30	-	ms
Response Time (fall)	Tr		-	30	-	ms

Driver Information

Built-in HX8353D driver.
Download specification at http://www.newhavendisplay.com/app_notes/HX8353D.pdf

8080 MPU Parallel Interface:
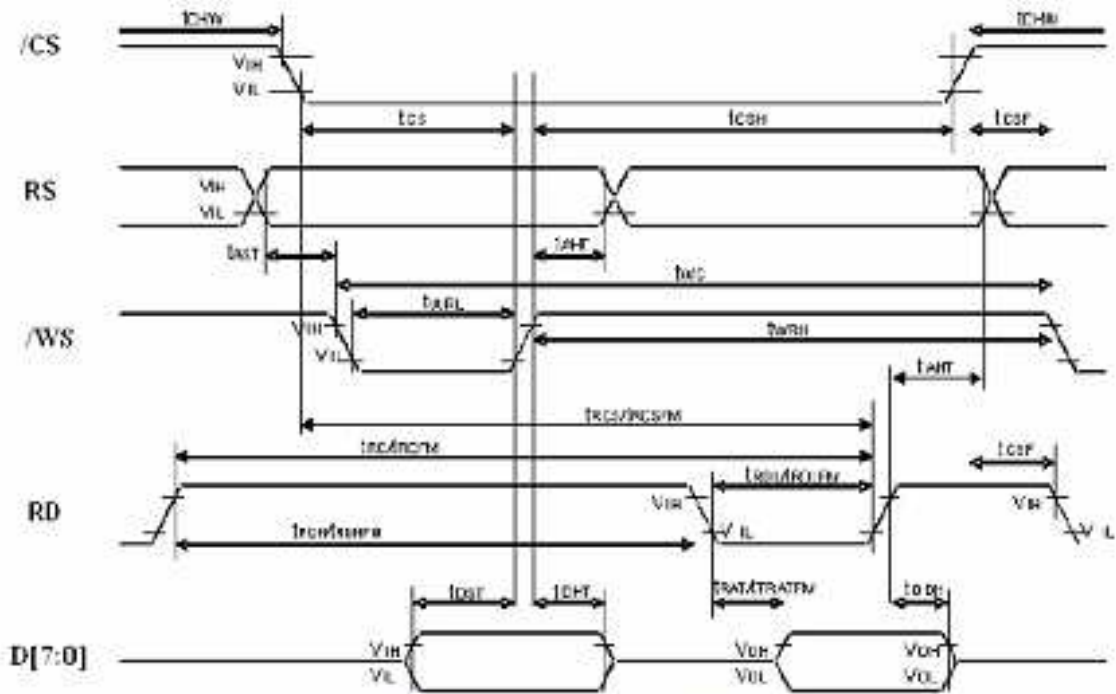
CPU Interface Characteristics

Timing Parameter   Normal Write Mode

Signal	Symbol	Parameter	Min.	Max.	Unit	Description
RS	tAST	Address setup time	0	-	ns	-
	tAHT	Address hold time (Write/Read)	10	-		
/CS	tCHW	Chip select "H" pulse width	0	-	ns	-
	tCS	Chip select setup time (Write)	15	-		
	tRCS	Chip select setup time (Read ID)	45	-		
	tRCSFM	Chip select setup time (Read FM)	355	-		
	tCSF	Chip select wait time (Write/Read)	10	-		
	tCSH	Chip select hold time	10	-		
/WS	tWC	Write cycle	66	-	ns	-
	tWRH	Control pulse "H" duration	15	-		
	tWRL	Control pulse "L" duration	15	-		
RD	tRC	Read cycle (ID)	160	-	ns	When read ID data
	tRDH	Control pulse "H" duration (ID)	90	-		
	tRDL	Control pulse "L" duration (ID)	45	-		
RD (FM)	tRCFM	Read cycle (FM)	450	-	ns	When read from frame memory
	tRDHFM	Control pulse "H" duration (FM)	90	-		
	tRDLFM	Control pulse "L" duration (FM)	355	-		
D7 to D0	tDST	Data setup time	10	-	ns	For maximum C$_L$=30pF For minimum C$_L$=8pF
	tDHT	Data hold time	10	-		
	tRAT	Read access time (ID)	-	40		
	tRATFM	Read access time (FM)	-	340		
	tODH	Output disable time	20	80		

Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	+80⁰C , 240hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30⁰C , 240hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time.	+70⁰C , 240hrs	2
Low Temperature Operation	Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time.	-20⁰C , 240hrs	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.	+60⁰C , 90% RH , 240hrs	1,2
Thermal Shock resistance	Endurance test applying the electric stress (voltage & current) during a cycle of low and high thermal stress.	-30℃ 30 min~+80℃ 30 min, Change time:5min, 20 Cycles	
Vibration test	Endurance test applying vibration to simulate transportation and use.	10-55Hz , 1.5mm amplitude. 2 hours in each of 3 directions X,Y,Z. For 6 hours total	3
Static electricity test	Endurance test applying electric static discharge.	VS=4KV, RS=330kΩ, CS=150pF Five times	

Note 1: No condensation to be observed.
Note 2: Conducted after 4 hours of storage at 25⁰C, 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

See Terms & Conditions at http://www.newhavendisplay.com/index.php?main_page=terms