



NAN YA PLASTICS CORPORATION

Production Type : LCD LCM ITO Color Filter Touch panel

SPECIFICATION
PRODUCT NO. : LMCJ6S003J17CDP_

SPEC. NO. : LM003-17L-0

CUSTOMER APPROVAL
<input type="checkbox"/> Accept <input type="checkbox"/> Condition Approval Comment:
APPROVED BY
DATE:

EDITED ON : Sep. 29, 2010

LCD DEPARTMENT
ELECTRONIC MATERIALS DIVISION
NAN YA PLASTICS CORPORATION
NO.336, NANKAN RD., SEC. 1, LUCHU
VILLAGE, TAOYUAN COUNTY, TAIWAN
TEL:886-3-3223751 EXT. 2715~2718
FAX:886-3-3125803
E-mail:lcdsales@npc.com.tw

Q.C DEPT.	PRODUCTION DEPT.	DESIGN DEPT.

姓名	審核時間	審核動作
mhyuan(袁明弘)	2010/9/29 00:53	發送
yann(林志諺)	2010/9/30 06:29	發送
cpwann(萬家祚)	2010/9/30 23:19	再確認
mhyuan(袁明弘)	2010/10/1 02:37	發送
yann(林志諺)	2010/10/1 02:39	發送
N000005633(周宜)	2010/10/1 07:30	發送
cpwann(萬家祚)	2010/10/1 07:30	發送
chihyuan(黃志源)	2010/10/1 09:48	發送

此文件已經通過電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 1
---	----------------------	--

1.MECHANICAL DATA

NO.	ITEM	CONTENTS	UNIT
1	Product No.	LMCJ6S003J17CDP_	—
2	Module Size	180.0 (W) x 65.0 (H) x MAX. 15.5(D)	mm
3	Dot Size	0.49 (W) x 0.49 (H)	mm
4	Dot Pitch	0.53 (W) x 0.53 (H)	mm
5	Number of Dots	240 (W) x 64 (H)	Dot
6	Duty	1/64	—
7	LCD Display Mode	FSTN, Normally White / Positive Image	—
8	Rear Polarizer	Transflective Type	—
9	Viewing Direction	6	O'clock
10	Backlight	LED	—
11	Controller	T6963CFG-0101	—
12	DC/DC Converter	Excluded	—
13	Touch Panel	Excluded	—
14	Weight	200 (Approx.)	g

NOTE:

L M C J 6 S 0 0 3 J 17 C D P _
(1) (2) (3) (4) (5) (6) (7) (8)

NO.	ITEM	SYMBOL	DEFINITION
(1)	Backlight	C	LED Backlight
(2)	Reflective/Transmissive	S	Transflective
(3)	Mode/View Angle	J	Normally White, 6 O'clock
(4)	Option	17	Module Version Number
(5)		C	Polarizer with Anti-Glare
(6)		D	Wide Temperature
(7)		P	Non-standard Version PCB
(8)		T	Testing Sample

Nan Ya guarantees that this project doesn't include
any materials (6 materials) or includes less than specified
quantities which are regulated by RoHS Compliance.

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 2
---	----------------------	--

2.ABSOLUTE MAXIMUM RATINGS

2-1.ELECTRICAL ABSOLUTE RATINGS

VSS=0V

ITEM	SYMBOL	MIN.	MAX.	UNIT	COMMENT
Power Supply for Logic	VDD-VSS	-0.3	6.5	V	
Power Supply for LCD Drive	VDD-VEE	0	20	V	
Input Voltage	VI	-0.3	VDD	V	
Static Electricity	—	—	—	—	Note 1

Note 1 LCM should be grounded during handling LCM.

2-2.ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	WIDE TEMP.			
	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
Ambient Temperature(°C)	-20	70	-30	80
Humidity (Without Condensation)	Note 2,4		Note 3,4	

Note 2 $T_a \leq 70^\circ\text{C}$: 75%RH MAX.

Note 3 Please refer to item of reliability test.

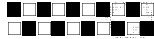
Note 4 Background color will change slightly depending on ambient temperature.
That phenomenon is reversible.

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 3-1
---	---------------	--

3.ELECTRICAL CHARACTERISTICS

3-1.ELECTRICAL CHARACTERISTICS OF LCM

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Power Supply for Logic	VDD-VSS	—	4.5	5.0	5.5	V	
Input Voltage	VIH	H Level	0.8VDD	—	VDD	V	
	VIL	L Level	0	—	0.2VDD		
Recommended LC Driving Voltage	VDD-VEE (Vop)	Duty = 1/64	-20°C	11.7	12.1	12.5	V
			0°C	11.6	12.0	12.4	
			25°C	11.5	11.9	12.3	
			50°C	11.4	11.8	12.2	
			70°C	11.3	11.7	12.1	
Power Supply Current (Ta=25°C)	IDD	VDD-VSS=5.0V VDD-VEE=11.9V	—	15.0	25.0	mA	
	IEE	Pattern: 	—	2.0	4.0		
LCM Surface Luminance (Ta=25°C)	L	VDD-VSS = 5.0V VAK=5.0V	Dots All On	—	10	—	cd/m ²
			Dots All Off	20	35	—	

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 3-2
---	---------------	--

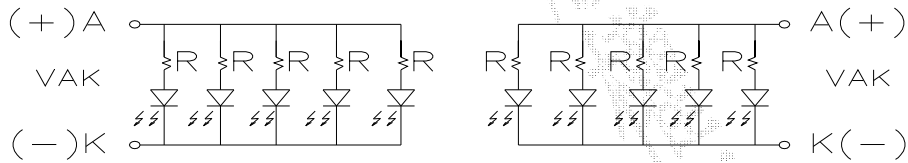
3-2.ELECTRICAL CHARACTERISTICS OF BACKLIGHT

Used LED Rating (Constant Voltage Driving)

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Peak forward current	IP	—	—	250	mA	—
Maximum reverse voltage	VR	—	—	5	V	—
Applied forward voltage	VAK	—	5	—	V	—
Applied forward current	IAK	—	200	250	mA	—
LED power consumption	PF	—	1.0	1.25	mA	—
LED life time	LL	—	10000	—	Hrs	at VAK=5.0V (*1)

(*1) LED life time is defined as follows : The final brightness is at 50% of original brightness.



REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 4-1
---	---------------	--

4.OPTICAL CHARACTERISTICS

4-1.Optical Char. of Wide Temp. Mode

at Vop

ITEM		Cr(Contrast Ratio)										θ (Viewing Angle)		ϕ (Viewing Angle)	
		-20°C		0 °C		25 °C		50 °C		70°C		25 °C		25 °C	
MODE		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	Viewing Direction	TYP.	Viewing Direction	TYP.
		S	J	2	3	3	4	3	4.5	2	3	1.5	2	6 O'clock	40
												12 O'clock	30	3 O'clock	35
NOTE		NOTE 3,6										NOTE 3,5			

NOTE :

S : Transflective

J : Normally White, 6 O'clock

at $\phi=0^\circ, \theta=0^\circ$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Response Time (rise)	Tr	-20 °C	2500	3200	4800	ms	NOTE 2,3
		0 °C	500	620	930		
		25 °C	160	200	300		
		50 °C	70	90	140		
		70 °C	60	70	100		
Response Time (fall)	Tf	-20 °C	1600	2000	3000	ms	NOTE 2,3
		0 °C	350	430	650		
		25 °C	100	120	180		
		50 °C	50	60	90		
		70 °C	40	50	70		

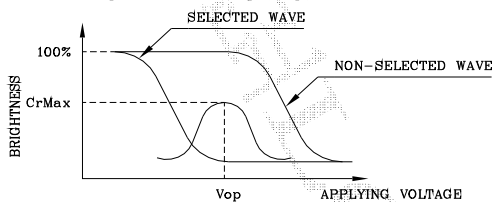
REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP.
 ELEC. MATERIALS DIV.
 LCD DEPARTMENT

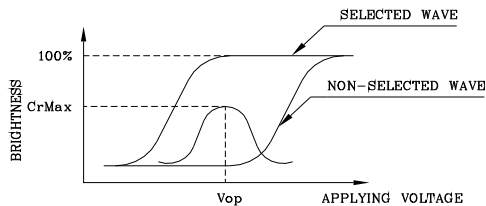
SPECIFICATION

SPEC. NO. : LM003-17L
 DATE : Sep. 29, 2010
 SHEET NO. : 4-2

(NOTE 1)
 Definition of Operation Voltage(Vop)



(positive type)

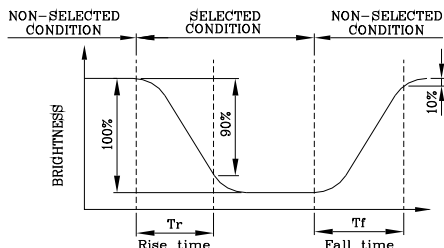


(negative type)

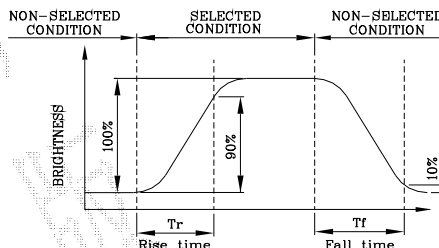
*Conditions

Viewing Angle : 0
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias

(NOTE 2)
 Definition of Response Time(Tr,Tf)



(positive type)

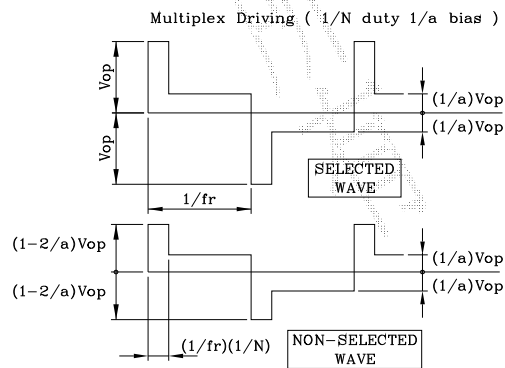
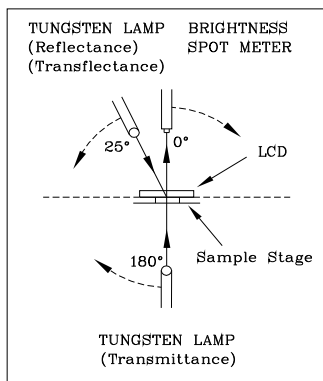


(negative type)

*Conditions

Operating Voltage : Vop
 Viewing Angle (θ,θ) : (0,0)
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias

(NOTE 3)
 Description of Measuring Equipment and Driving Waveforms

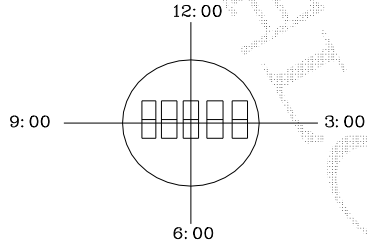


REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN

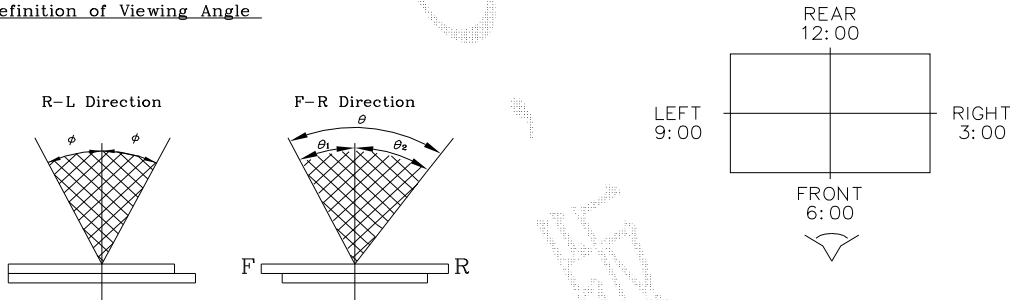
yann(林志諺)	2010/9/30 06:29	發送
cpwann(萬家祚)	2010/9/30 23:19	再確認
mhyuan(袁明弘)	2010/10/1 02:37	發送
yann(林志諺)	2010/10/1 02:39	發送
N000005633(周宜)	2010/10/1 07:30	發送
cpwann(萬家祚)	2010/10/1 07:30	發送
chihyuan(黃志源)	2010/10/1 09:48	發送

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 4-3
---	---------------	--

(NOTE 4)
Definition of Viewing Direction



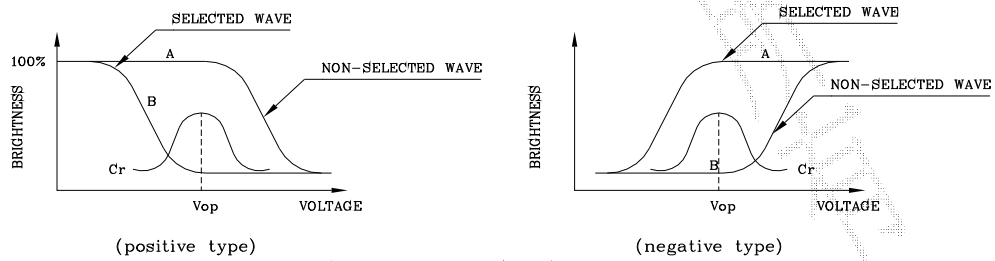
(NOTE 5)
Definition of Viewing Angle



$$\theta = \theta_1 + \theta_2$$

*Conditions
 Operating Voltage : Vop
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias
 Contrast Ratio : larger than 2

(NOTE 6)
Definition of Contrast Ratio (Cr)



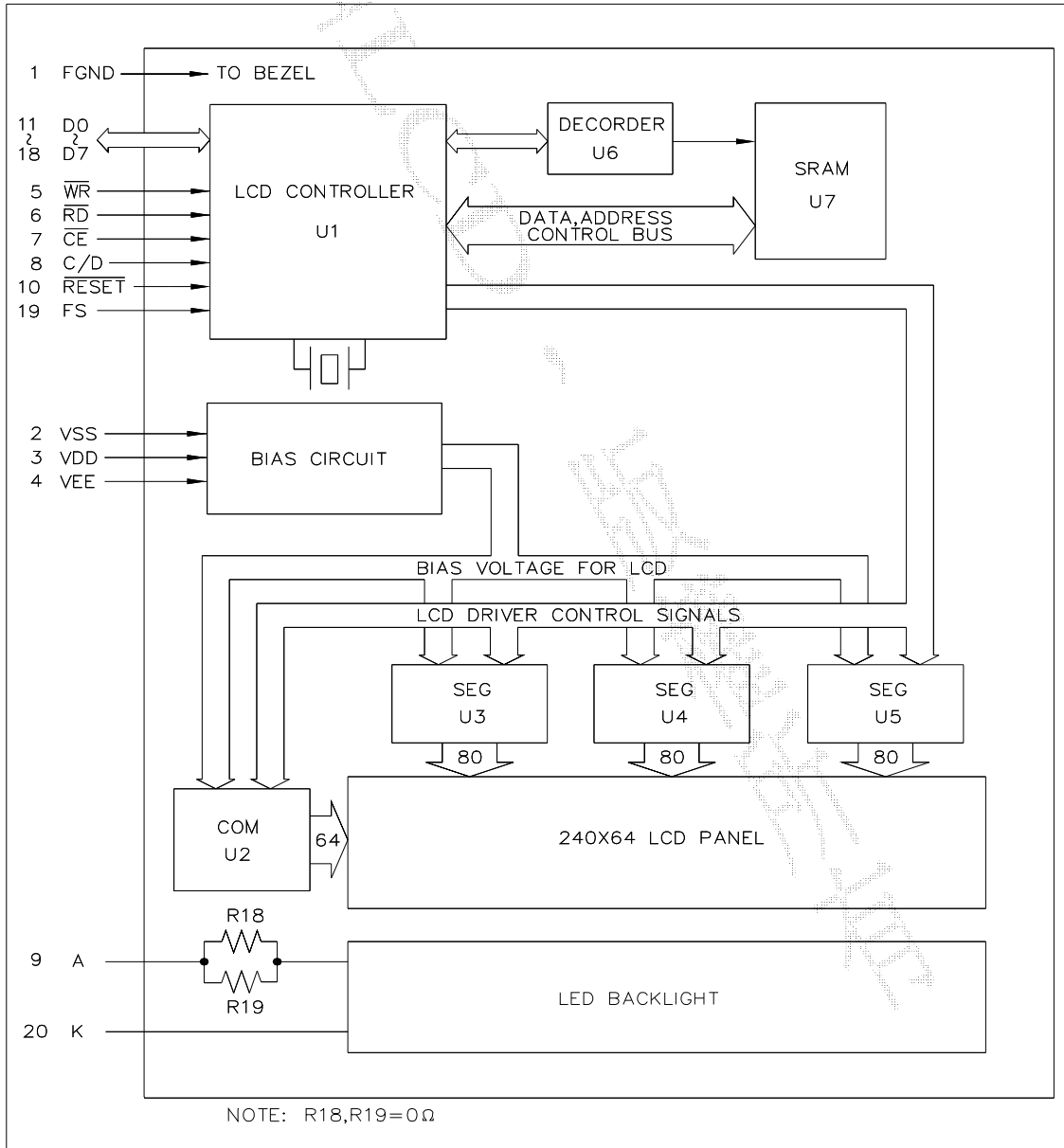
Contrast Ratio : Cr=A/B

*Conditions
 Viewing Angle : 0
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 5
---	---------------	--

5. BLOCK DIAGRAM



REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN

yann(林志諺) 2010/9/30 06:29 發送
cpwann(萬家祚) 2010/9/30 23:19 再確認
mhyuan(袁明弘) 2010/10/1 02:37 發送
yann(林志諺) 2010/10/1 02:39 發送
N000005633(周宜) 2010/10/1 07:30 發送
cpwann(萬家祚) 2010/10/1 07:30 發送
chihyuan(黃志源) 2010/10/1 09:48 發送

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 6
---	---------------	--

6.INTERNAL PIN CONNECTION

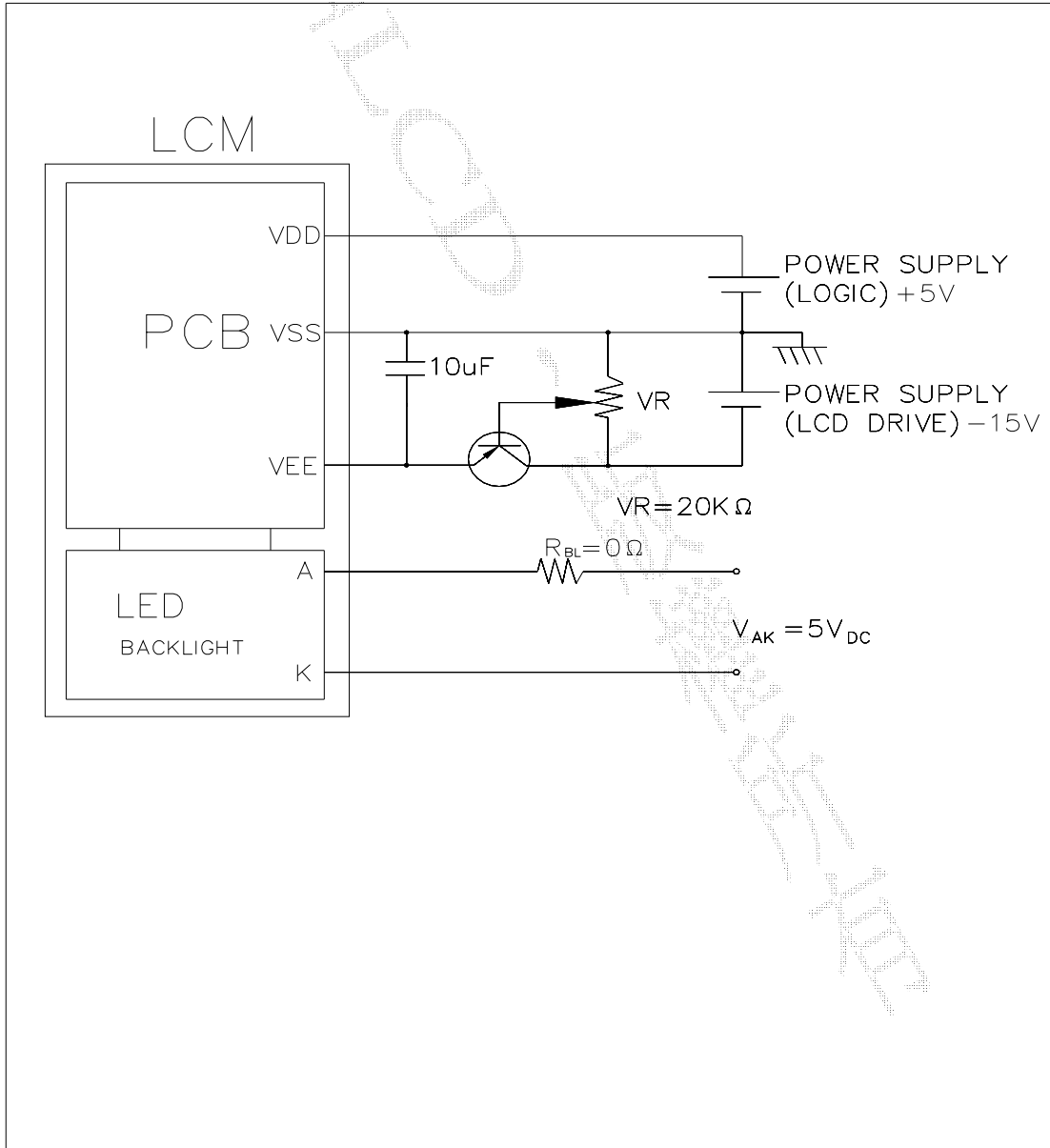
LCD

Pin No.	Symbol	Function
1	FGND	FRAME GROUND (0V)
2	VSS	GROUND
3	VDD	POWER SUPPLY FOR LOGIC (+5V)
4	VEE	POWER SUPPLY FOR LC DRIVING
5	/WR	DATA WRITE
6	/RD	DATA READ
7	/CE	CHIP ENABLE
8	C/D	WR="L",C/D="H" :COMMAND WRITE WR="L",C/D="L" :DATA WRITE RD="L",C/D="H" :STATUS READ RD="L",C/D="L" :DATA READ
9	A	Anode of LED B/L
10	/RESET	CONTROLLER RESET
11	D0	DATA INPUT/OUTPUT
12	D1	DATA INPUT/OUTPUT
13	D2	DATA INPUT/OUTPUT
14	D3	DATA INPUT/OUTPUT
15	D4	DATA INPUT/OUTPUT
16	D5	DATA INPUT/OUTPUT
17	D6	DATA INPUT/OUTPUT
18	D7	DATA INPUT/OUTPUT
19	FS	FONT SELECT CONNECT TO VDD :6x8 PIXELS/CHARACTER CONNECT TO VSS :8x8 PIXELS/CHARACTER
20	K	Cathode of LED B/L

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 7
---	---------------	--

7.POWER SUPPLY



REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 8-1
---	---------------	--

8.TIMING CHARACTERISTICS

8-1.INTERFACE TIMING

ITEM	ITEM	CONDITION	MIN.	MAX.	UNIT
C/D SET UP TIME	t_{CDS}	Fig.	100	-	ns
C/D HOLD TIME	t_{CDH}	Fig.	10	-	ns
$\overline{CE}, \overline{RD}, \overline{WR}$ CLOCK WIDTH	t_{CP}, t_{RP}, t_{WP}	Fig.	80	-	ns
DATA SET UP TIME	t_{DS}	Fig.	80	-	ns
DATA HOLD TIME	t_{DH}	Fig.	40	-	ns
ACCESS TIME	t_{ACC}	Fig.	-	150	ns
DATA OUTPUT HOLD TIME	t_{OH}	Fig.	10	50	ns

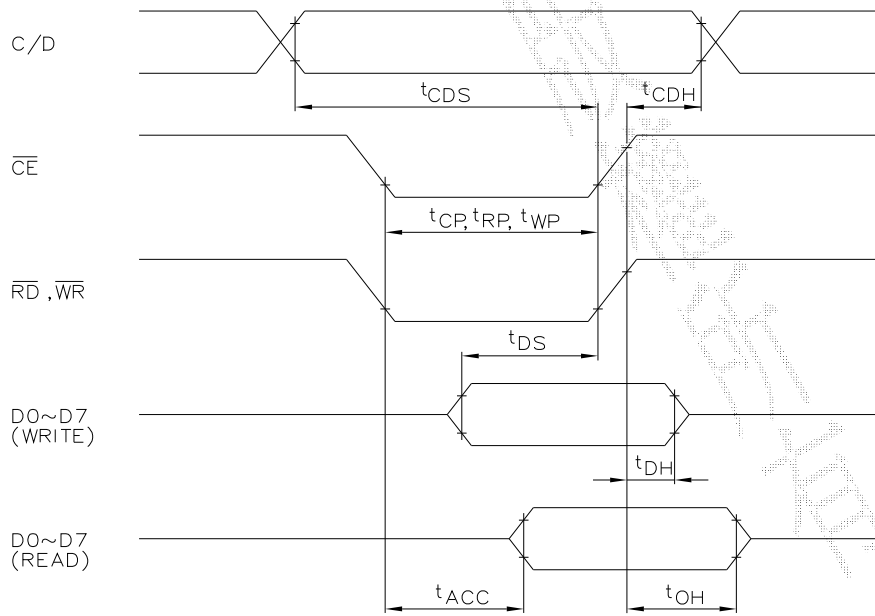
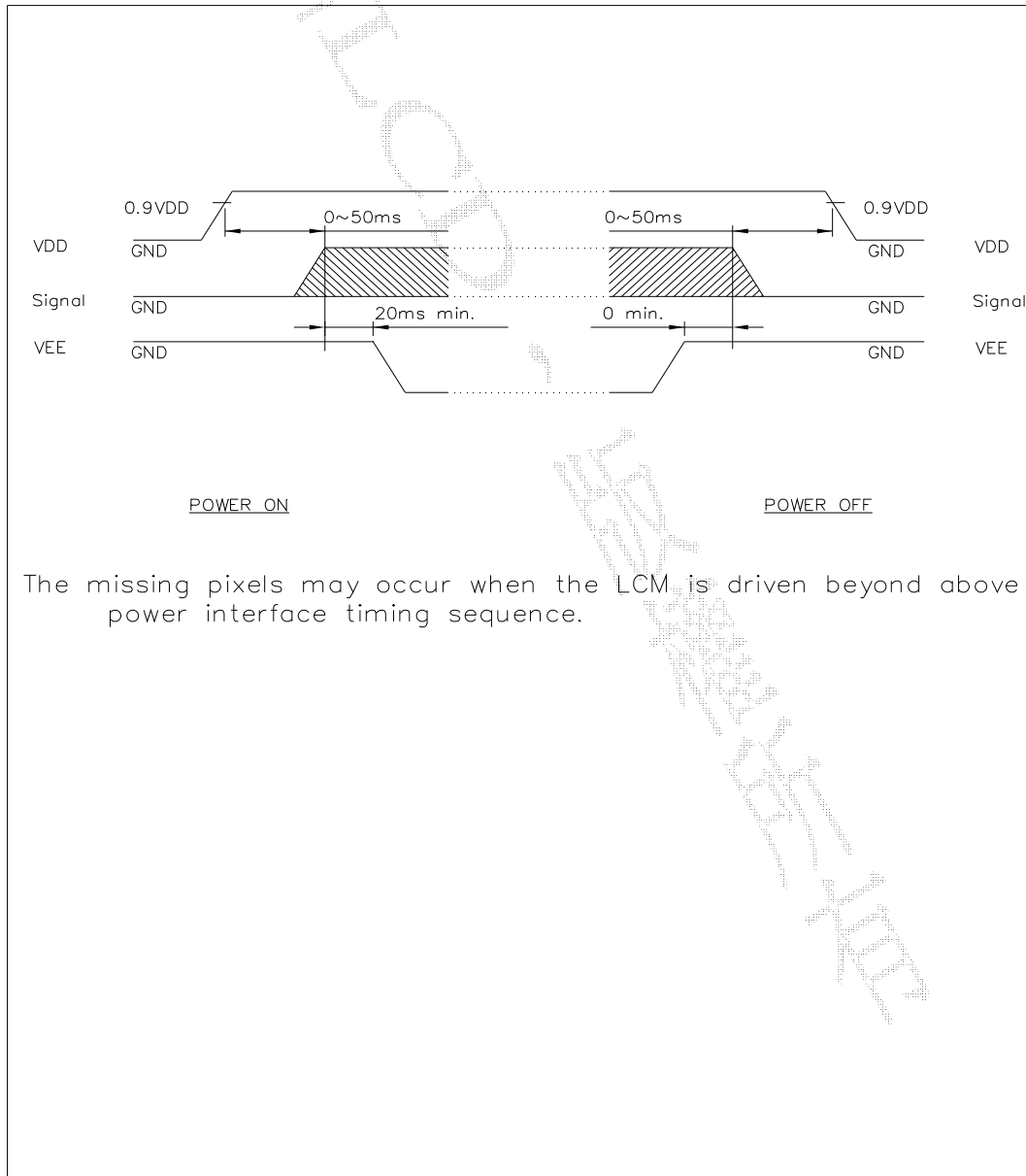


Fig. INTERFACE TIMING CHART

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 8-2
---	---------------	--

8-2.POWER ON/OFF TIMING



The missing pixels may occur when the LCM is driven beyond above power interface timing sequence.

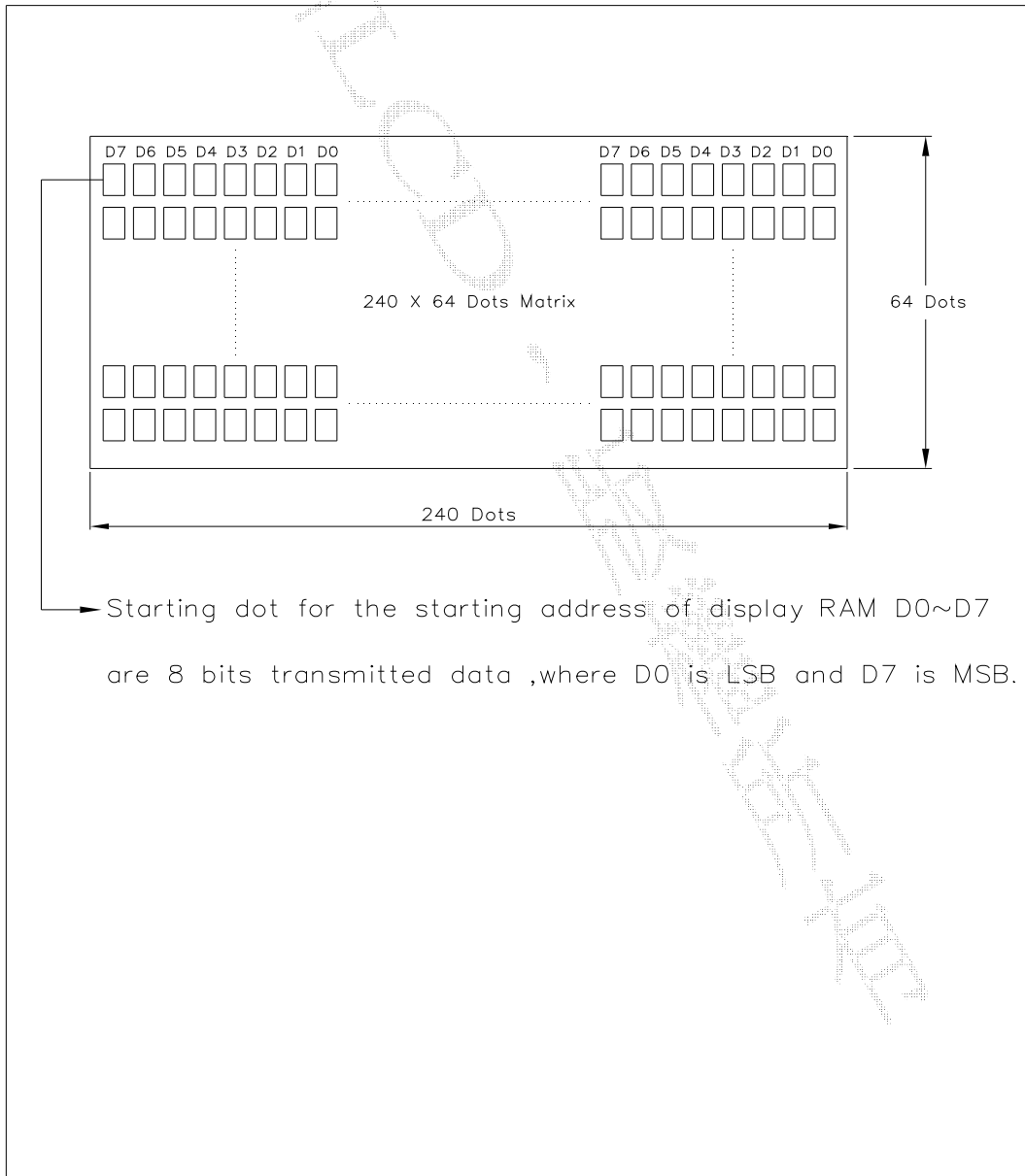
REV/DATE	R0/ 09.29.10'	姓名 mhyuan(袁明弘) yann(林志諺)	審核時間 2010/9/29 00:53 2010/9/30 06:29	審核動作 發送 發送		BY M.H.YUAN
----------	------------------	--------------------------------	--	------------------	--	----------------

cpwann(萬家祚)	2010/9/30 23:19	再確認
mhyuan(袁明弘)	2010/10/1 02:37	發送
yann(林志諺)	2010/10/1 02:39	發送
N000005633(周宜)	2010/10/1 07:30	發送
cpwann(萬家祚)	2010/10/1 07:30	發送
chihyuan(黃志源)	2010/10/1 09:48	發送

此文件已經通過電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 8-3
---	---------------	--

8-3.DISPLAY PATTERN



REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

此文件已經通過電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-1
---	---------------	--

9.RELIABILITY TEST

WIDE TEMPERATURE RELIABILITY TEST

NO.	ITEM	CONDITION			STANDARD	NOTE
1	High Temp. Storage	80 °C	120 Hrs		Appearance without defect	
2	Low Temp. Storage	-30 °C	120 Hrs		Appearance without defect	
3	High Temp. & High Humi. Storage	40 °C 90%RH	120 Hrs		Appearance without defect	
4	High Temp. Operating Display	70 °C	120 Hrs		Appearance without defect	
5	Low Temp. Operating Display	-20 °C	120 Hrs		Appearance without defect	
6	Thermal Shock	-20 °C, 30min. → 70°C, 30min. ↑ (1cycle) ↓			Appearance without defect	10 cycles

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-2
---	---------------	--

Inspection Provision

1.Purpose

The NAN YA inspection provision provides outgoing inspection provision and its expected quality level based on our outgoing inspection of NAN YA LCD produces.

2.Applicable Scope

The NAN YA inspection provision is applicable to the arrangement in regard to outgoing inspection and quality assurance after outgoing.

3.Technical Terms

3-1 NAN YA Technical Terms



4.Outgoing Inspection

4-1 Inspection Method

MIL-STD-105E Level II Regular inspection

4-2 Inspection Standard

	Item	AQL(%)	Remarks
Major Defect	Dots	0.4	faults which substantially lower the practicality and the initial purpose difficult to achieve.
	Solder appearance		
	Cracks		

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN

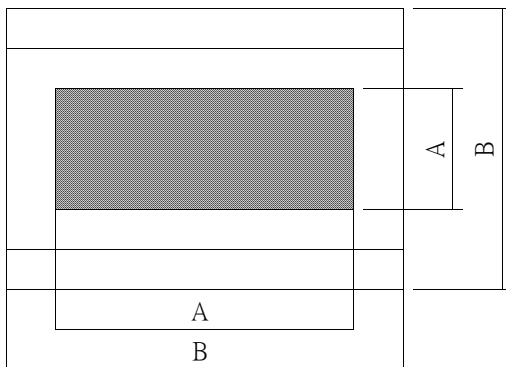
yann(林志諺) 2010/9/30 06:29 發送
cpwann(萬家祚) 2010/9/30 23:19 再確認
mhyuan(袁明弘) 2010/10/1 02:37 發送
yann(林志諺) 2010/10/1 02:39 發送
N000005633(周宜) 2010/10/1 07:30 發送
cpwann(萬家祚) 2010/10/1 07:30 發送
chihyuan(黃志源) 2010/10/1 09:48 發送

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-3
---	----------------------	--

	Dimensions	External from Dimensions	0.4	
Minor Defect	Inside the glass	Black spots	0.65	faults which appear to pose almost no obstacle to the practicality, effective use, and operation.
	Polarizing plate	Scratches, foreign Matter, air bubbles, and peeling		
	Dots	Pinhole, deformation		
	Color tone	Color unevenness		
	Solder appearance	Cold solder Solder projections		

4-3 Inspection Provisions
*Viewing Area Definition

Fig. 1



A : Zone Viewing Area
B : Zone Glass Plate Outline

*Inspection place to be 500 to 1000 lux illuminance uniformly without glaring.
The distance between luminous source(daylight fluorescent lamp and cool white fluorescent lamp) and sample to be 30 cm to 50 cm.

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-4
---	---------------	--

*Test and measurement are performed under the following conditions, unless otherwise specified.

Temperature 20 ± 15°C
Humidity 65 ± 20%R.H.
Pressure 860~1060hPa(mmbar)

In case of doubtful judgment, it is performed under the following conditions.

Temperature 20 ± 2°C
Humidity 65 ± 5%R.H.
Pressure 860~1060hPa(mmbar)

5.Specification for quality check
5-1 Electrical characteristics

NO.	Item	Criterion
1	Non operational	Fail
2	Miss operating	Fail
3	Missing dot	Fail
4	Contrast irregular	Fail
5	Response time	Within Specified value
6	Backlight turn on/off	Within Specified value

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

此文件已特請電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-5
---	----------------------	--

5-2 External Appearance Defect

NO.	Item	Criterion																		
1	Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)	<p>(1)-1-Spots</p> <table border="1"> <thead> <tr> <th>Average Diameter (mm):D</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$D \leq 0.1$</td> <td>Ignore</td> </tr> <tr> <td>$0.1 < D \leq 0.2$</td> <td>5</td> </tr> <tr> <td>$0.2 < D \leq 0.3$</td> <td>2</td> </tr> <tr> <td>$0.3 < D$</td> <td>0</td> </tr> </tbody> </table> <p>Number of total pieces is set to within 5 pieces.</p> <p>Note that when there are 2 pieces or more, they are not to be concentrated. Set as: Average diameter = (Long diameter + Short diameter)/2</p> <p>(1)-2-Blurred Spots(Af lighting condition)</p> <table border="1"> <thead> <tr> <th>Average Diameter (mm):D</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$D \leq 0.3$</td> <td>Ignore</td> </tr> <tr> <td>$0.3 < D \leq 0.75$</td> <td>5</td> </tr> <tr> <td>$0.75 < D$</td> <td>0</td> </tr> </tbody> </table> <p>Number of total pieces is set to within 5 pieces.</p> <p>Note that when there are 2 pieces or more, they are not to be concentrated. Set as: Average diameter = (Long diameter + Short diameter)/2</p>	Average Diameter (mm):D	Number of pieces permitted	$D \leq 0.1$	Ignore	$0.1 < D \leq 0.2$	5	$0.2 < D \leq 0.3$	2	$0.3 < D$	0	Average Diameter (mm):D	Number of pieces permitted	$D \leq 0.3$	Ignore	$0.3 < D \leq 0.75$	5	$0.75 < D$	0
Average Diameter (mm):D	Number of pieces permitted																			
$D \leq 0.1$	Ignore																			
$0.1 < D \leq 0.2$	5																			
$0.2 < D \leq 0.3$	2																			
$0.3 < D$	0																			
Average Diameter (mm):D	Number of pieces permitted																			
$D \leq 0.3$	Ignore																			
$0.3 < D \leq 0.75$	5																			
$0.75 < D$	0																			

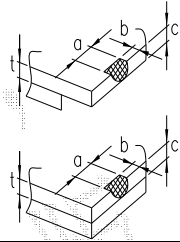
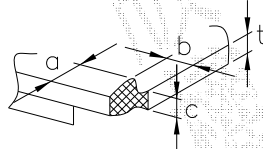
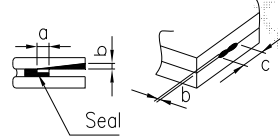
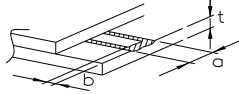
REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-6
---	----------------------	--

1	Line	<p>(1)-1-Lines</p> <table border="1"> <thead> <tr> <th>Width(mm):W</th> <th>Length(mm): L</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$W \leq 0.03$</td> <td>Ignore</td> <td>Ignore</td> </tr> <tr> <td>$0.03 < W \leq 0.08$</td> <td>$L \leq 4$</td> <td>2</td> </tr> <tr> <td>$0.08 < W \leq 0.1$</td> <td>$L \leq 1$</td> <td>1</td> </tr> </tbody> </table> <p>Object exceeding 0.1mm follow the standards of the spots form. Note that when there are 2 pieces or more, they are not to be concentrated.</p> <p>(1)-2-Blurred Lines(At lighting condition)</p> <table border="1"> <thead> <tr> <th>Width(mm):W</th> <th>Length(mm): L</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$W \leq 0.03$</td> <td>Ignore</td> <td>Ignore</td> </tr> <tr> <td>$0.03 < W \leq 0.08$</td> <td>$L \leq 3$</td> <td>6</td> </tr> <tr> <td>$0.08 < W$</td> <td>$3 < L$</td> <td>None</td> </tr> </tbody> </table> <p>Object exceeding 0.1mm follow the standards of the spots form. Note that when there are 2 pieces or more, they are not to be concentrated.</p>	Width(mm):W	Length(mm): L	Number of pieces permitted	$W \leq 0.03$	Ignore	Ignore	$0.03 < W \leq 0.08$	$L \leq 4$	2	$0.08 < W \leq 0.1$	$L \leq 1$	1	Width(mm):W	Length(mm): L	Number of pieces permitted	$W \leq 0.03$	Ignore	Ignore	$0.03 < W \leq 0.08$	$L \leq 3$	6	$0.08 < W$	$3 < L$	None
Width(mm):W	Length(mm): L	Number of pieces permitted																								
$W \leq 0.03$	Ignore	Ignore																								
$0.03 < W \leq 0.08$	$L \leq 4$	2																								
$0.08 < W \leq 0.1$	$L \leq 1$	1																								
Width(mm):W	Length(mm): L	Number of pieces permitted																								
$W \leq 0.03$	Ignore	Ignore																								
$0.03 < W \leq 0.08$	$L \leq 3$	6																								
$0.08 < W$	$3 < L$	None																								
2	Scratches(Glass, reflection plates, and polarizing plates)	In accordance with black spots. (At non lighting condition)																								
3	Color irregular	Not remarkable color irregular.																								

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-7
---	----------------------	--

4	Air bubbles polarizing plates, and reflection plates	<table border="1"> <tr> <th>Average Diameter (mm):D</th> <th>Number of pieces permitted</th> <th rowspan="3">Average diameter = (Long diameter + Short diameter)/2</th> </tr> <tr> <td>$D \leq 0.3$</td> <td>Ignore</td> </tr> <tr> <td>$0.3 < D$</td> <td>0</td> </tr> </table> <p>Note that when there are 4 pieces or more, they are not to be concentrated.</p>	Average Diameter (mm):D	Number of pieces permitted	Average diameter = (Long diameter + Short diameter)/2	$D \leq 0.3$	Ignore	$0.3 < D$	0
Average Diameter (mm):D	Number of pieces permitted	Average diameter = (Long diameter + Short diameter)/2							
$D \leq 0.3$	Ignore								
$0.3 < D$	0								
5	Cracks	<p>(1)General crack</p>  <p>$a \leq 5$ $b \leq 2$ $c \leq t$</p> <p>Where, a and b are ignored when less than or equal to 0.5. The numbers of pieces are set at up to 5 pieces.</p> <p>(2)Corner crack</p>  <p>$a \leq 2.5$ $b \leq 2.5$ $c \leq t$ $a+b \leq 4$</p> <p>(3)Seal portion crack</p>  <p>$a \leq \text{The seal width} \times 1/3$ $b \leq t \times 2/3$ $c \leq 5$</p> <p>The numbers of pieces are set at up to 5 pieces.</p> <p>(4)ITO Pin crack</p>  <p>$a \leq 5$ $b \leq 1/3 \text{ pin length}$ $c \leq t$</p> <p>(5)Progressive cracks</p> <p>All taken to be unacceptable.</p>							

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN

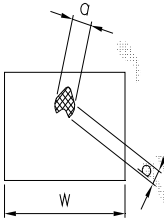
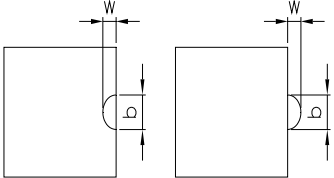
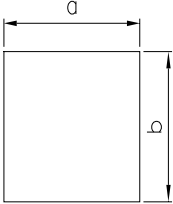
yann(林志諺) 2010/9/30 06:29 發送
cpwann(萬家祚) 2010/9/30 23:19 再確認
mhyuan(袁明弘) 2010/10/1 02:37 發送
yann(林志諺) 2010/10/1 02:39 發送
N000005633(周宜) 2010/10/1 07:30 發送
cpwann(萬家祚) 2010/10/1 07:30 發送
chihyuan(黃志源) 2010/10/1 09:48 發送

此文件已經通過電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-8
---	----------------------	--

6	Outer dimensions	Should be within the tolerance.
7	Soldering	Should be no defective soldering such as shorting, loose terminal cold solder, peeling of printed circuit board pattern, improper mounting position, etc.

5-3 Dot Appearance Defect

NO.	Item	Criteria
1	Pinhole	 <p>Dot display a and b are each $\leq 0.2\text{mm}$. The overall total is taken to be within 10 units. Note that they are not to be concentrated.</p>
2	Missing	 <p>Dot display a and b are each $\leq 0.2\text{mm}$. The overall total is taken to be within 10 units.</p>
3	Thick and thin display	 <p>Taken to be within $\pm 1.5\%$ of display character width(a) and height(b).</p>

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	

此文件已經通過電子流程審核

NAN YA PLASTICS CORP. ELEC. MATERIALS DIV. LCD DEPARTMENT	SPECIFICATION	SPEC. NO. : LM003-17L DATE : Sep. 29, 2010 SHEET NO. : 9-9
---	----------------------	--

NOTICE:

• SAFETY

1. If the LCD panel breaks, be careful not to get the liquid crystal to touch your skin.
2. If the liquid crystal touches your skin or clothes, please wash it off immediately by using soap and water.

• HANDLING

1. Avoid static electricity which can damage the CMOS LSI.
2. Do not remove the panel or frame from the module.
3. The polarizing plate of the display is very fragile. So, please handle it very carefully.
4. Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
5. Do not use ketonics solvent & Aromatic solvent. Use a soft cloth soaked with a cleaning naphtha solvent.

• STORAGE

1. Store the panel or module in a dark place where the temperature is 25±5°C and the humidity is below 65% RH.
2. Do not place the module near organics solvents or corrosive gases.
3. Do not crush, shake, or jolt the module.

• TERMS OF WARRANT

1. Acceptance inspection period
The period is within one month after the arrival of contracted commodity at the buyer's factory site.
2. Applicable warrant period
The period is within twelve months since the date of shipping out under normal using and storage conditions.

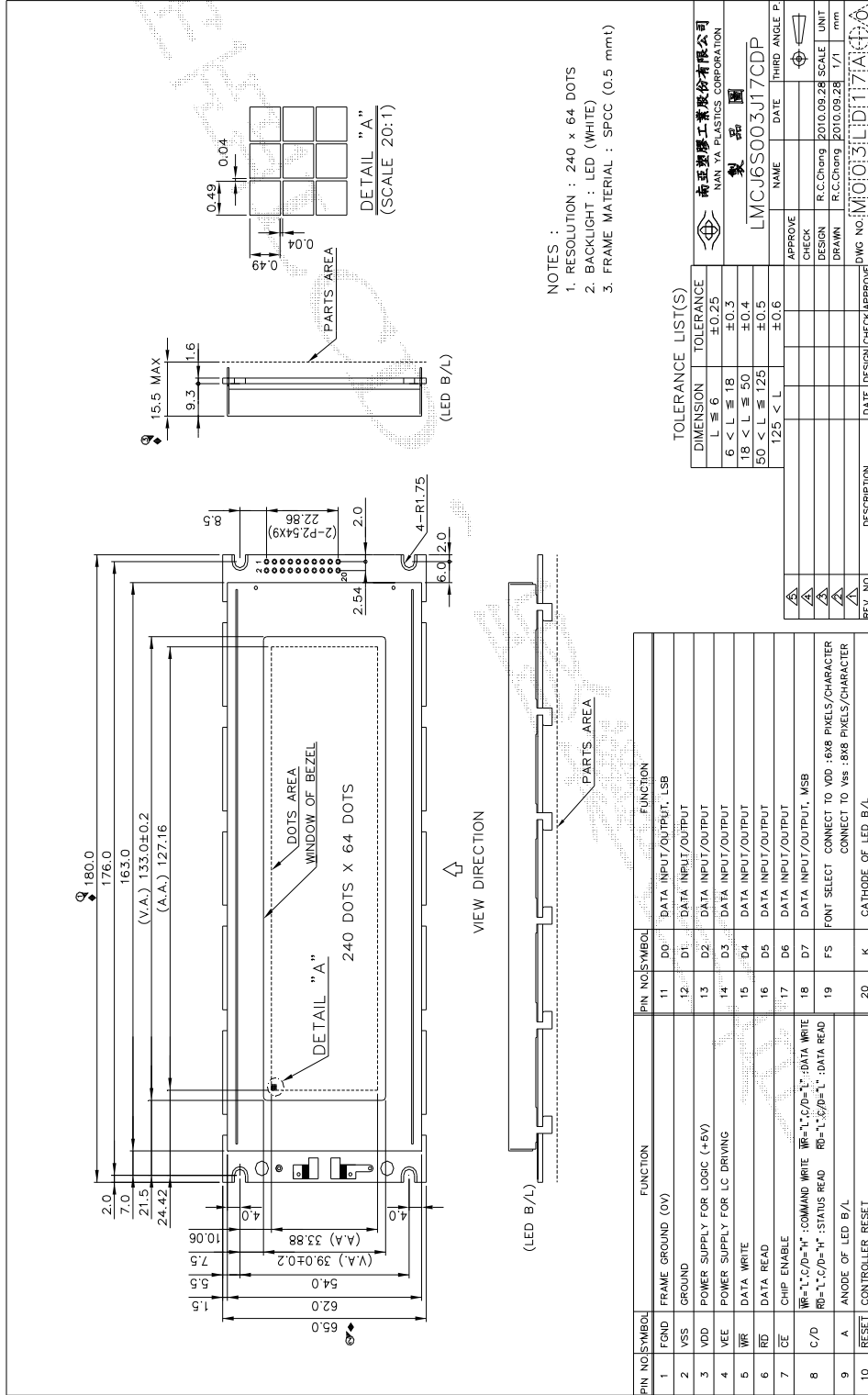
REV/DATE	R0/	姓名	審核時間	審核動作		BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送		M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送		
		cpwann(萬家祚)	2010/9/30 23:19	再確認		
		mhyuan(袁明弘)	2010/10/1 02:37	發送		
		yann(林志諺)	2010/10/1 02:39	發送		
		N000005633(周宜)	2010/10/1 07:30	發送		
		cpwann(萬家祚)	2010/10/1 07:30	發送		
		chiyuan(黃志源)	2010/10/1 09:48	發送		

NAN YA PLASTICS CORP.
 ELEC. MATERIALS DIV.
 LCD DEPARTMENT

SPECIFICATION

SPEC. NO. : LM003-17L
 DATE : Sep. 29, 2010
 SHEET NO. : 10

10. OUTLINE DRAWING



此文件已經過品質管理審核

REV/DATE	R0/	姓名	審核時間	審核動作	BY
	09.29.10'	mhyuan(袁明弘)	2010/9/29 00:53	發送	M.H.YUAN
		yann(林志諺)	2010/9/30 06:29	發送	
		cpwann(萬家祚)	2010/9/30 23:19	再確認	
		mhyuan(袁明弘)	2010/10/1 02:37	發送	
		yann(林志諺)	2010/10/1 02:39	發送	
		N000005633(周宜)	2010/10/1 07:30	發送	
		cpwann(萬家祚)	2010/10/1 07:30	發送	
		chihyuan(黃志源)	2010/10/1 09:48	發送	