



RAYSTAR

曜凌光電股份有限公司

住址: 406 台中市敦化路 456 號 6F
No.456-6, Dunhua RD., Beitun
District, Taichung, Taiwan, R.O.C

WEB: <http://www.Raystar-Optronics.com>
E-mail: sales@raystar-optronics.com
Tel: 886-4-22911297 Fax : 886-4-22911296

RDN0001-PHN-3-000

SPECIFICATION

CUSTOMER : _____

APPROVED BY: (FOR CUSTOMER USE ONLY)	PCB VERSION: _____ DATA: _____
--	---

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
ISSUED DATE: _____			

Contents

1.	<i>Specification Revision History</i>	<i>Page 3</i>
2.	<i>General Specification</i>	<i>Page 4</i>
3.	<i>Module Classification Information</i>	<i>Page 5</i>
4.	<i>Outline dimension & Block Diagram</i>	<i>Page 6</i>
5.	<i>Absolute Maximum Ratings</i>	<i>Page 7</i>
6.	<i>Electrical -Optical Characteristics</i>	<i>Page 7</i>
7.	<i>Reliability</i>	<i>Page 9</i>

1. Specification Revision History

RECORDS OF REVISION			
VERSION	DATE	REVISED PAGE NO.	Note
1	2008.2.14		First issue

2. General Specification

The Features of the Module is description as follow:

- Module dimension: 93.98 x 45.72 x 2.85 (max.) mm³
- View area: 87.5 x 31.7 mm²
- Active area: 82.224 x 25.4 mm²
- LCD type: TN Positive, Gray, Transflective
- Duty: 1/4
- View direction: 6 o'clock
- Operating Voltage: 3.0 V

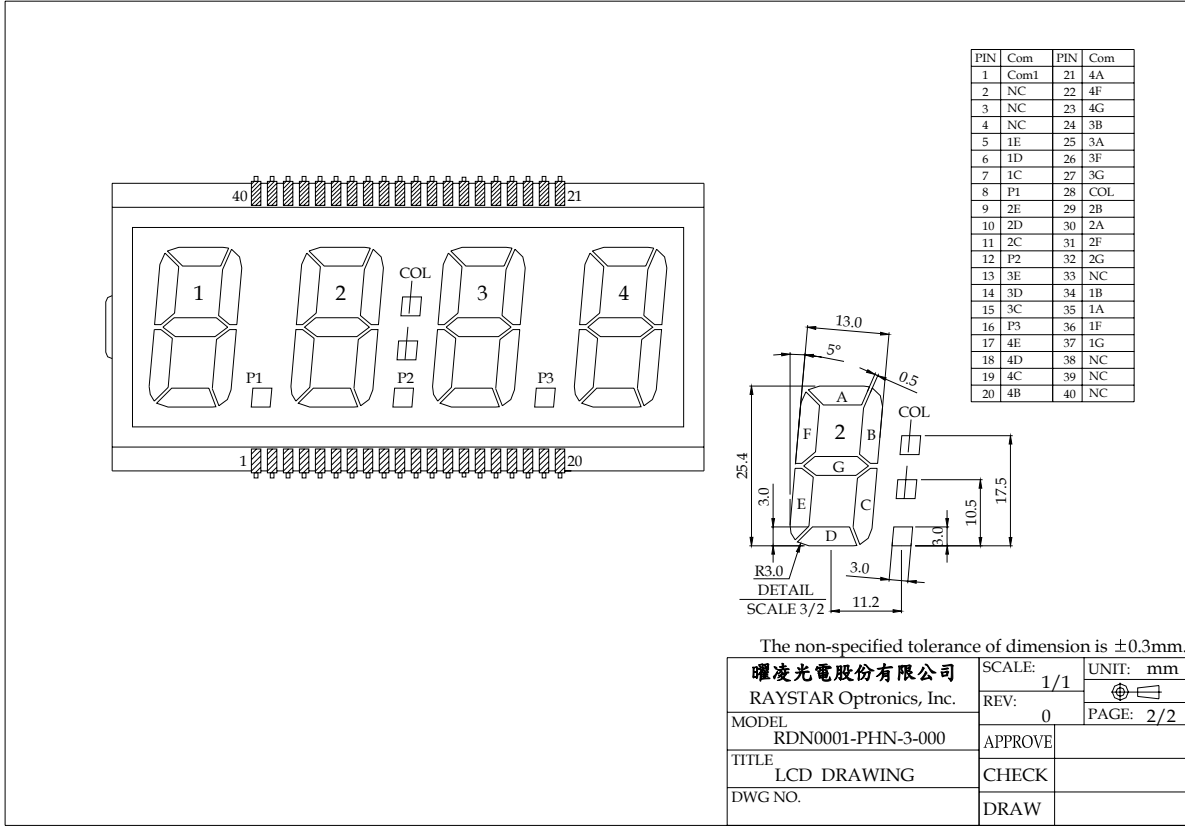
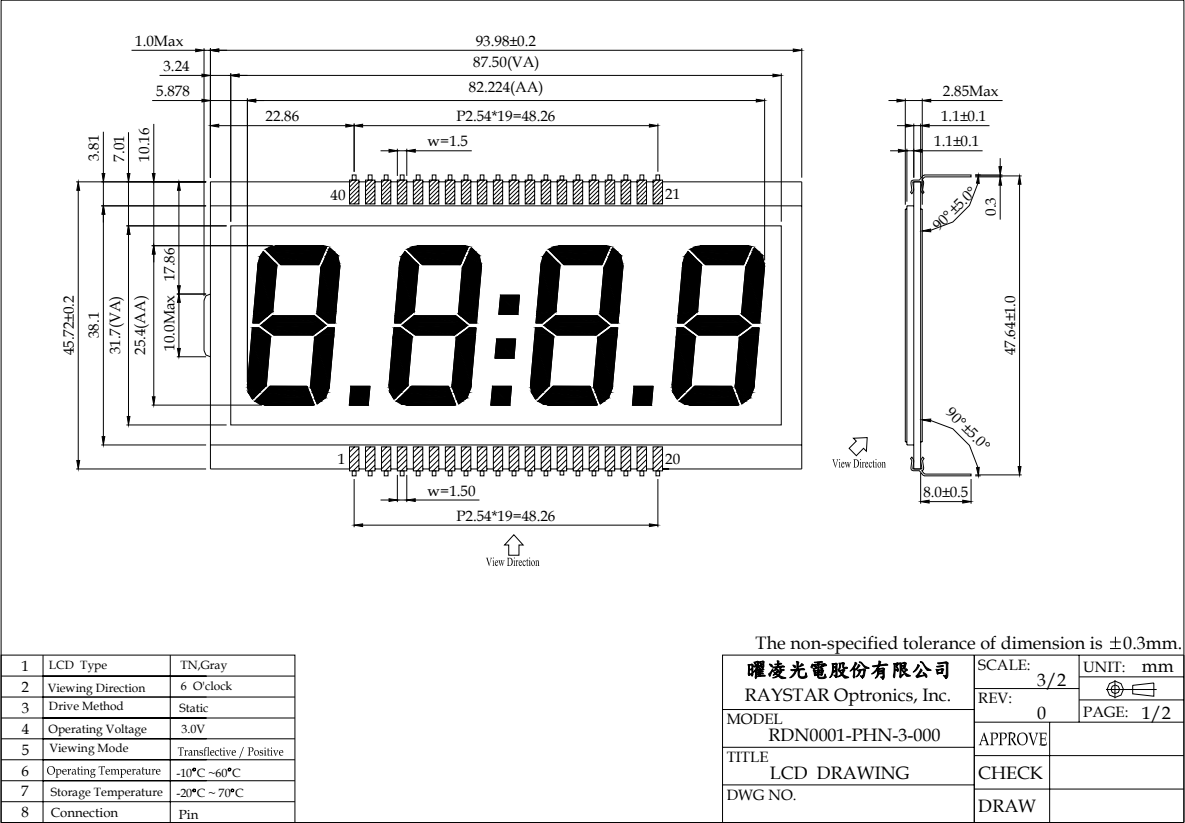
3. Module Classification Information

R D N 0001 — P H N — 3 — 000

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Item	Description		
1	Brand : Raystar Optronics Inc.		
2	D : Custom Design.		
3	N : Segment Type		
4	Model serials no.0000 - ZZZZ.		
5	LCD Mode	P : TN Positive, Gray	
		N : TN Negative,	
		G : STN Positive, Gray	
		Y : STN Positive, Yellow Green	
		B : STN Negative, Blue	
		F : FSTN Positive	
		T : FSTN Negative	
6	LCD Polarizer Type/ Temperature range/ View direction	A : Reflective, N.T, 6:00	K : Transflective, W.T,12:00
		D : Reflective, N.T, 12:00	1 : Transflective, U.T,6:00
		G : Reflective, W. T, 6:00	4 : Transflective, U.T.12:00
		J : Reflective, W. T, 12:00	C : Transmissive, N.T,6:00
		0 : Reflective, U. T, 6:00	F : Transmissive, N.T,12:00
		3 : Reflective, U. T, 12:00	I : Transmissive, W. T, 6:00
		B : Transflective, N.T,6:00	L : Transmissive, W.T,12:00
		E : Transflective, N.T.12:00	2 : Transmissive, U. T, 6:00
		H : Transflective, W.T,6:00	5 : Transmissive, U.T,12:00
7	Backlight Type	N : Without backlight	Y : LED, Yellow Green
		P : EL, Blue green	A : LED, Amber
		T : EL, Green	W : LED, White
		D : EL, White	O : LED, Orange
		F : CCFL, White	G : LED, Green
8	Special Code	3: Operating voltage is 3V	
9	Serial no.000 - ZZZ		

4. Outline Dimension & Block Diagram



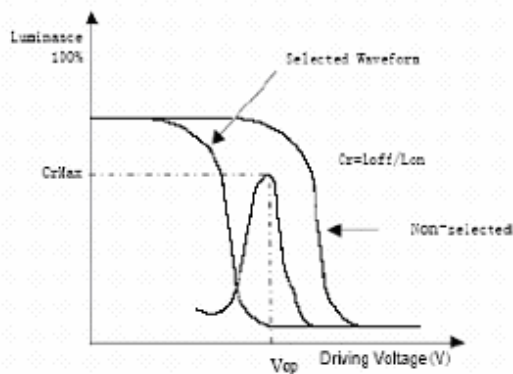
5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T _{OP}	-20	—	+70	°C
Storage Temperature	T _{ST}	-30	—	+80	°C

6. Electro-Optical Characteristics

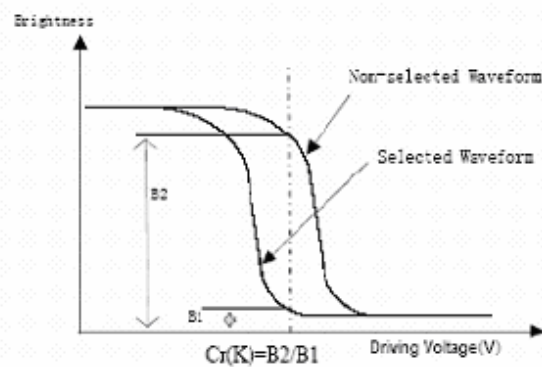
No.	Item		Symbol	Temp.(°C)	Rating			Unit	Note
					Min.	Typ.	Max.		
1	Operating Voltage		Vop	0	3.0	3.2	3.4	V	Note 1
				25	2.8	3.0	3.2		
				50	2.6	2.8	3.0		
2	Response Time	Rise Time	Tr	0	—	—	ms	Note 2	
				25	—	—			190
		Fall Time	Tf	0	—	—			—
				25	—	—			160
3	Operating Frequency		Ff	25	—	64	—	Hz	
4	Viewing Angle		$\theta\ 2-\theta\ 1$	25	30	—	—	Deg	Note 3
			ϕ		—	45	—		
5	Contrast Ratio		K	25	3.0	10	—		Note 5

Note1: Definition of "Vth"

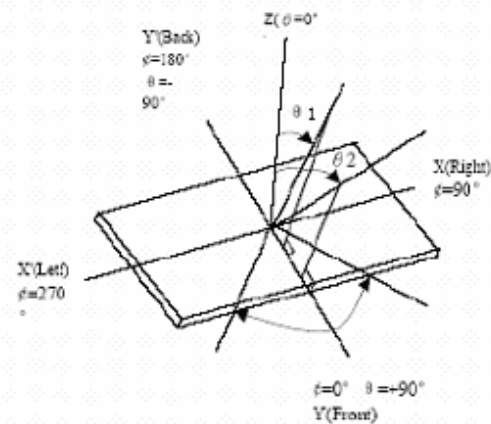


$$\theta=20^{\circ} \varphi=270^{\circ}$$

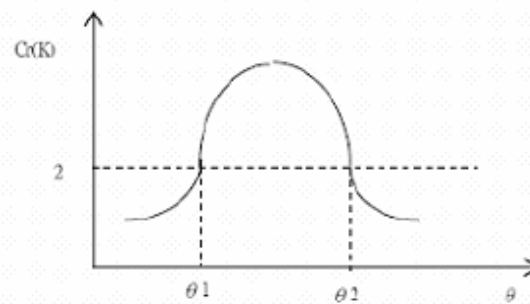
Note2: Definition of Contrast Ratio (K)



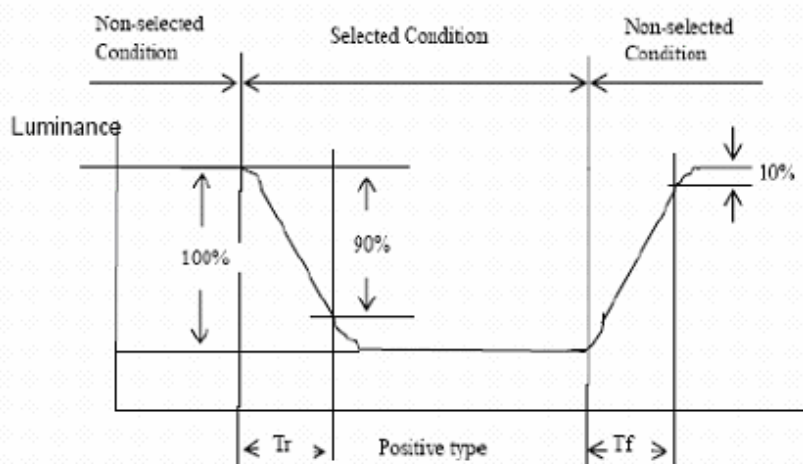
Note3: Definition of Angle θ & φ



Note4: Definition of Viewing Angle θ & φ



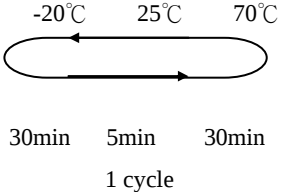
Note5: Definition of Response Time



* Electro-Optical Characteristics are measured by DMS-501.

7. Reliability

Content of Reliability Test (wide temperature, -20°C~70°C)

Environmental Test			
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 high storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60°C,90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60°C,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation  -20°C 25°C 70°C 30min 5min 30min 1 cycle	-20°C/70°C 10 cycles	—

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

LCM Sample Estimate Feedback Sheet

Module Number : _____

1 、 Panel Specification :

1. Panel Type :	☐ Pass	☐ NG , _____
2. View Direction :	☐ Pass	☐ NG , _____
3. Numbers of Dots :	☐ Pass	☐ NG , _____
4. View Area :	☐ Pass	☐ NG , _____
5. Active Area :	☐ Pass	☐ NG , _____
6. Operating Temperature :	☐ Pass	☐ NG , _____
7. Storage Temperature :	☐ Pass	☐ NG , _____
8. Others :	_____	

2 、 Mechanical Specification :

1. PCB Size :	☐ Pass	☐ NG , _____
2. Frame Size :	☐ Pass	☐ NG , _____
3. Material of Frame :	☐ Pass	☐ NG , _____
4. Connector Position :	☐ Pass	☐ NG , _____
5. Fix Hole Position :	☐ Pass	☐ NG , _____
6. Backlight Position :	☐ Pass	☐ NG , _____
7. Thickness of PCB :	☐ Pass	☐ NG , _____
8. Height of Frame to PCB :	☐ Pass	☐ NG , _____
9. Height of Module :	☐ Pass	☐ NG , _____
10. Others :	☐ Pass	☐ NG , _____

3 、 Relative Hole Size :

1. Pitch of Connector :	☐ Pass	☐ NG , _____
2. Hole size of Connector :	☐ Pass	☐ NG , _____
3. Mounting Hole size :	☐ Pass	☐ NG , _____
4. Mounting Hole Type :	☐ Pass	☐ NG , _____
5. Others :	☐ Pass	☐ NG , _____

4 、 Backlight Specification :

1. B/L Type :	☐ Pass	☐ NG , _____
2. B/L Color :	☐ Pass	☐ NG , _____
3. B/L Driving Voltage (Reference for LED Type) :	☐ Pass	☐ NG , _____
4. B/L Driving Current :	☐ Pass	☐ NG , _____
5. Brightness of B/L :	☐ Pass	☐ NG , _____
6. B/L Solder Method :	☐ Pass	☐ NG , _____
7. Others :	☐ Pass	☐ NG , _____

>> Go to page 2 <<

Module Number : _____

5 、 Electronic Characteristics of Module :

1.Input Voltage :	☐ Pass	☐ NG , _____
2.Supply Current :	☐ Pass	☐ NG , _____
3.Driving Voltage for LCD :	☐ Pass	☐ NG , _____
4.Contrast for LCD :	☐ Pass	☐ NG , _____
5.B/L Driving Method :	☐ Pass	☐ NG , _____
6.Negative Voltage Output :	☐ Pass	☐ NG , _____
7.Interface Function :	☐ Pass	☐ NG , _____
8.LCD Uniformity :	☐ Pass	☐ NG , _____
9.ESD test :	☐ Pass	☐ NG , _____
10.Others :	☐ Pass	☐ NG , _____

6 、 Summary :

Sales signature : _____

Customer Signature : _____

Date : / /