PRODUCT SPECIFICATION

MONO LCD MODULE
MODEL: NLCMC420

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1. Features

The features of LCD are as follows

* Display mode : STN/Yellow-Green/Transflective/Positive
* Controller/driver IC : SPLC780D1-001 :
* Display format : 20x4 Characters
* Interface Input Data : 8 Bit
* Driving Method : 1/16Duty, 1/5Bias
* Viewing Direction : 6 O'clock
* Backlight : LED/bottom(Y-G)
* Sample NO. : EC2004A0SBY6B-1.0/091114

2. MECHANICAL SPECIFICATIONS

Item	Specification	Unit
Module Size	77(W) x 47(H) x 14.2MAX(T)	mm
Viewing Area	60(W) x 22.2(H)	mm
Activity Area	55.12(W) x 17.56(H)	mm
Character Font	5 x 8 Dots	-
Character Size	2.3(W) x 4.03(H)	mm
Character Pitch	2.78(W) x 4.51(H)	mm
Dot Size	0.42(W) x 0.46(H)	mm

3. ELECTRICAL SPECIFICATIONS

3-1 ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Item	Symbol	Standard Value			Unit
		Min.	Typ.	Max.	
Supply Voltage For Logic	V_{DD}–V_{SS}	-0.3		7	V
Pupply Voltage For LCD Drive	V_{OP}=V_{DD}–V_0	V_{DD}-10	-	V_{DD}+0.3	V
Input Voltage	Vin	-0.3	-	V_{DD}+0.3	V
Operating Temp.	Top	-20	-	+70	°C
Storage Temp.	Tst	-25	-	+75	°C

*****. NOTE: The response time will be extremely slow when the operating temperature is around -10℃, and the back ground will become darker at high temperature operating.

3-2 ELECTICAL CHARACTERISTICS

3-2-1.DC CHARACTERISTICS(Ta=25°C)

Item		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Logic supply Voltage		V_{DD}–V_{SS}	Ta=25 8C V_{DD}=5V V_{OP}=4.8V	4.5	5	5.5	V
LCD Drive		V_{OP}=V_{DD}–V_0		-	4.8	-	V
Input Voltage	"H" Level	V_{IH}		0.7 V_{DD}	-	V_{DD}	V
	"L" Level	V_{IL}		-0.3	-	5.5	V
Frame Frequency		f_{FLM}		-	78.1	-	Hz
Current Consumption		I_{DD}		-	1.39	-	mA

3-3. BACKLIGHT

3-3-1. Absolute Maximum Ratings

Item	Symbol	Condition	min	Typ	Max	Unit
Forward Current	IF	Ta=25 8C	-	-	150	mA
Reverse Voltage	VR		-	-	5	V
Power Dissipation	PD		-	-	1500	mW

3-3-2. Electrical-optical Characteristics（Ta=25 8C）

Item	Symbol	Condition	min	Typ	Max	Unit
Forward Voltage	VF	Ta=25 8C IF=150mA VF=4.2	4.0	4.2	4.4	V
Peak wavelengh	λp		565	570	575	nm
Luminance	Lv		-	80	-	Cd/㎡

The brightness is measured without LCD panel

4．TERMINAL FUNCTIONS AND BLOCK DIAGRAM

4-1. INTERFACE PIN FUNCTION DESCRIPTION

PIN NO.	SYMBOL	FUNCIONS
1	VSS	Ground
2	VDD	Logic power supply voltage
3	VO	Supply voltage for LCD driving
4	RS	A signal for selecting registers.
5	R/W	A signal for selecting registers.
6	E	Enable signal for reading or writing data
7-14	DB0-DB7	8-Bit data bus
15	A	Backlight(+)5V
16	K	Backlight(-)

4-2. BLOCK DIAGRAM