

DM-LCD320240-479
4.7" 320 x 240 INDUSTRIAL BLUE
GRAPHIC LCD - MCU

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1 Revision History

Date	Changes
2019-06-19	First release

2 Main Features

Item	Specification	Unit
Resolution	320 x 240	dots
Display Mode	STN Negative, Blue, Transmissive	-
Controller IC	RA8835	-
Interface	Parallel MPU Interface	-
Active area	95.98 x 71.98	mm
Module dimension	139.0 x 100.0 x 13.1(MAX)	mm
Pixel Pitch	0.30 x 0.30	mm
View Direction	6	o'clock
Duty	1/240	
Backlight	White LED	-
Weight	TBD	g

3 Pin Description

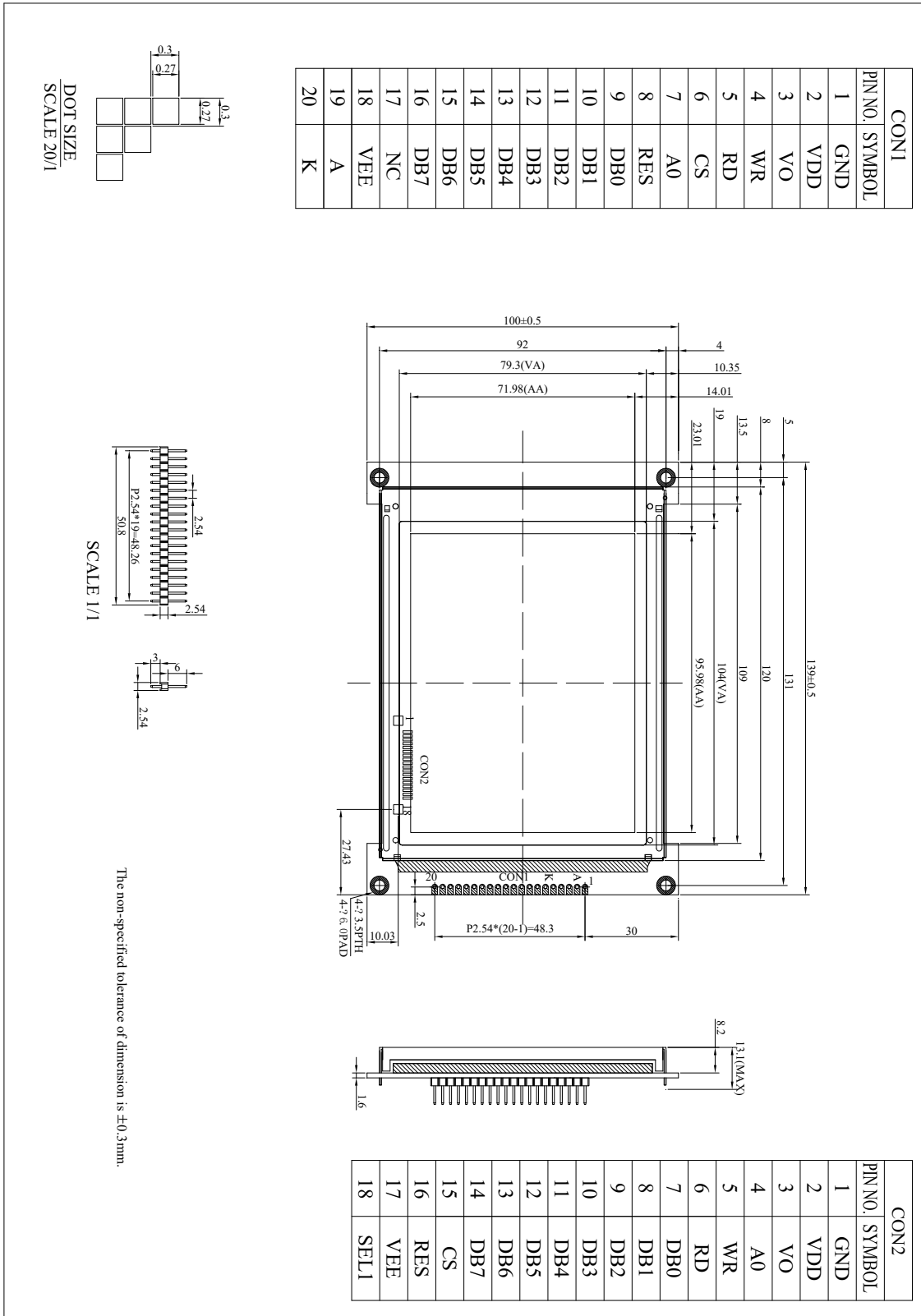
CON1

Pin No.	Symbol	Level	Description
1	GND	0V	Ground
2	V _{DD}	5.0V	Power supply for Logic
3	V _O		Driving voltage for LCD
4	WR	H/L	8080 family: Write signal, 6800 family: R/W signal
5	RD	H/L	8080 family: Read signal, 6800 family: Enable clock
6	CS	H/L	Chip select ,Active L
7	A0	H/L	RD=L WR=H ,A0=L :Data read AO=H :Status read RD=H WR=L ,A0=L :Data write AO=H :Command write
8	\overline{RES}	H/L	Controller reset signal Active L
9~16	DB0~DB 7	H/L	Data bus line
17	NC	RES	No connection
18	V _{EE}		Negative Voltage Output
19	A		LED+
20	K		LED-

CON2

Pin No.	Symbol	Level	Description
1	GND	0V	Ground
2	V _{DD}	5.0V	Power supply for Logic
3	V _O		Driving voltage for LCD
4	A0	H/L	RD=L WR=H ,A0=L :Data read AO=H :Status read RD=H WR=L ,A0=L :Data write AO=H :Command write
5	\overline{WR}	H/L	8080 family: Write signal, 6800 family: R/W signal
6	\overline{RD}	H/L	8080 family: Read signal, 6800 family: Enable clock
7~14	DB0~DB 7	H/L	Data bus line
15	\overline{CS}	H/L	Chip select ,Active L
16	\overline{RES}	H/L	Controller reset signal Active L
17	V _{EE}		Negative Voltage Output
18	SEL1		H:6800 ,L:8080

4 Mechanical Drawing



5 Optics & Electrical Characteristics

5.1 Optical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
View Angles Top	$\ominus U$	$CR \geq 2$	0	—	20	$\psi = 180^\circ$
View Angles Bottom	$\ominus D$	$CR \geq 2$	0	—	40	$\psi = 0^\circ$
View Angles Left	$\ominus L$	$CR \geq 2$	0	—	30	$\psi = 90^\circ$
View Angles Right	$\ominus R$	$CR \geq 2$	0	—	30	$\psi = 270^\circ$
Response Time	T rise	-	-	200	300	ms
	T fall	-	-	250	350	ms
Contrast Ratio	CR	-	-	3	-	-
Luminance (Without LCD)	IV	$I_{LED}=128$ mA	450	560	-	cd/m ²

5.2 Absolute Maximum Ratings

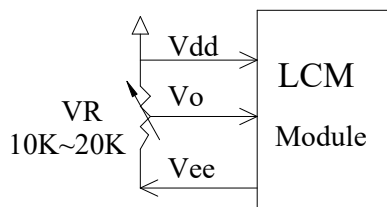
Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	°C
Storage Temperature	T_{ST}	-30	—	+80	°C
Input Voltage	V_{IN}	-0.3	—	$V_{DD}+0.3$	V
Supply Voltage For Logic	$V_{DD}-V_{SS}$	-0.3	—	7.0	V
Supply Voltage For LCD	$V_{DD}-V_O$	0	—	32	V

5.3 Electrical Characteristics

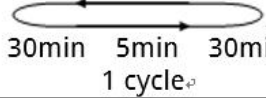
Item	Symbol	Condition	Min	Typ.	Max	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	-	4.5	5.0	5.5	V
Supply Voltage For LCD *Note	$V_{DD}-V_O$	$T_a=-20^\circ\text{C}$	—	—	—	V
		$T_a=25^\circ\text{C}$	21.0	21.6	22.2	V
		$T_a=70^\circ\text{C}$	—	—	—	V
Supply Current	I_{DD}	$V_{DD}=5.0\text{V}$	52.2	52.4	52.8	mA
Low Level Input Voltage	V_{IL}	-	V_{SS}	-	$0.2V_{DD}$	V
High Level Input Voltage	V_{IH}	-	$0.5V_{DD}$	-	V_{DD}	V
Low Level Output Voltage	V_{OL}	-	-	-	$V_{SS}+0.4$	V
High Level Output Voltage	V_{OH}	-	$V_{DD}-0.4$	-	-	V
Backlight Supply Voltage	V	-	4.9	5.0	5.1	V
Backlight Supply Current	I_{LED}	$V=5.0\text{V}(\text{Note 1})$	40	128	160	mA

* Note: Please design the VOP adjustment circuit on customer's main board

Note 1: Supply current minimum value is only for reference since LED brightness efficiency keeps enhancing. Current consumption becomes less and less to achieve the same luminance.



6 Reliability

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/70°C 10 cycles	-
Vibration Test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude: 15mm; Vibration:10~55Hz; One cycle 60 seconds to 3 directions of X, Y, Z, for each 15 minutes.	3
Static Electricity Test	Endurance test apply the electric stress to the terminal.	VS=±600V(contact), ±800v(air), RS=330Ω CS=150pF 10 times	-

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 rest chamber.

Note3: Test performed on product itself, not inside a container

7 Recommendable Storage

1. Place the panel or module in the temperature $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and the humidity below 65% RH.
2. Do not place the module near organics solvents or corrosive gases.
3. Do not crush, shake, or jolt the module.

8 Warranty and Conditions

<http://www.displaymodule.com/pages/faq>