Specification

For

LCD Module

CCM1620CSLBS1

Prepared by：

Checked by：

Approved by：

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CCM1620CSLBS1 LCD MODULE

1、FEATURES

- Display Type: STN
- Display Format: 16 Characters x 2 Lines
- Input Data: 4-Bits or 8-Bits interface available
- Display Font: 5 x 8 Dots
- Display Mode: Yellow-Green
- Driving Mode: 1/16 Duty, 1/5 Bias
- Operating Voltage: 5.0V
- Viewing Direction: 6 O'clock
- Backlight: LED, Yellow-Green (4.2V)

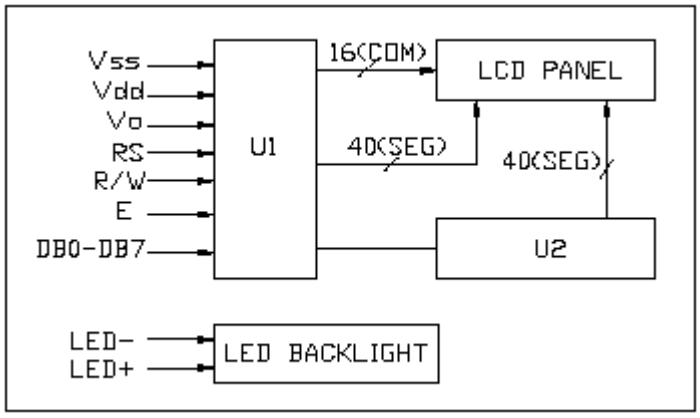
2、ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit
Power Supply for Logic	Vdd	-0.3	+7.0	V
Power Supply for LCD Drive	Vlcd	Vdd-13.5	Vdd+0.3	V
Input Voltage	Vi	-0.3	Vdd+0.3	V
Operating Temperature	Topr	0	+50	℃
Storage Temperature	TSgt	-20	+60	℃

3、MECHANICAL PARAMETERS

Item	Description	Unit
LCM Outline Dimension	80.0 x 36.0 x13.0 (MAX)	mm
Viewing Area	64.5 x 13.8	mm
Weight	About 40.0	g

4、SYSTEM BLOCK DIAGRAM



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5、DC CHARACTERISTICS (Ta=25℃; Vdd=5.0V±5%,Vss=0V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating Voltage	Vdd	--	--	5.0	--	V
LCD Voltage	Vlcd	Vdd-Vo	--	5.0	--	V
Operating Current	Idd	Vdd=5.0V	--	1.2	1.8	MA
Input “High” Voltage (1) (Except OSC1)	Vih1	--	2.2	--	Vdd	V
Input “Low” Voltage (1) (Except OSC1)	Vil1	--	-0.3	--	0.6	V
Input “High” Voltage (2) (OSC1)	Vih2	--	Vdd-1.0	--	Vdd	V
Input “Low” Voltage (2) (OSC1)	Vil2	--	-0.2	--	1.0	V
Output “High” Voltage (1) (D0-D7)	Voh1	Ioh=-0.205mA	2.4	--	--	V
Output “Low” Voltage (1) (D0-D7)	Vol1	Iol=1.2mA	--	--	0.4	V

6、 LED Backlight CHARACTERISTICS (Ta=25° C)

Characteristic	Symbol	Min.	Typ.	Max.	Conditions	Unit
Forward Voltage	Vf	--	4.2	--	If=100mA	V
Forward Current	If	--	--	150	--	mA
Reverse Voltage	Vr	--	--	8	--	V
Reverse Current	Ir	--	--	100	Vr=8V	UA
Operating temp.	Topr	-20	--	+85	--	°C
Storage temp.	Tstg	-25	--	+85	--	°C

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7、PIN ASSIGNMENT

NO.	Symbol	Level	Function
1	Vss	--	GROUND
2	Vdd	--	POWER SUPPLY FOR LOGIC
3	Vo	--	POWER SUPPLY FOR LCD
4	RS	H/L	Register Select H: Data register L:Instruction register
5	R/W	H/L	H--Read L—Write
6	E	H, H-L	Start enable signal to read or write the data
7	DB0	H/L	Data bus used in 8 bit transfer
8	DB1	H/L	
9	DB2	H/L	
10	DB3	H/L	
11	DB4	H/L	Data bus for both 4 and 8 bit transfer
12	DB5	H/L	
13	DB6	H/L	
14	DB7	H/L	
15	A	--	LED Backlight (+)
16	K	--	LED Backlight (-)

8、AC CHARACTERISTICS (Vdd=5.0V±5%,Vss=0V ,Ta=25℃)

(Write mode)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
E Cycle Time	Tc	1200	--	--	ns
E Rise/Fall Time	Tr, Tf	--	--	25	ns
E Pulse Width (High, Low)	Tw	140	--	--	ns
R/W and RS Set-up Time	Tsu1	0	--	--	ns
R/W and RS Hold Time	Th1	10	--	--	ns
Data Set-up Time	Tsu2	40	--	--	ns
Data Hold Time	Th2	10	--	--	ns

9、AC CHARACTERISTICS (Vdd=5.0V±5%,Vss=0V, Ta=25℃)

(Read mode)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
E Cycle Time	Tc	1200	--	--	ns
E Rise/Fall Time	Tr, Tf	--	--	25	ns
E Pulse Width (High, Low)	Tw	140	--	--	ns
R/W and RS Set-up Time	Tsu	0	--	--	ns
R/W and RS Hold Time	Th	10	--	--	ns
Data Output Delay Time	Td	--	--	100	ns
Data Hold Time	Tdh	10	--	--	ns

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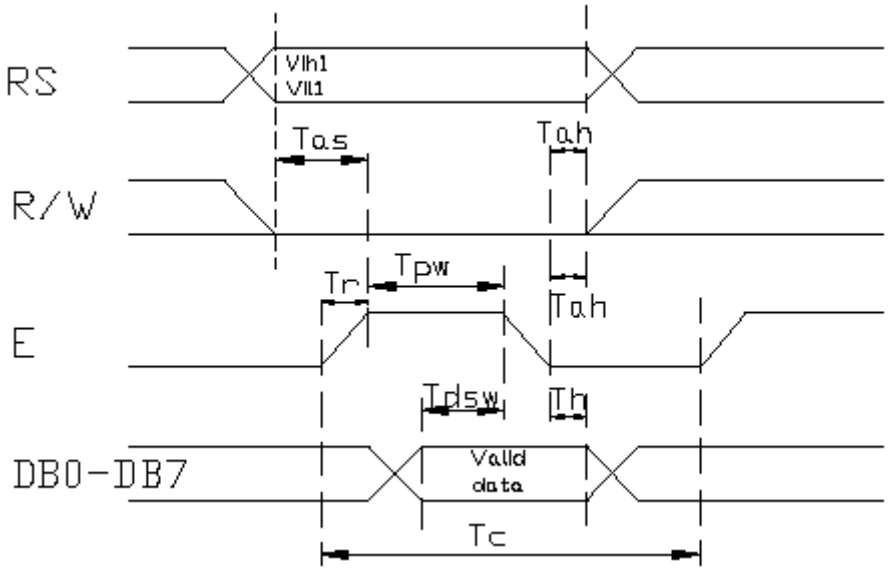
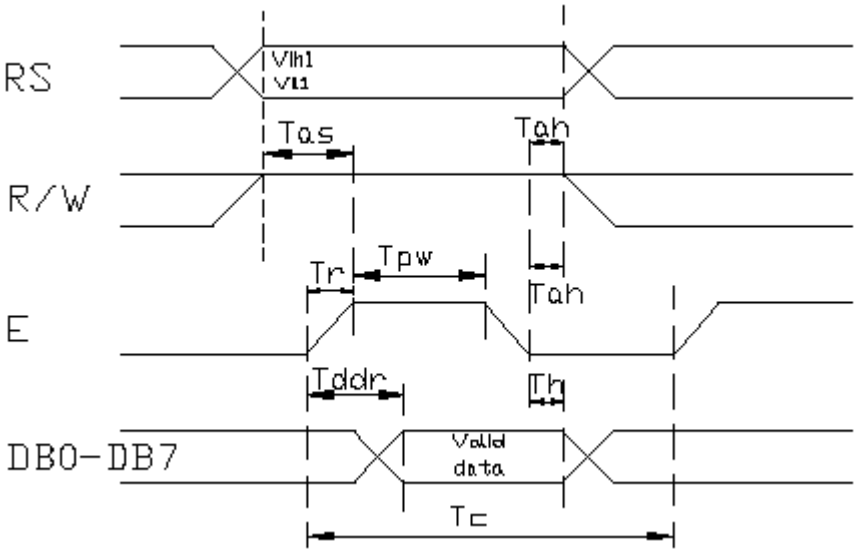
10、WRITE MODE TIMING DIAGRAM



11、READ MODE TIMING DIAGRAM



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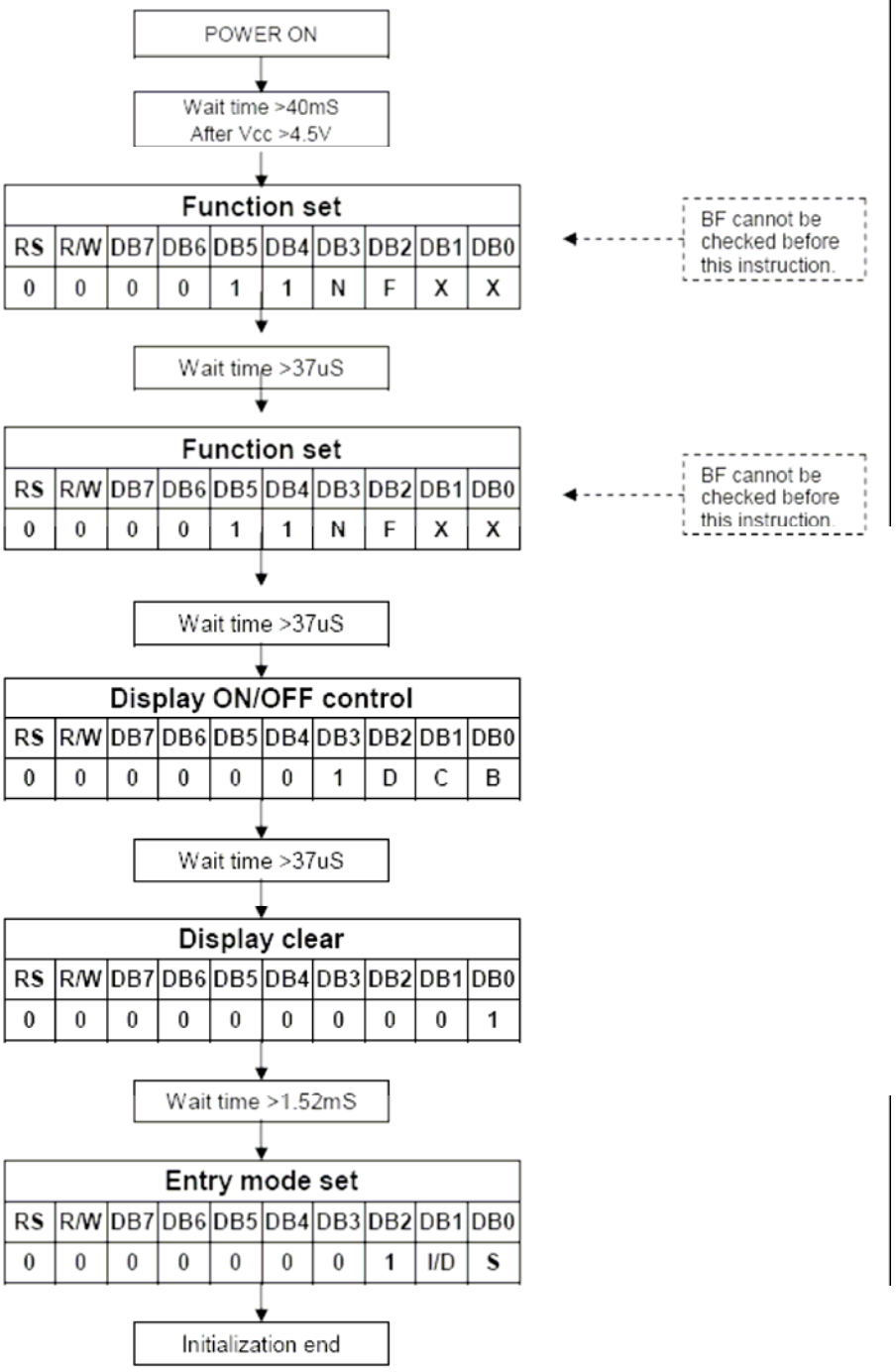
12.INITIALING BY INSTRUCTION

- 8-bit Interface (fosc=270KHz)



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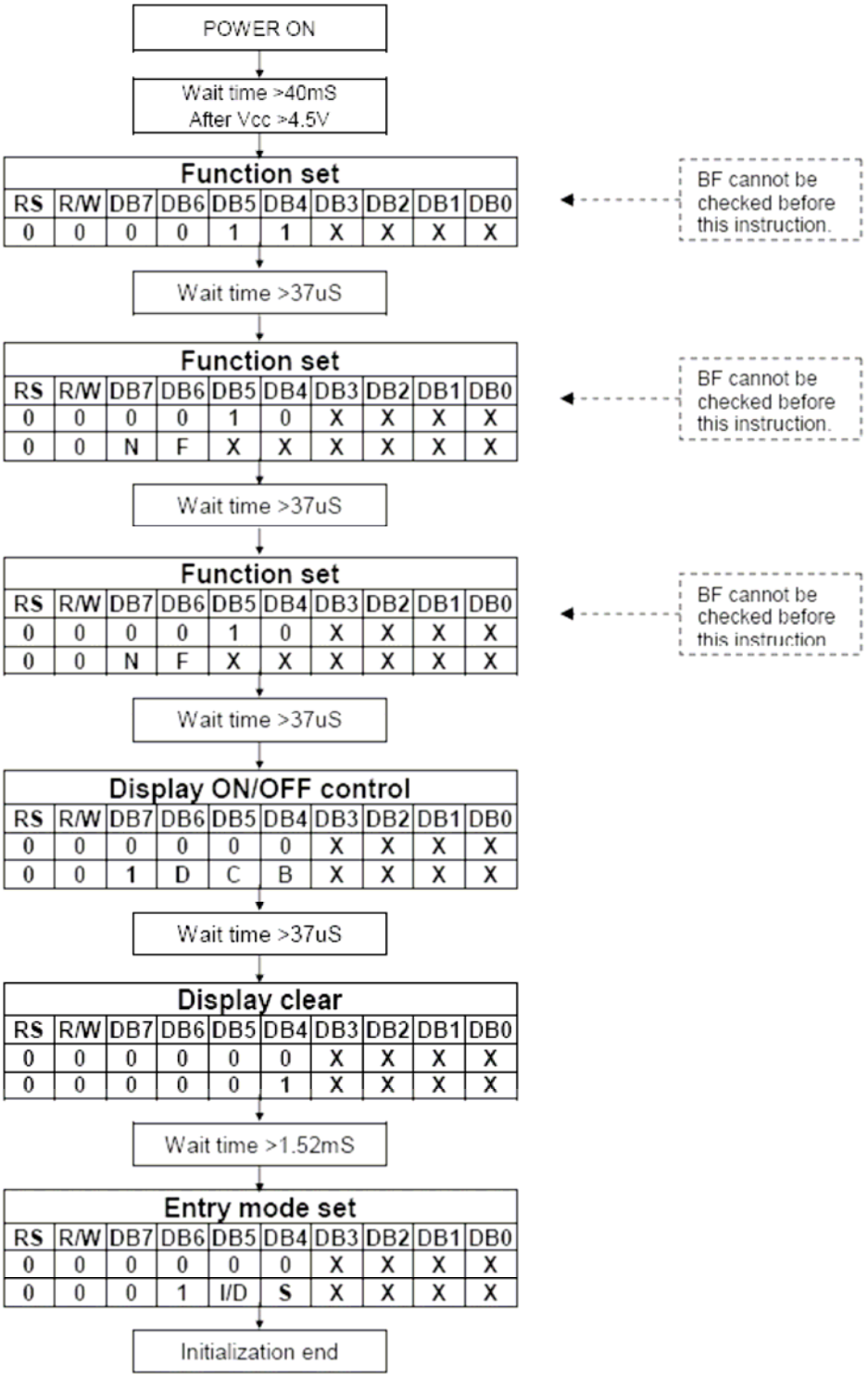
- 4-bit Interface (fosc=270KHz)



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13、CONTROL AND DISPLAY COMMAND

Command	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Remark
Display Clear	L	L	L	L	L	L	L	L	L	H	Write “20H” to DDRAM.and set DDRAM address to “00H” from AC.
Return Home	L	L	L	L	L	L	L	L	H	X	Cursor move to first digit
Entry Mode Set	L	L	L	L	L	L	L	H	I/D	SH	I/D: Set cursor move direction H-Increase L-Decrease SH: Specifies shift of display H-Display is shifted L-Display is not shifted
Display On/Off Control	L	L	L	L	L	L	H	D	C	B	D: Display (H-on, L-off) C: Cursor (H-on, L-off) B: Blinking (H-on, L-off)
Shift	L	L	L	L	L	H	S/C	R/L	X	X	SC:(H-Display shift, L-Cursor move) R/L:(H-Right shift, L-Left shift)
Set Function	L	L	L	L	H	DL	N	F	X	X	DL:(H-8 bits interface, L-4 bits interface) N:(H-2 line display, L-1 line display) F:(H-5 x 10 dots, L-5 x 7 dots)
Set CGRAM Address	L	L	L	H	CG RAM address (Corresponds to address)						CGRAM data is sent and received after this setting
Set DDRAM Address	L	L	H	DD RAM address							DDRAM data is sent and received after this setting
Read Busy Flag & Address	L	H	BF	Address Counter used for Both DD ＆CGRAM address							BF:(H-Busy, L-Ready) --Reads BF indication Internal operating is being performed --Reads address counter contents
Write Data to RAM	H	L	Write Data								Write data into DDRAM or CGRAM
Read Data from RAM	H	H	Read Data								Read data from DDRAM or CGRAM

“X”: Don’t Care

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14、FONT TABLE

NO.7066-0A

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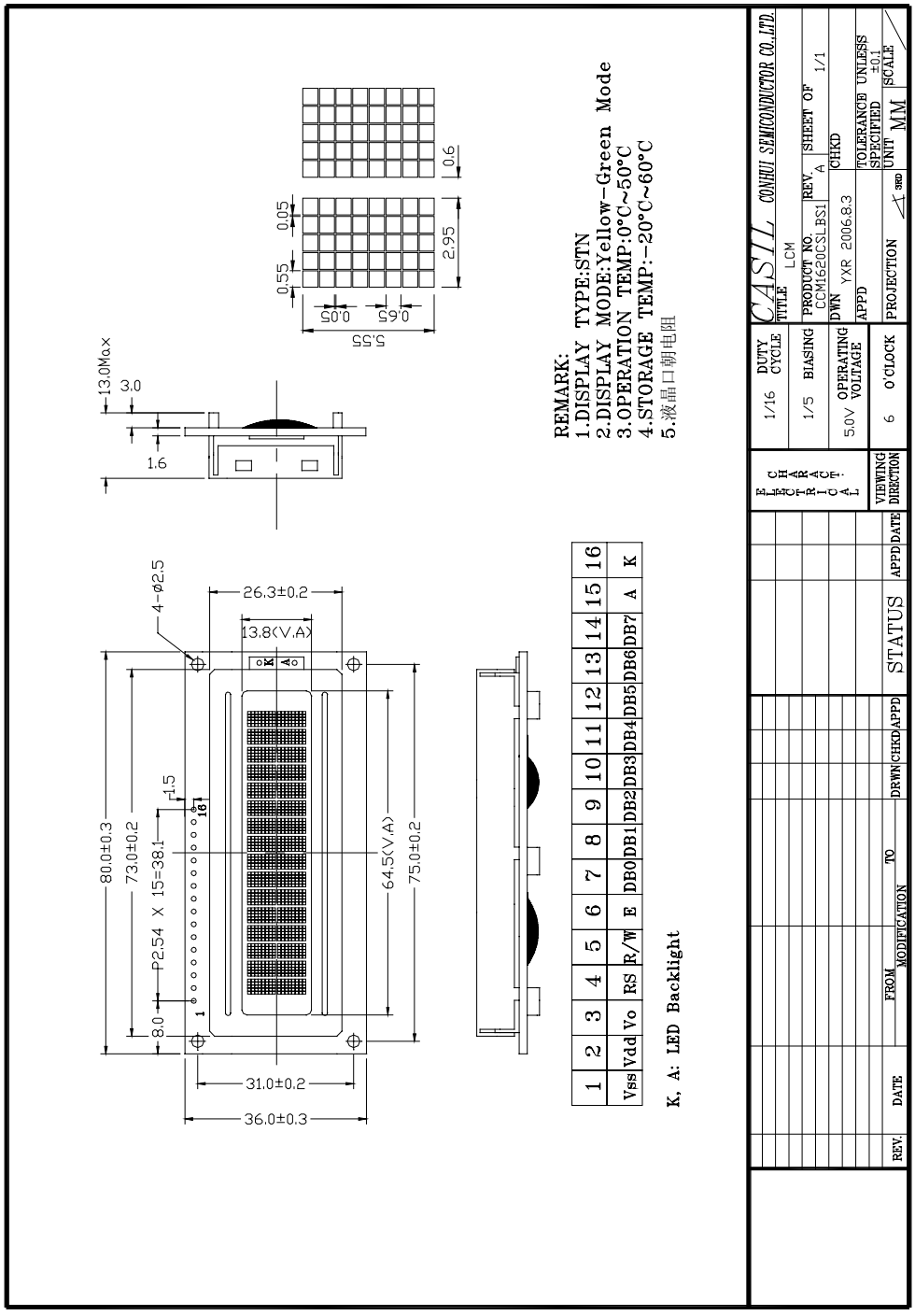
15、ASSEMBLY DIAGRAM



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