

Specification

For

LCD Module

CCM1641CSL

Prepared by: _____

Checked by: _____

Approved by: _____

CCM1641CSLS2 LCD MODULE

1、FEATURES

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

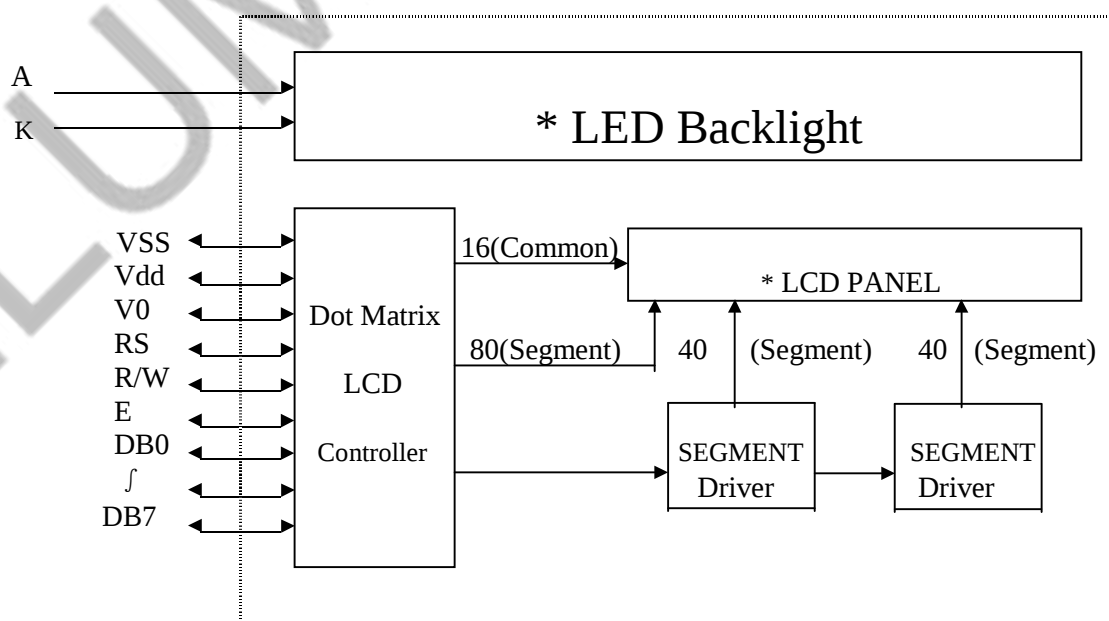
2、ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit
Power Supply for Logic	Vdd	-0.3	+7.0	V
Power Supply for LCD Drive	Vlcd	Vdd-15.0	Vdd+0.3	V
Input Voltage	Vi	-0.3	Vdd+0.3	V
Operating Temperature	Topr	0	+50	°C
Storage Temperature	TSgt	-10	+60	°C

3、MECHANICAL PARAMETERS

Item	Description	Unit
LCM Outline Dimension	87.5 (L) x 60.5(W) x13.5 (H)	Mm
Viewing Area	62.4(L) x 25.2(W)	Mm
Weight	About 58.0	G

4、SYSTEM BLOCK DIAGRAM



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

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating Voltage	Vdd	--	4.75	5.0	5.25	V
LCD Voltage	Vlcd	Vdd-Vo	--	5.0	--	V
Operating Current	Idd	Vdd=5.0v Fosc=270KHz	--	1.6	2.2	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

Characteristic	Symbol	Min.	Typ.	Max.	Conditions	Unit
Operating Voltage	Vdd	3.8	4.2	4.4	IF=210mA	V
Forward Current	IF	--	210	--	IF=210mA	MA
Reverse Voltage	VR	--	--	10	IF=210mA	V
Reverse Current	IR	--	--	100	VR=10V	μ A
Peak wave length	λ p	570	--	575	If=210mA	nm

7、PIN ASSIGNMENT

NO.	Symbol	Level	Function	
1	Vss	--	0V	POWER SUPPLY
2	Vdd	--	+5.0V	
3	Vo	--	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 ($V_{dd}=5.0V \pm 10\%$, $V_{ss}=0V$, $T_a=25^{\circ}C$)

(Write mode)

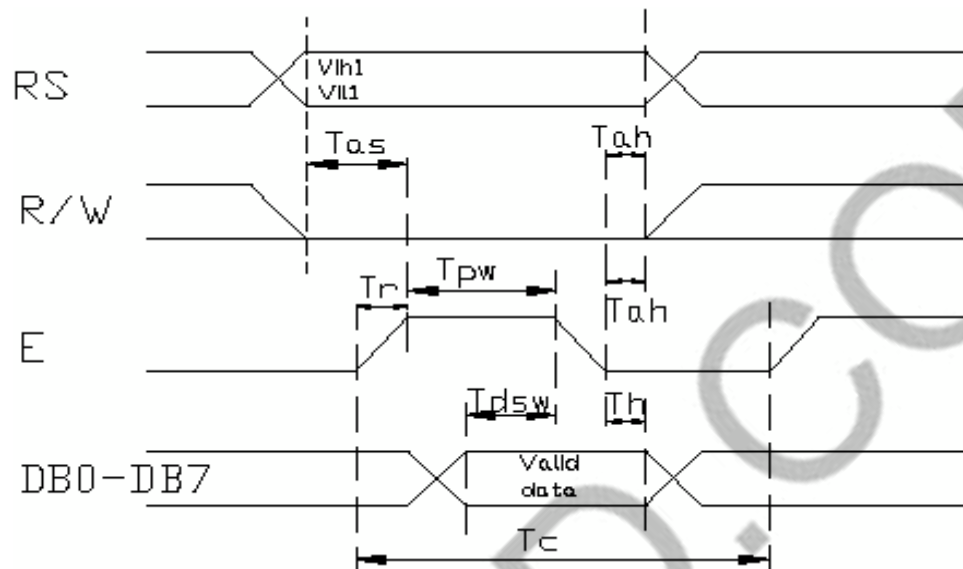
Characteristic	Symbol	Min.	Typ.	Max.	Unit
E Cycle Time	Tc	500	--	--	Ns
E Rise/Fall Time	Tr, Tf	--	--	25	Ns
E Pulse Width (High, Low)	Tow	220	--	--	Ns
R/W and RS Set-up Time	Tas	40	--	--	Ns
R/W and RS Hold Time	Tah	10	--	--	Ns
Data Set-up Time	Tdsw	60	--	--	Ns
Data Hold Time	Th	10	--	--	Ns

9、AC CHARACTERISTICS ($V_{dd}=5.0V \pm 10\%$, $V_{ss}=0V$, $T_a=25^{\circ}C$)

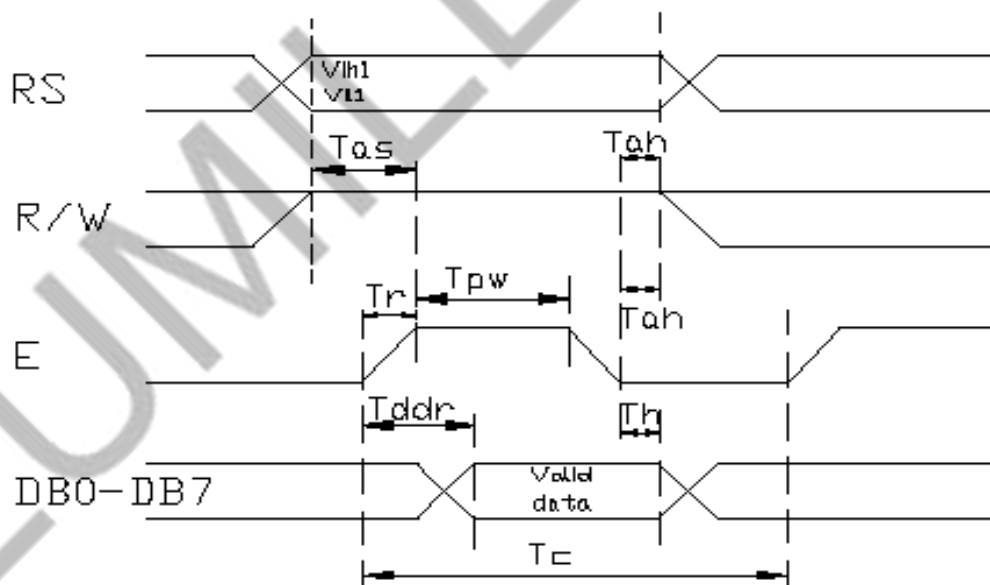
(Read mode)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
E Cycle Time	Tc	500	--	--	Ns
E Rise/Fall Time	Tr, Tf	--	--	25	Ns
E Pulse Width (High, Low)	Tpw	220	--	--	Ns
R/W and RS Set-up Time	Tas	40	--	--	Ns
R/W and RS Hold Time	Tah	10	--	--	Ns
Data Set-up Time	Tddr	--	--	120	Ns
Data Hold Time	Th	20	--	--	Ns

10、WRITE MODE TIMING DIAGRAM



11、 READ MODE TIMING DIAGRAM



12、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-Cursor move) R/L:(H-Right shift-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

13、FONT TABLE

NO.7066-0B

b7-b4 b3-b0		0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0000	CG RAM (1)	±		0	0	P	°	P	9	é	á		í	ñ	ß	£	
0001	(2)	≡	!	1	A	Q	á	9	Q	æ	í		í	í	í	í	í
0010	(3)	7	"	2	B	R	b	r	é	é	é	°	°	°	°	°	°
0011	(4)	△	#	3	C	S	c	s	á	á	á	°	°	°	°	°	°
0100	(5)	í	\$	4	D	T	d	t	á	á	á	°	°	°	°	°	°
0101	(6)	í	%	5	E	U	e	u	á	á	á	°	°	°	°	°	°
0110	(7)	í	&	6	F	V	f	v	á	á	á	°	°	°	°	°	°
0111	(8)	í	°	7	G	W	w	u	á	á	á	°	°	°	°	°	°
1000	(1)	í	(	8	H	X	h	x	á	á	á	°	°	°	°	°	°
1001	(2)	í	)	9	I	Y	y	á	á	á	°	°	°	°	°	°	°
1010	(3)	°	*	°	J	Z	z	á	á	á	°	°	°	°	°	°	°
1011	(4)	í	+	°	K	E	k	á	á	á	°	°	°	°	°	°	°
1100	(5)	=	*	<	L	\	l	í	í	í	°	°	°	°	°	°	°
1101	(6)	°	-	=	M	I	m	í	í	í	°	°	°	°	°	°	°
1110	(7)	°	.	>	N	^	n	°	á	á	á	°	°	°	°	°	°
1111	(8)	°	/	°	O	_	o	á	á	á	°	°	°	°	°	°	°

14、 ASSEMBLY DIAGRAM

