

Specification

DM 4405ECO-SRE
Doc. No.: CCM4040CSS1

Version May 2008

CCM4040CSS1 LCD MODULE

1、FEATURES

- LCD Type: STN
- Display Mode: YELLOW-GREEN
- Display Format: 4 Lines x 40 Characters
- Input Data: 4-Bits or 8-Bits Interface Available
- Display Font: 5 x 8 Dots
- Power Supply: Single Power Supply (5.0V±5%)
- Driving Method: 1/16Duty, 1/5Bias
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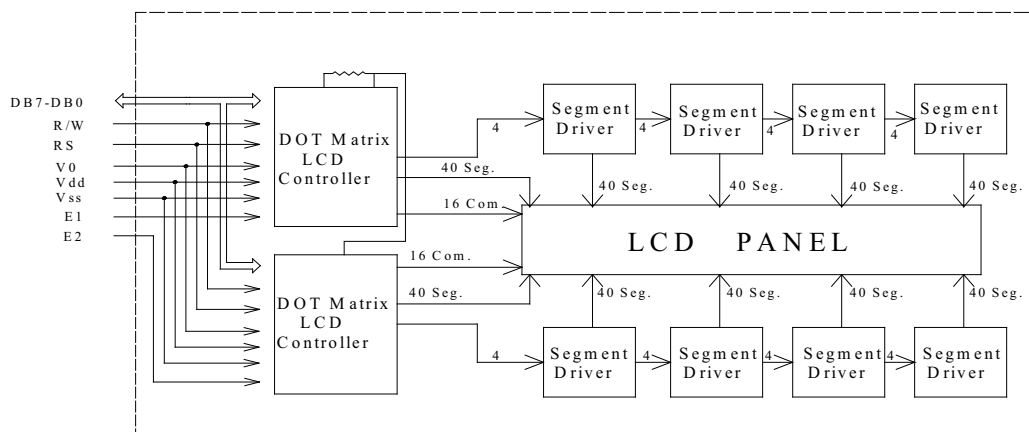
2、ABSOLUTE MAXIMUM RATINGS

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	Tstg	-20	+60	°C

3、MECHANICAL PARAMETERS

Item	Description	Unit
LCM Outline Dimension	190.0(L) x 54.0(W) x 9.0(H)	mm
Viewing Dimension	147.0(L) x 29.5(W)	mm
Weight	About95	g

4、SYSTEM BLOCK DIAGRAM



5、 DC CHARACTERISTICS (Ta=25°C; Vdd=5.0V ± 10%, Vss=0V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating Voltage	Vdd	--	4.5	5.0	5.5	V
LCD Voltage	Vlcd	Vdd-Vo	--	5.0	--	V
Operating Current	Idd	Vdd=5.0v Fosc=270KHz	0.7	1.4	2.7	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、PIN ASSIGNMENT

NO.	Symbol	Level	Function	
1	DB7	H/L	Data bus for both 4 and 8 bit transfer	
2	DB6	H/L		
3	DB5	H/L		
4	DB4	H/L		
5	DB3	H/L	Data bus used in 8 bit transfer	
6	DB2	H/L		
7	DB1	H/L		
8	DB0	H/L		
9	E1	H, H/L	Start enable signal to read or write the data	
10	R/W	H/L	H--Read	L—Write
11	RS	H/L	Register Select	H: Data register L: Instruction register
12	Vee	--	FOR LCD	POWER SUPPLY
13	Vss	--	0V	
14	Vdd	--	+5.0V	
15	E2	H, H/L	Start enable signal to read or write the data	
16	NC	--	NC	
17	NC	--	NC	
18	NC	--	NC	

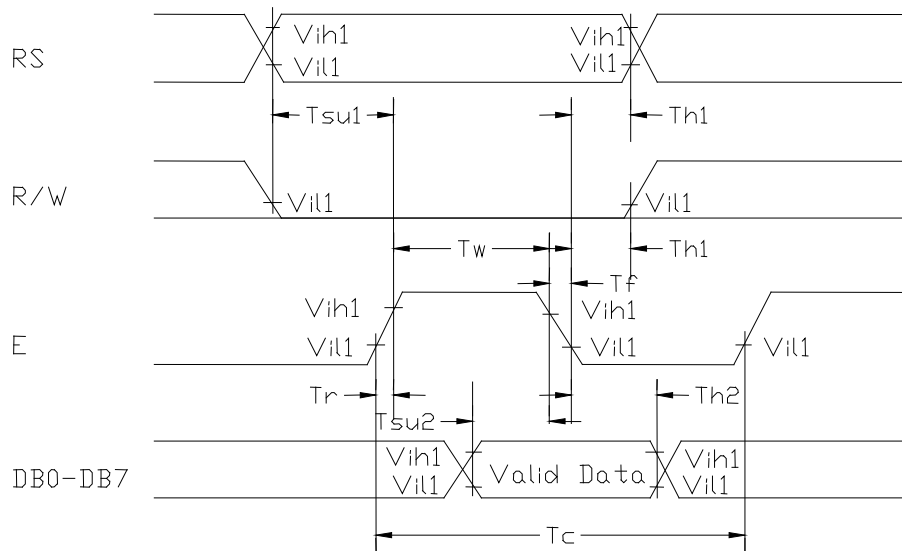
7、AC CHARACTERISTICS (Vdd=5.0V ± 10%, Vss=0V, Ta=25°C) (Write mode)

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)	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	Tdsw	60	--	--	ns
Data Hold Time	Th	10	--	--	ns

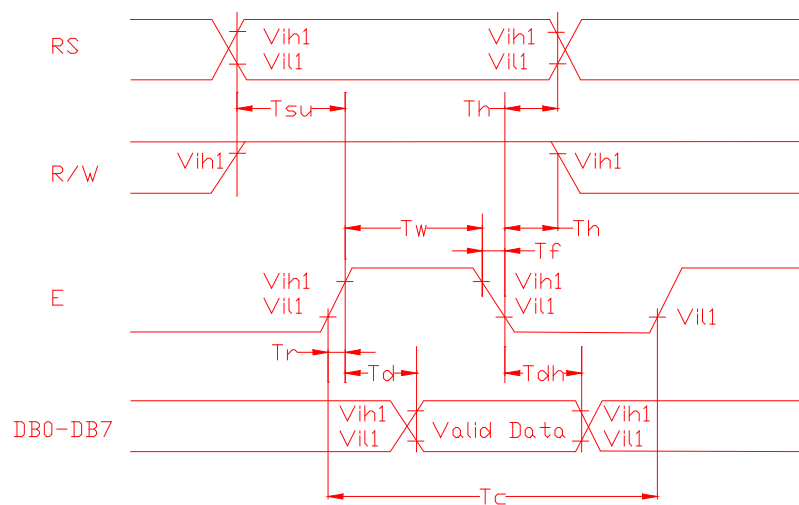
8、AC CHARACTERISTICS (Vdd=5.0V ± 10%, Vss=0V, Ta=25°C) (Read mode)

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

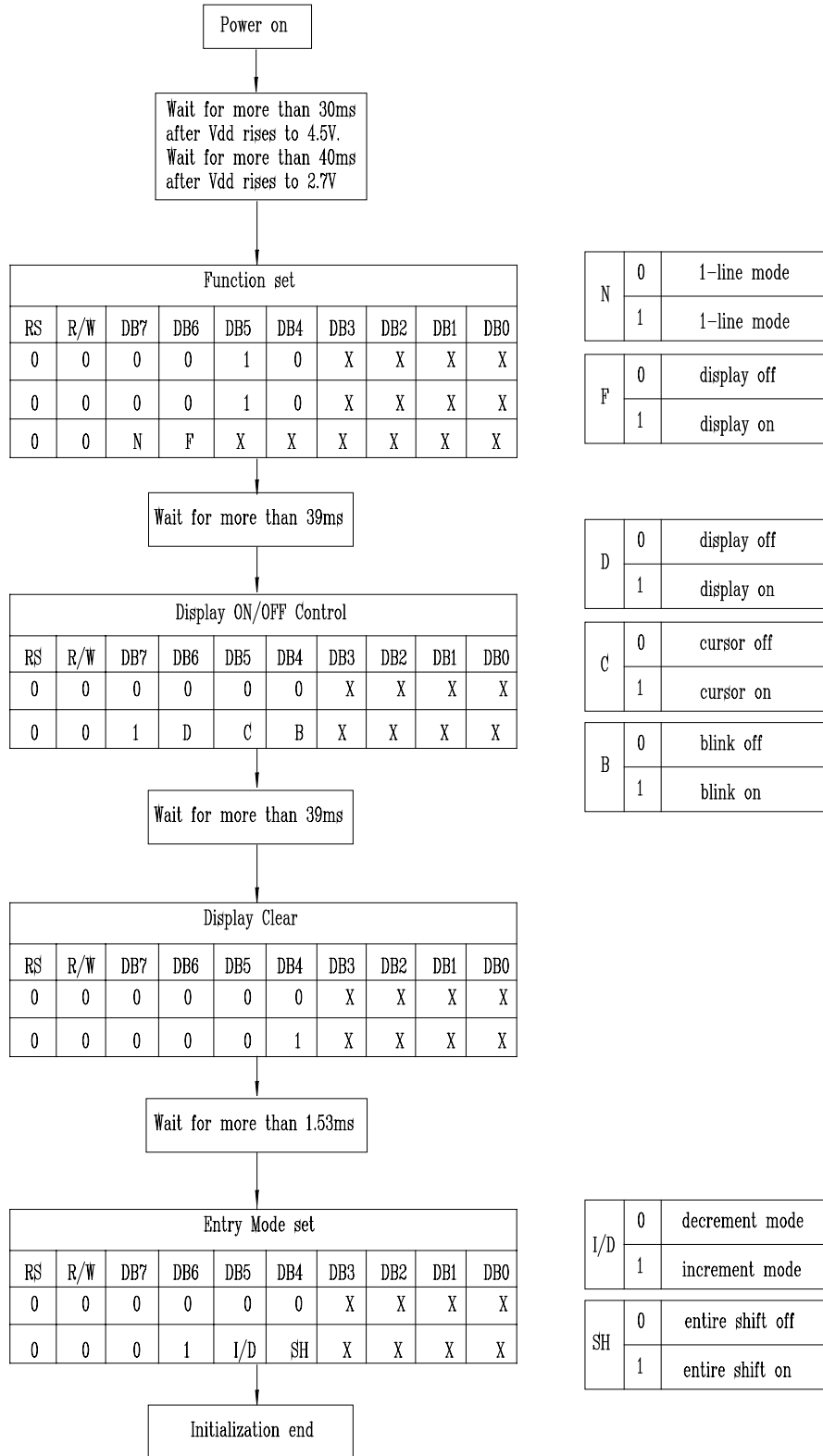
9、WRITE MODE TIMING DIAGRAM



10、READ MODE TIMING DIAGRAM



11、 4-bit interface mode (Condition: Fosc=270KHZ)



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	L	H	X	Cursor move to first digit
Entry Mode Set	L	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		

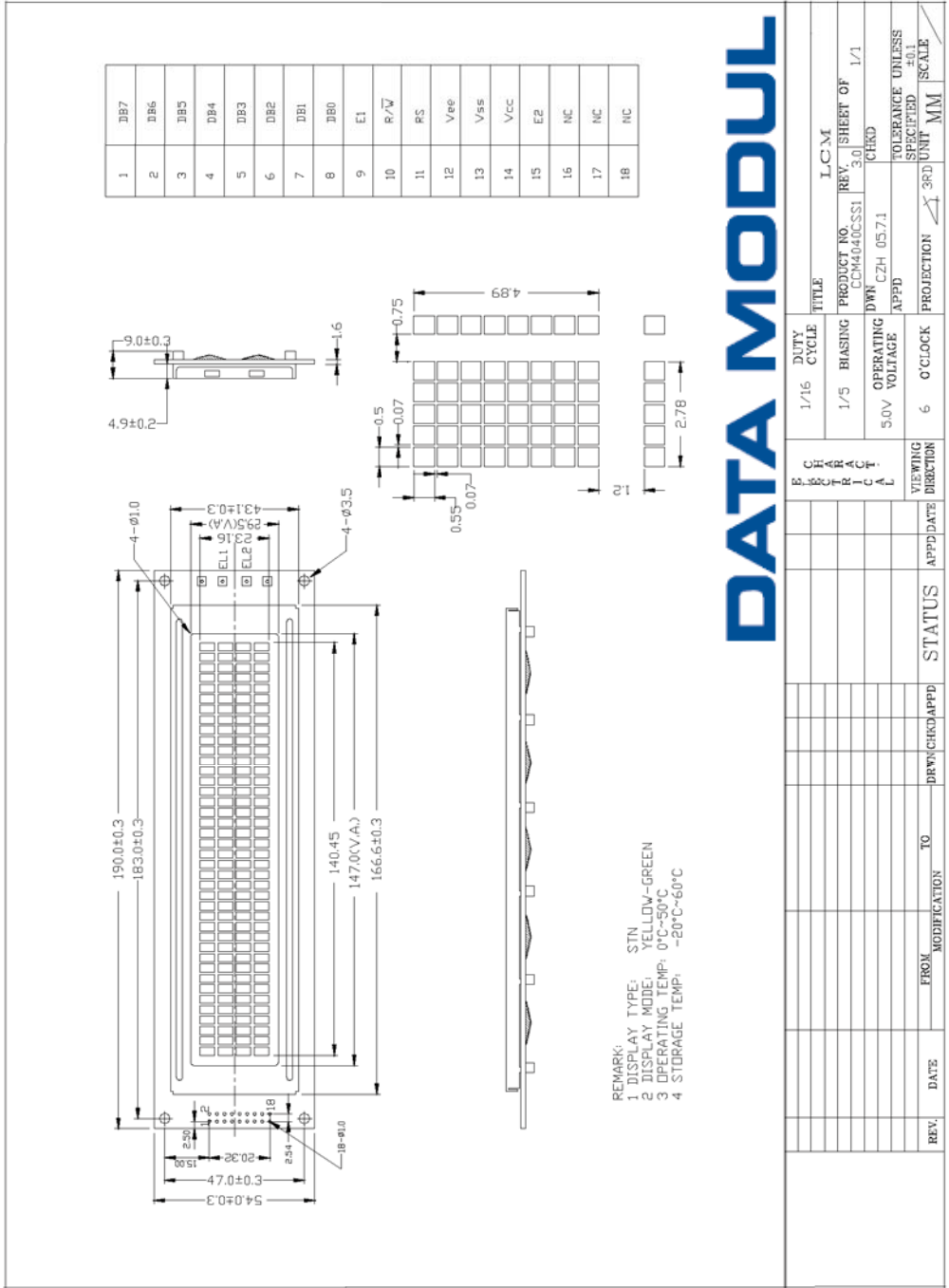
"X": Don't Care

13、FONT TABLE

NO.7066-0A

b_7-b_4 b_3-b_0	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0000	CG RAM (1)			0	@	P	\	F				-	9	3	0	P
0001	(2)		!	1	A	Q	a	9			6	7	7	4	3	q
0010	(3)		"	2	B	R	b	r			「	イ	ウ	×	β	θ
0011	(4)		#	3	C	S	c	s			」	ウ	フ	E	ε	∞
0100	(5)		\$	4	D	T	d	t			√	I	ト	ト	μ	Ω
0101	(6)		%	5	E	U	e	u			•	才	才	1	0	0
0110	(7)		&	6	F	V	f	v			ヲ	カ	ニ	ヨ	ρ	Σ
0111	(8)		'	7	G	W	g	w			フ	キ	又	ウ	g	π
1000	(1)		<	8	H	X	h	x			イ	ウ	※	リ	フ	Σ
1001	(2)		>	9	I	Y	i	y			6	7	7	6	'	y
1010	(3)		*	:	J	Z	j	z			エ	コ	0	レ	j	7
1011	(4)		+	:	K	L	k	l			*	ウ	E	0	*	π
1100	(5)		,	<	L	¥	l	l			レ	ヨ	フ	フ	φ	π
1101	(6)		-	=	M	I	m	y			ユ	ズ	△	△	△	÷
1110	(7)		.	>	N	^	n	→			ヨ	E	※	△	π	
1111	(8)		/	?	O	_	o	←			ウ	ウ	マ	"	0	■

14、 ASSEMBLY DIAGRAM



DATA MODUL

REV.	DATE	FROM	TO	DRWN	CHKD	APPD	STATUS	APPD	DATE	VIEWING DIRECTION	6	O'CLOCK	PROJECTION	3RD	UNIT	MM	SCALE	
											1/16	DUTY CYCLE	TITLE					
											1/5	BIASING	LCM					
											5.0V	OPERATING VOLTAGE	PRODUCT NO. / REV. SHEET OF					
											APPD	APPD	CCM4040CSS1 / 3.0					
													CZH 05.7.1 / 1/1					
													CHRD					
													TOLERANCE UNLESS SPECIFIED					



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