



MULTI-INNO TECHNOLOGY CO., LTD.

LCD MODULE SPECIFICATION

Model : MI12864B-G

Revision	1.0
Engineering	
Date	
Our Reference	



MODE OF DISPLAY

Display mode

- STN : Yellow green
- Grey
- Blue (negative)
- FSTN positive
- FSTN negative

Display condition

- Reflective type
- Transflective type
- Transmissive type
- Others

Viewing direction

- 6 O' clock
- 12 O' clock
- 3 O' clock
- 9 O' clock

**GENERAL DESCRIPTION**

Display mode : 128 x 64 Dots, Graphic COG LCD module
 Interface : Serial
 Driving method : 1/65 duty, 1/9 bias
 Controller IC : Sitronix **ST7565P-G** or equivalent
 For the detailed information, please refer to the IC specifications.

MECHANICAL DIMENSIONS

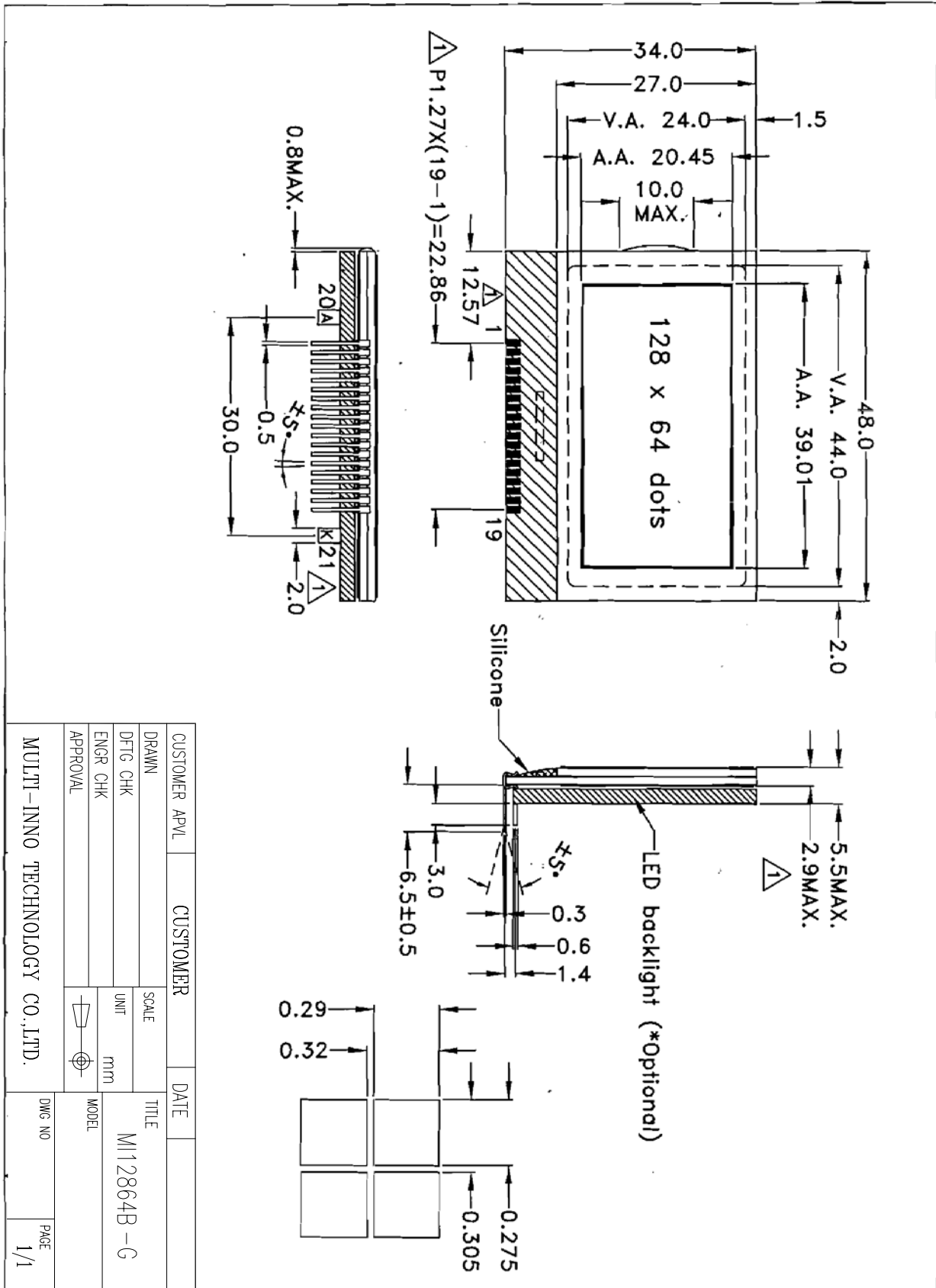
Item	Dimension	Unit	Item	Dimension	Unit
Outline Dimension (LED backlight)	48.0(L) x 34.0(W) x 5.5MAX.(H)	mm	Dot Pitch	0.305(L)x0.32(W)	mm
Outline Dimension (No backlight)	48.0(L) x 34.0(W) x 2.9MAX.(H)	mm	Dot Size	0.275(L)x0.29(W)	mm
Viewing Area	44.0(L)x24.0(W)	mm			

CONNECTOR PIN ASSIGNMENT

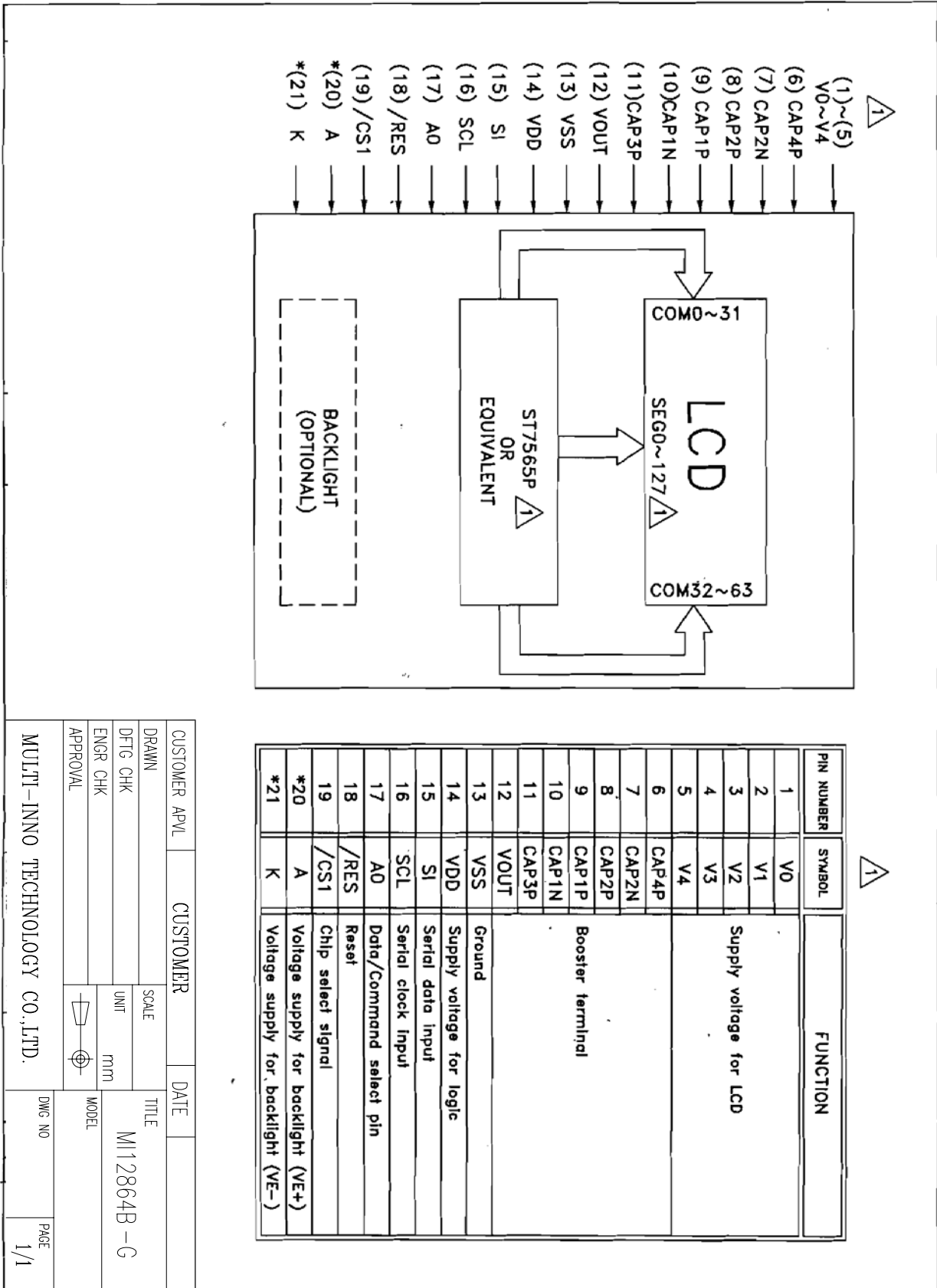
Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	V0	Supply voltage for LCD	12	VOUT	Booster terminal
2	V1		13	VSS	Ground
3	V2		14	VDD	Supply voltage for logic
4	V3		15	SI	Serial data input
5	V4		16	SCL	Serial clock input
6	CAP4P	Booster terminal	17	A0	Data / Command select pin
7	CAP2N		18	/RES	Reset
8	CAP2P		19	/CS1	Chip select signal
9	CAP1P		20*	A	Voltage supply for backlight(VE+)
10	CAP1N		21*	K	Voltage supply for backlight(VE-)
11	CAP3P				

Note (*): Pin 20,21 are used for backlight versions only.

COUNTER DRAWING OF MODUAL DIMENSION



COUNTER DRAWING OF PIN OUT & BLOCK DIAGRAM



PIN NUMBER	SYMBOL	FUNCTION
1	V0	Supply voltage for LCD
2	V1	
3	V2	
4	V3	
5	V4	Booster terminal
6	CAP4P	
7	CAP2N	
8	CAP2P	
9	CAP1P	Ground
10	CAP1N	
11	CAP3P	
12	VOUT	Supply voltage for logic
13	VSS	
14	VDD	Serial data input
15	SI	
16	SCL	Data/Command select pin
17	A0	
18	/RES	Reset
19	/CS1	Chip select signal
*20	A	Voltage supply for backlight (VE+)
*21	K	Voltage supply for backlight (VE-)

CUSTOMER APVL	CUSTOMER	DATE	TITLE
DRAWN	SCALE		MI12864B-G
DFTG CHK	UNIT	mm	
ENGR CHK			
APPROVAL			MODEL
MULTI-INNO TECHNOLOGY CO.,LTD.			DWG NO
			PAGE
			1/1

COUNTER DRAWING OF PIN OUT & BLOCK DIAGRAM

1.General specification Display mode : 128 x 64 dots, Graphic COG LCD module Interface : Serial Driving method : 1/65 duty , 1/9bias			
2.Electrical specification Supply voltage for logic(VDD) : 3.0V Δ Input voltage for LCD (Vlcd) : 12.0V (Generated by build-in booster)			
3.Backlight specification Backlight type : Side-lited LED Backlight voltage : 3.3V@45mA Δ Backlight color : White/Blue/Yellow green Δ			
4.Mechanical specification Viewing area[mm] : 44.0(L)x24.0(W) Module dimension[mm] : 48.0(L)x34.0(W)x2.9MAX./5.5MAX.(H) Δ			
CUSTOMER APVL	CUSTOMER	DATE	
DRAWN	SCALE	TITLE	
DFTG CHK	UNIT	MI12864B-G	
ENGR CHK	mm		
APPROVAL	MODEL		
MULTI-INNO TECHNOLOGY CO.,LTD.		DWG NO	PAGE
			1/1

**ELECTRICAL CHARACTERISTICS**

Conditions: VSS=0V, @Ta=25°C

Item	Symbol	MIN.	TYP.	MAX.	Unit	Item	Symbol	MIN.	TYP.	MAX.	Unit
Supply Voltage for logic	VDD	2.9	3.0	3.1	V	“H”Level Input Voltage	VIH	0.8VDD	—	VDD	V
Supply Current for logic	IDD	—	700	900	μA	“L”Level Input Voltage	VIL	VSS	—	0.2VDD	V
Operating Voltage for LCD(*)	VLCD	11.8	12.0	12.2	V	—	—	—	—	—	—
EL Backlight Voltage (VEL)						Backlight Current					
EL (@ Frequency 400Hz)	—	—	—	—	—	—	—	—	—	—	—
Side-lited LED Backlight Forward Voltage (VF)						Side-lited LED Backlight Forward Current (IF)					
White	VBL	—	3.3	—	V	White	IBL	—	45	—	mA
Blue	VBL	—	3.3	—	V	Blue	IBL	—	45	—	mA
Green	VBL	—	3.3	—	V	Yellow Green	IBL	—	45	—	mA

Note : (*) Please refer to REFERENCE CIRCUIT EXAMPLE (5X Boosting Circuit).

ABSOLUTE MAXIMUM RATINGS

Please make sure not to exceed the following maximum rating values under the worst application conditions.

Item	Symbol	Rating (for normal temperature)	Rating (for wide temperature)	Unit
Supply Voltage	VDD	0.3 to 3.6	0.3 to 3.6	V
Operating Temperature	Topr	0 to 50	-20 to 70	°C
Storage Temperature	Tstg	-10 to 60	-30 to 80	°C



INSTRUCTIONS

Table 16: Table of ST7565P Commands

(Note) *: disabled data

Command	Command Code									Function				
	A0	/RD	/WR	D7	D6	D5	D4	D3	D2		D1	D0		
(1) Display ON/OFF	0	1	0	1	0	1	0	1	1	1	0	1		
(2) Display start line set	0	1	0	0	1	Display start address						Sets the display RAM display start line address		
(3) Page address set	0	1	0	1	0	1	1	Page address				Sets the display RAM page address		
(4) Column address set upper bit	0	1	0	0	0	0	1	Most significant column address				Sets the most significant 4 bits of the display RAM column address. Sets the least significant 4 bits of the display RAM column address.		
Column address set lower bit	0	1	0	0	0	0	0	Least significant column address						
(5) Status read	0	0	1	Status				0	0	0	0	0	Reads the status data	
(6) Display data write	1	1	0	Write data								Writes to the display RAM		
(7) Display data read	1	0	1	Read data								Reads from the display RAM		
(8) ADC select	0	1	0	1	0	1	0	0	0	0	0	0	1	Sets the display RAM address SEG output correspondence 0: normal, 1: reverse
(9) Display normal/reverse	0	1	0	1	0	1	0	0	1	1	0	0	1	Sets the LCD display normal/reverse 0: normal, 1: reverse
(10) Display all points ON/OFF	0	1	0	1	0	1	0	0	1	0	0	0	1	Display all points 0: normal display 1: all points ON
(11) LCD bias set	0	1	0	1	0	1	0	0	0	0	1	0	1	Sets the LCD drive voltage bias ratio 0: 1/9 bias, 1: 1/7 bias (ST7565P)
(12) Read/modify/write	0	1	0	1	1	1	0	0	0	0	0	0	0	Column address increment At write: +1 At read: 0
(13) End	0	1	0	1	1	1	0	1	1	1	0			Clear read/modify/write
(14) Reset	0	1	0	1	1	1	0	0	0	0	1	0		Internal reset
(15) Common output mode select	0	1	0	1	1	0	0	0	0	*	*	*		Select COM output scan direction 0: normal direction 1: reverse direction
(16) Power control set	0	1	0	0	0	1	0	1	Operating mode			Select internal power supply operating mode		
(17) Vo voltage regulator internal resistor ratio set	0	1	0	0	0	1	0	0	Resistor ratio			Select internal resistor ratio(Rb/Ra) mode		
(18) Electronic volume mode set	0	1	0	1	0	0	0	0	0	0	0	0	1	Set the Vo output voltage electronic volume register
Electronic volume register set				0	0	Electronic volume value								
(19) Static indicator ON/OFF	0	1	0	1	0	1	0	1	1	0	0	0	1	0: OFF, 1: ON
Static indicator register set				0	0	0	0	0	0	0	0	0	0	0
(20) Booster ratio set	0	1	0	1	1	1	1	1	0	0	0	0	0	select booster ratio 00: 2x,3x,4x 01: 5x 11: 6x
(21) Power saver														Display OFF and display all points ON compound command
(22) NOP	0	1	0	1	1	1	0	0	0	0	1	1		Command for non-operation
(23) Test	0	1	0	1	1	1	1	*	*	*	*	*		Command for IC test. Do not use this command

Display Data RAM

The display data RAM stores the dot data for the LCD. It has a 65 (8 page x 8 bit +1) x 132 bit structure.

As is shown in Figure 3, the D7 to D0 display data from the MPU corresponds to the LCD display common direction; there are few constraints at the time of display data transfer when multiple ST7565P are used, thus and display structures can be created easily and with a high degree of

freedom.

Moreover, reading from and writing to the display RAM from the MPU side is performed through the I/O buffer, which is an independent operation from signal reading for the liquid crystal driver. Consequently, even if the display data RAM is accessed asynchronously during liquid crystal display, it will not cause adverse effects on the display (such as flickering).

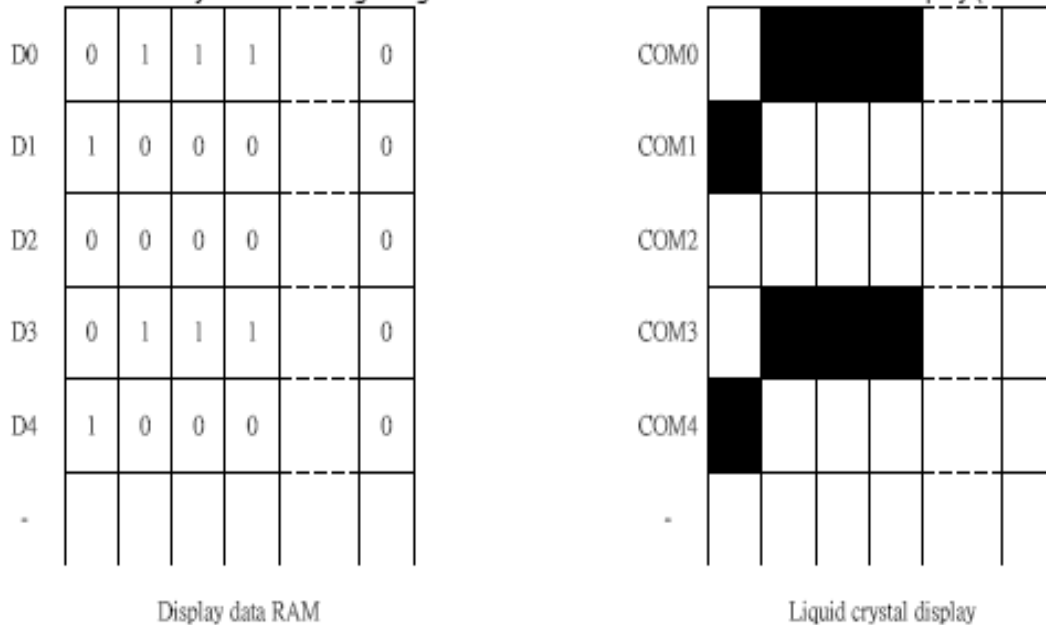


Figure 3

The Page Address Circuit

Page address of the display data RAM is specified through the Page Address Set Command. The page address must be specified again when changing pages to perform access.

Page address 8 (D3, D2, D1, D0 = 1, 0, 0, 0) is a special RAM for icons, and only display data D0 is used. (see Figure 4)

The Column Addresses

The display data RAM column address is specified by the Column Address Set command. The specified column address is incremented (+1) with each display data read/write command. This allows the MPU display data to be accessed continuously. Moreover, the incrementing of column addresses stops with 83H. Because the column address is independent of the page address, when moving, for example, from page 0 column 83H to page 1 column 00H,

it is necessary to respective both the page address and the column address.

Furthermore, as is shown in Table 4, the ADC command (segment driver direction select command) can be used to reverse the relationship between the display data RAM column address and the segment output. Because of this, the constraints on the IC layout when the LCD module is assembled can be minimized. As is shown in Figure 4,

Table 4

SEG Output ADC	SEG0	SEG 131
(D0) "0"	0 (H) → Column Address	→ 83 (H)
(D0) "1"	83 (H) ← Column Address	← 0 (H)

The Line Address Circuit

The line address circuit, as shown in Table 4, specifies the line address relating to the COM output when the contents of the display data RAM are displayed. Using the display start line address set command, what is normally the top line of the display can be specified (this is the COM0 output when the common output mode is normal, and the COM63 output

for ST7565P, the detail is shown page.11 The display area is a 65 line area for the ST7565P.

If the line addresses are changed dynamically using the display start line address set command, screen scrolling, page swapping, etc. can be performed.



Page Address				Data		Line Address	COM Output
D3	D2	D1	D0				
0	0	0	0	D0	Page 0	00H	COM0
				D1		01H	COM1
				D2		02H	COM2
				D3		03H	COM3
				D4		04H	COM4
				D5		05H	COM5
				D6		06H	COM6
				D7		07H	COM7
0	0	0	1	D0	Page 1	08H	COM8
				D1		09H	COM9
				D2		0AH	COM10
				D3		0BH	COM11
				D4		0CH	COM12
				D5		0DH	COM13
				D6		0EH	COM14
				D7		0FH	COM15
0	0	1	0	D0	Page 2	10H	COM16
				D1		11H	COM17
				D2		12H	COM18
				D3		13H	COM19
				D4		14H	COM20
				D5		15H	COM21
				D6		16H	COM22
				D7		17H	COM23
0	0	1	1	D0	Page 3	18H	COM24
				D1		19H	COM25
				D2		1AH	COM26
				D3		1BH	COM27
				D4		1CH	COM28
				D5		1DH	COM29
				D6		1EH	COM30
				D7		1FH	COM31
0	1	0	0	D0	Page 4	20H	COM32
				D1		21H	COM33
				D2		22H	COM34
				D3		23H	COM35
				D4		24H	COM36
				D5		25H	COM37
				D6		26H	COM38
				D7		27H	COM39
0	1	0	1	D0	Page 5	28H	COM40
				D1		29H	COM41
				D2		2AH	COM42
				D3		2BH	COM43
				D4		2CH	COM44
				D5		2DH	COM45
				D6		2EH	COM46
				D7		2FH	COM47
0	1	1	0	D0	Page 6	30H	COM48
				D1		31H	COM49
				D2		32H	COM50
				D3		33H	COM51
				D4		34H	COM52
				D5		35H	COM53
				D6		36H	COM54
				D7		37H	COM55
0	1	1	1	D0	Page 7	38H	COM56
				D1		39H	COM57
				D2		3AH	COM58
				D3		3BH	COM59
				D4		3CH	COM60
				D5		3DH	COM61
				D6		3EH	COM62
				D7		3FH	COM63
1	0	0	0	D0	Page 8		COMS

S0	S1	S2	S3	S4	S5	S6	S7	S8	S123	S124	S125	S126	S127	S128	S129	S130	S131
00	01	02	03	04	05	06	07	08	7B	7C	7D	7E	7F	80	81	82	83

1	0	ADC
LCD	D0	D0
Out	D0	D0

Column address

Regardless of the display start line address,
 1/65duty => 64th line,
 1/48duty => 48th line.
 1/33duty => 32th line,
 1/55duty => 54th line,
 1/53duty => 52th line.

TIMING CHARACTERISTICS

System Bus Read/Write Characteristics 1 (For the 8080 Series MPU)

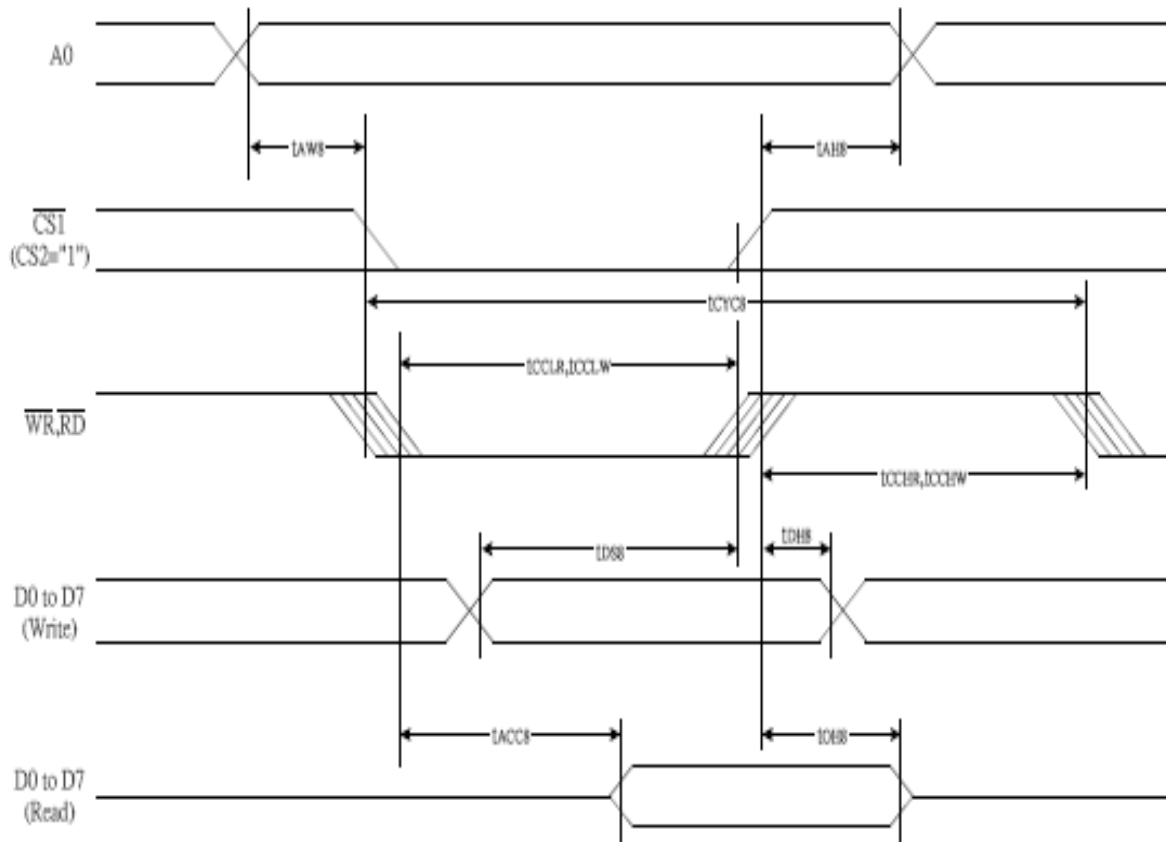


Figure 37

Table 24

 (V_{DD} = 3.3V, T_a = -30 to 85°C)

Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Address hold time	A0	t _{AH8}		0	—	Ns
Address setup time		t _{AW8}		0	—	
System cycle time		t _{CYCB}		240	—	
Enable L pulse width (WRITE)	WR	t _{CCLW}		80	—	
Enable H pulse width (WRITE)		t _{CCHW}		80	—	
Enable L pulse width (READ)	RD	t _{CCLR}		140	—	
Enable H pulse width (READ)		t _{CCHR}		80	—	
WRITE Data setup time	D0 to D7	t _{DS8}		40	—	
WRITE Address hold time		t _{DH8}		0	—	
READ access time		t _{ACC8}	CL = 100 pF	—	70	
READ Output disable time		t _{OH8}	CL = 100 pF	5	50	

Table 25

 (V_{DD} = 2.7V, T_a = -30 to 85°C)

Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Address hold time	A0	t _{AH8}		0	—	ns
Address setup time		t _{AW8}		0	—	
System cycle time		t _{CYC8}		400	—	
Enable L pulse width (WRITE)	WR	t _{CCLW}		220	—	
Enable H pulse width (WRITE)		t _{CCHW}		180	—	
Enable L pulse width (READ)	RD	t _{CCLR}		220	—	
Enable H pulse width (READ)		t _{CCHR}		180	—	
WRITE Data setup time	D0 to D7	t _{DS8}		40	—	
WRITE Address hold time		t _{DH8}		0	—	
READ access time		t _{ACC8}	CL = 100 pF	—	140	
READ Output disable time		t _{OH8}	CL = 100 pF	10	100	

Table 26

 (V_{DD} = 1.8V, T_a = -30 to 85°C)

Item	Signal	Symbol	Condition	Rating		Units
				Min.	Max.	
Address hold time	A0	t _{AH8}		0	—	ns
Address setup time		t _{AW8}		0	—	
System cycle time		t _{CYC8}		640	—	
Enable L pulse width (WRITE)	WR	t _{CCLW}		360	—	
Enable H pulse width (WRITE)		t _{CCHW}		280	—	
Enable L pulse width (READ)	RD	t _{CCLR}		360	—	
Enable H pulse width (READ)		t _{CCHR}		280	—	
WRITE Data setup time	D0 to D7	t _{DS8}		80	—	
WRITE Address hold time		t _{DH8}		0	—	
READ access time		t _{ACC8}	CL = 100 pF	—	240	
READ Output disable time		t _{OH8}	CL = 100 pF	10	200	

*1 The input signal rise time and fall time (t_r, t_f) is specified at 15 ns or less. When the system cycle time is extremely fast, (t_r + t_f) ≤ (t_{CYC8} - t_{CCLW} - t_{CCHW}) for (t_r + t_f) ≤ (t_{CYC8} - t_{CCLR} - t_{CCHR}) are specified.

*2 All timing is specified using 20% and 80% of V_{DD} as the reference.

*3 t_{CCLW} and t_{CCLR} are specified as the overlap between /CS1 being "L" (CS2 = "H") and /WR and /RD being at the "L" level.

Reset Timing

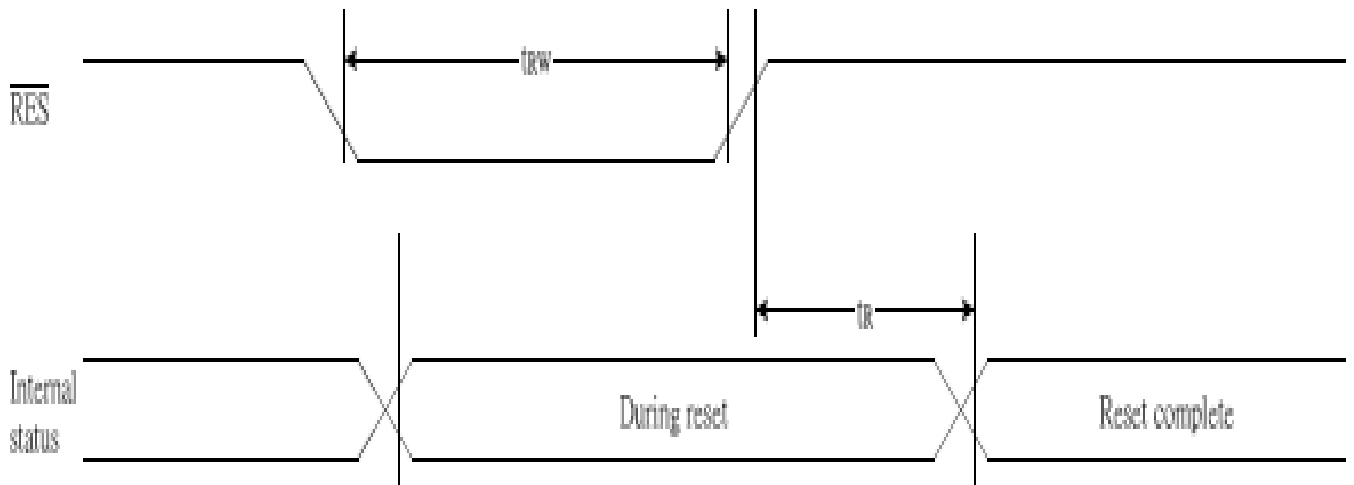


Figure 41

Table 36

 ($V_{DD} = 3.3V$, $T_a = -30$ to $85^\circ C$)

Item	Signal	Symbol	Condition	Rating			Units
				Min.	Typ.	Max.	
Reset time		t_r		—	—	1.0	us
Reset "L" pulse width	\overline{RES}	t_{rw}		1.0	—	—	us

Table 37

 ($V_{DD} = 2.7V$, $T_a = -30$ to $85^\circ C$)

Item	Signal	Symbol	Condition	Rating			Units
				Min.	Typ.	Max.	
Reset time		t_r		—	—	2.0	us
Reset "L" pulse width	\overline{RES}	t_{rw}		2.0	—	—	us

Table 38

 ($V_{DD} = 1.8V$, $T_a = -30$ to $85^\circ C$)

Item	Signal	Symbol	Condition	Rating			Units
				Min.	Typ.	Max.	
Reset time		t_r		—	—	3.0	us
Reset "L" pulse width	\overline{RES}	t_{rw}		3.0	—	—	us

*1 All timing is specified with 20% and 80% of V_{DD} as the standard.

**ELECTRO-OPTICAL CHARACTERISTICS**

MEASURING CONDITION: POWER SUPPLY = $V_{OP} / 64 \text{ Hz}$
 TEMPERATURE = $23 \pm 5 \text{ }^\circ\text{C}$
 RELATIVE HUMIDITY = $60 \pm 20 \%$

ITEM	SYMBOL	UNIT	TYP. STN
RESPONSE TIME	Ton	ms	220
	Toff	ms	280
CONTRAST RATIO	Cr	-	12
VIEWING ANGLE (Cr \geq 2)	V3:00	$^\circ$	40
	V6:00	$^\circ$	70
	V9:00	$^\circ$	40
	V12:00	$^\circ$	50

THE ELECTRO-OPTICAL CHARACTERISTICS ARE MEASURED VALUE BUT NOT GUARANTEED ONES.

RELIABILITY OF LCD MODULE

ITEM	TEST CONDITION FOR NORMAL TEMPERATURE	TEST CONDITION FOR WIDE TEMPERATURE	TIME
High temperature operating	50 $^\circ\text{C}$	70 $^\circ\text{C}$	240 hours
Low temperature operating	0 $^\circ\text{C}$	-20 $^\circ\text{C}$	240 hours
High temperature storage	60 $^\circ\text{C}$	80 $^\circ\text{C}$	240 hours
Low temperature storage	-10 $^\circ\text{C}$	-30 $^\circ\text{C}$	240 hours
Temperature-humidity storage	40 $^\circ\text{C}$ 90% R.H.	60 $^\circ\text{C}$ 90% R.H.	96 hours
Temperature cycling	-10 $^\circ\text{C}$ to 60 $^\circ\text{C}$ 30 Min Dwell	-30 $^\circ\text{C}$ to 80 $^\circ\text{C}$ 30 Min Dwell	5 cycle
Vibration Test at LCM Level	Freq 10-55 Hz Sweep rate: 10-55-10 at 1 min Sweep mode Linear Displacement: 2 mm p-p 1 Hour each for X, Y, Z	Freq 10-55 Hz Sweep rate: 10-55-10 at 1 min Sweep mode Linear Displacement: 2 mm p-p 1 Hour each for X, Y, Z	—

SAMPLING METHOD

SAMPLING PLAN: MIL-STD 105E

 CLASS OF AQL: LEVEL II/ SINGLE SAMPLING
 MAJOR-0.65% MINOR – 1.5%

QUALITY STANDARD

DEFECT	CRITERIA	TYPE	FIGURE
SHORT CIRCUIT	-	MAJOR	-
MISSING SEGMENT	-	MAJOR	-
UNEVEN / POOR CONTRAST	-	MAJOR	-
CROSS TALK	-	MAJOR	-
PIN HOLE	$\text{MAX}(a,b) \leq 1/4 W$	MINOR	1
EXCESS SEGMENT	$\text{MAX}(c,d) \leq 1/4 T$	MINOR	1
BUBBLES	$d^* \leq 0.2$ QTY=2	MINOR	2
BLACKS SPOTS	$d \leq 0.2$ N.A.** $0.2 < d \leq 0.3$ QTY ≤ 1 $d > 0.3$ QTY=0	MINOR	2
LINE SCRATCHES	$x \leq 0.5$ $y \leq 0.05$ QTY=1	MINOR	3
BLACK LINE	$x \leq 0.5$ $y \leq 0.05$ QTY=1	MINOR	3

 *d = MAX (d₁,d₂)

** N. A . = NOT APPLICABLE

DEFECT TABLE : B

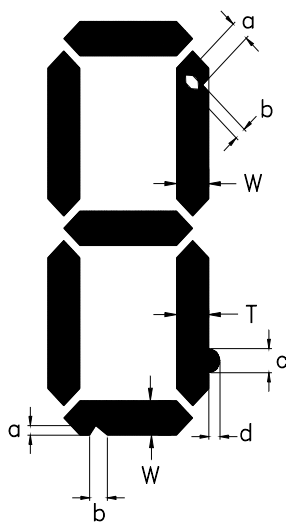
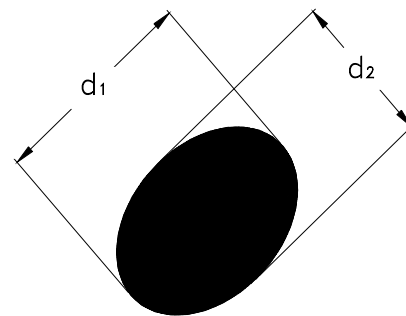
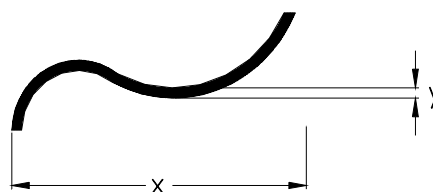


fig . 1



POLARIZER BUBBLES / SPOTS

fig . 2



LINE SCRATCHES / BLACK LINE

fig . 3

QUALITY STANDARD (CONT .)

DEFECT		CRITERIA	TYPE	FIGURE
CHIPS	CONTACT EDGE	$e \leq 1/2T$ $f < 1/4W$ $g < 2.0$	MINOR	4
	BOTTOM GLASS	$p < 0.5$ $q < 2.0$ $r < 1/2T$		4
	CORNER	$a \leq 1.5$ $b \leq 1/2W$		4
	TOP GLASS	$a < 2.5$ $b < 1/2T$ $c < 1/3W$		5
GLASS PROTRUSION		$a < 1/5 W$	MINOR	6
RAINBOW		-	MINOR	-

UNLESS STATE OTHERWISE , ALL UNIT ARE IN MILLIMETER .

DEFECT TABLE : B

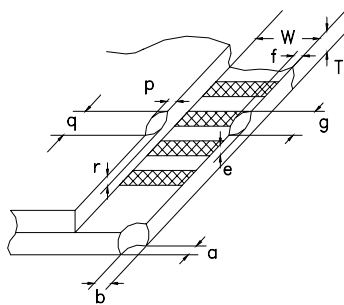


fig . 4

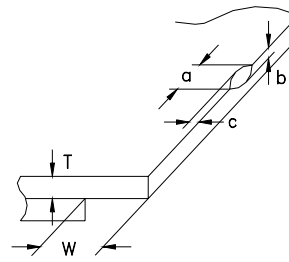


fig . 5

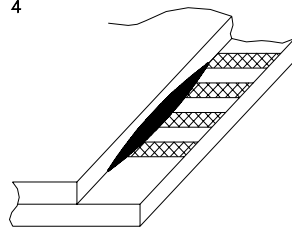


fig . 6



HANDLING PRECAUTIONS

(1) CAUTION OF LCD HANDLING & CLEANING

Use soft cloth with solvent (recommended below) to clean the display surface and wipe lightly.
- Isopropyl alcohol, ethyl alcohol, trichlorotrifluoroethane

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface. Do not use the following solvent;
-water, ketone, aromatics

(2) CAUTION AGAINST STATIC CHARGE

The LCD modules use CMOS LSI drivers, so customers are recommended that any unused input terminal would be connected to V_{DD} or V_{SS} , do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

Remove the protective film slowly and, if possible, under ESD control device like ion blower and humidity of working room should be kept over 50%RH to reduce risk of static charge.

(3) PACKAGING

Avoid intense shock and falls from a height and do not operate or store them exposed direct to sunshine or high temperature/humidity.

(4) CAUTION FOR OPERATION

It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage than the limit causes the shorter LCD life. The use of direct current drive should be avoided because an electrochemical reaction due to direct current causes LCD's undesirable deterioration.

Response time will be extremely delayed at low temperature, and LCD's show dark color at high temperature. However those phenomena do not mean malfunction or out of order with LCD's.

Some font will be abnormally displayed when the display area is pushed hard during operation. But it resumes normal condition after turning off once.

(5) SOLDERING (for Pin type)

It is recommended to complete dip soldering at 270 °C or hand soldering at 280 °C within 3 seconds. The soldering position is at least 3mm apart from the pin head. Wave or reflow soldering are not recommended. Metal pins should not be soldered for more than 3 times and each soldering should be done after cool down of metal pins.

(6) SAFETY

For crash damaged or unnecessary LCD's, it is recommended to wash off liquid crystal by either of solvents such as acetone and ethanol and should be burned up later.

When any liquid leaked out of a damaged glass cell comes in contact with your hands, wash it off with soap and water.

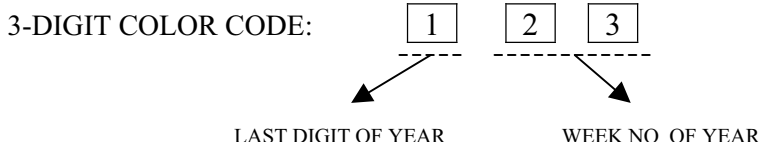
WARRANTY

MULTI-INNO will replace or repair any of her LCD module in accordance with her LCD specification for a period of one year from date of shipment. The warranty liability of MULTI-INNO is limited to repair and/or replacement. MULTI-INNO will not be responsible for any subsequent or consequential event.

APPENDIX

LOT INDICATION OF LCD MODULE

CODING SYSTEM:



COLOR CODE:

	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	PURPLE
8	GREY
9	WHITE

LOCATION AS SHOWN BELOW:

