

**SPECIFICATION FOR
LIQUID CRYSTAL DISPLAY MODULE**

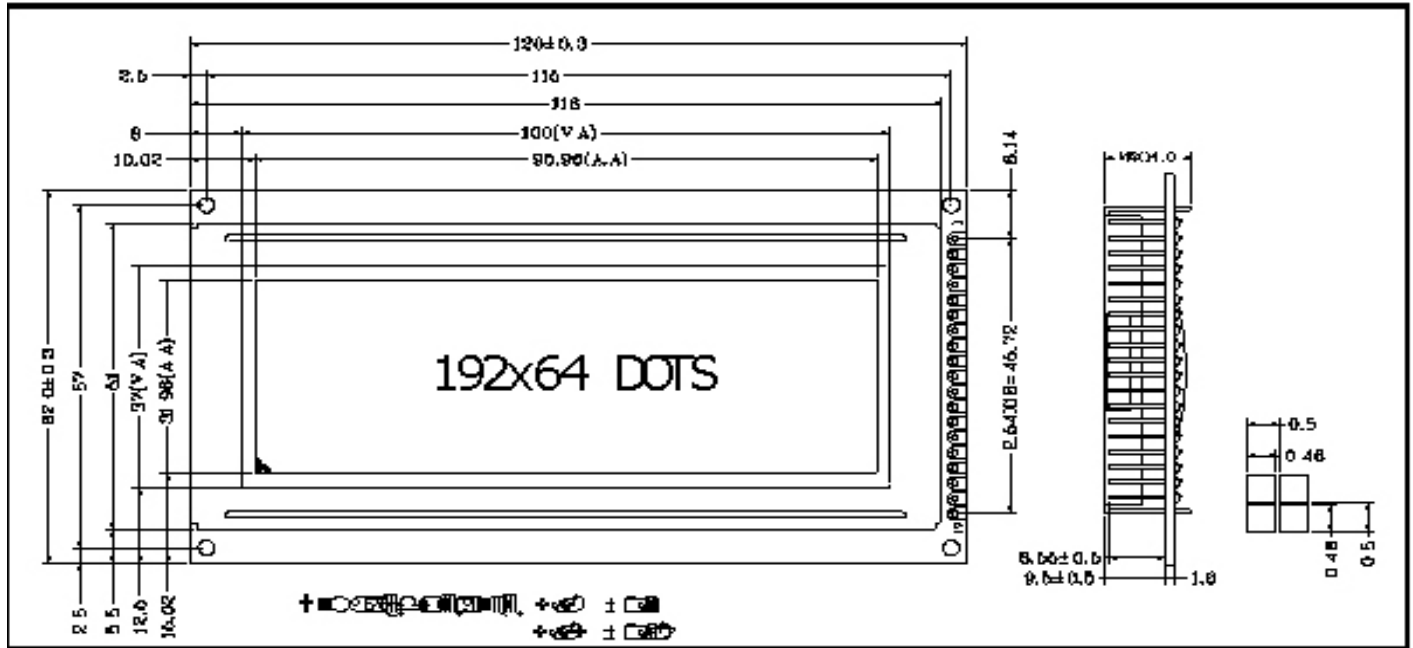
MODEL NO. : HY-19264G-601

View Direction	<input checked="" type="checkbox"/> 6 O'clock		<input type="checkbox"/> 12 O'clock		
LCD Type	<input checked="" type="checkbox"/> FSTN Positive		<input type="checkbox"/> FSTN Negative		
	<input type="checkbox"/> STN Gray		<input type="checkbox"/> STN Yellow Green		<input type="checkbox"/> STN Blue
Rear Polarizer	<input type="checkbox"/> Reflective		<input checked="" type="checkbox"/> Transflective		<input type="checkbox"/> Transmissive
Back light Type	LED	<input type="checkbox"/> Internal Power		EL	
		<input type="checkbox"/> External Power		<input type="checkbox"/> CCFL	
Back light Color	<input type="checkbox"/> White		<input checked="" type="checkbox"/> Amber		<input type="checkbox"/> Other
	<input type="checkbox"/> Blue Green		<input type="checkbox"/> Yellow		
Temperature Range	<input checked="" type="checkbox"/> Normal		<input type="checkbox"/> Wide		<input type="checkbox"/> Super Wide
EL Driver IC	<input type="checkbox"/> Build-in		<input checked="" type="checkbox"/> Not Build-in		
DC-DC Converter	<input checked="" type="checkbox"/> With		<input type="checkbox"/> Without		

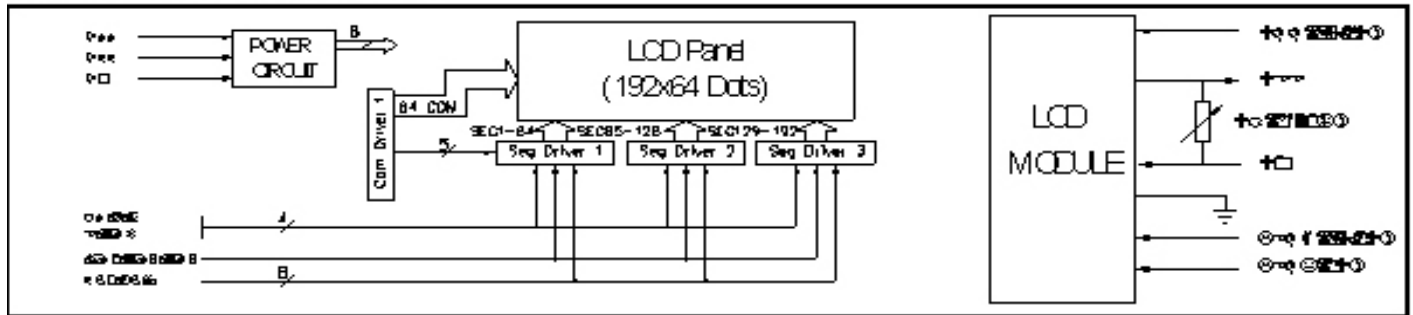
TO BE VERY CAREFUL !

The LCD driver ICs are made by CMOS process, which are very easy to be damaged by static charge, make sure the user is grounded when handling the LCM.

外形尺寸图



内部连接图



主要特性

Item	Normal Dimensions(mm)	FEATURE	
Module Size (W*H*T)	120.0x62.0x14.0	LCD Type	PS1N
View Area (W*H)	100.0x37.0	LCD Colour	--
Dots/Dots (W*H)	192x64	View Angle	6 O'clock
Dot Pitch (W*H)	0.5x0.5	Display Type	Positive Type
Dot Size (W*H)	0.46x0.46	Rear polarizer	Transflective
--	--	Operating Temperature	-10i ℃~55i ℃
--	--	Backlight	LED Amber

电性能参数

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating Voltage	V _{DD}	T _a = 25i ℃	--	5.0	--	V
Operating Voltage for LCD	V _{CD}	T _a = 25i ℃	--	10.5	--	V
Supply Current	I _{DD}	T _a = 25i ℃, V _{DD} = 5.0V	--	2.0	3.0	mA
Supply Current for Backlight(LED)	I _F	T _a = 25i ℃, V _F = 4.2V	--	480	--	mA

引脚定义

Pin No	Symbol	Level	Description
1	VSS	--	Ground for Logic
2	VDD	--	Power supply for Logic
3	V _o	--	Power supply for LCD drive
4	VEE	--	Negative voltage output
5	RS	H/L	Register selection (H>Data register, L/Instruction register)
6	R/W	H/L	Read/write selection (H/Read, L/Write)
7	E	H/H→L	Enable signal for LCM
8-15	DB0-DB7	H/L	Data Bus lines
16	CS1	L	Chip select signal for left part of the panel
17	CS2	L	Chip select signal for middle part of the panel
18	CS3	L	Chip select signal for right part of the panel
19	RST	L	Reset signal

Lcd Module Drawing

GENERAL SPECIFICATION

Item	Content
Display Resolution	192(W)×64(H)
Dimensional Outline(mm)	120.0(W)×62.0(H)×14.0max(D)
Display mode	FSTN, Transflective Type
Circuit	Common-Driver IC, Segment-driver IC with build-in SRAM
Interface	VSS,VDD,V0,VEE,RS,R/W,E,D0-D7,CS1,CS2,CS3,RST

ABSOLUTE MAXIMUM RATING

(1) Electrical Absolute Ratings

Item	Symbol	Min.	Max.	Unit	Note
Power Supply for Logic	$V_{DD}-V_{SS}$	0	5.0	Volt	
Power Supply for LCD	$V_{DD}-V_0$	0	10.5	Volt	
Input Voltage	V_I	0	V_{DD}	Volt	
Current for LED backlight		-		mA	

Note 1 : Operator should be grounded during handling LCM.

(2) Environmental Absolute Maximum Ratings

Item	Wide Temperature				Normal Temperature			
	Operating		Storage		Operating		Storage	
	Min.	Max,	Min.	Max,	Min.	Max,	Min.	Max,
Ambient Temperature	-20□	+70□	-30□	+80□	-10□	+55□	-20□	+70□
Humidity(without condensation)	Note 2,4		Note 3,5		Note 4,5		Note 4,6	

Note 2 $T_a \square 50 \square$: 80% RH max

$T_a > 50 \square$: Absolute humidity must be lower than the humidity of 85%RH at 50□

Note 3 T_a at -20□ will be <48hrs at 70□ will be <120hrs when humidity is higher than 75%.

Note 4 Background color changes slightly depending on ambient temperature. This phenomenon is reversible.

Note 5 $T_a \square 70 \square$: 75RH max

$T_a > 70 \square$: absolute humidity must be lower than the humidity of 75%RH at 70□

Note 6 T_a at -20□ will be <48hrs, at 80 □ will be <120hrs when humidity is higher than 75%.

ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Min.	Typ	Max.	Unit	note
Power Supply for Logic	$V_{DD}-V_{SS}$	-	3.0	5.0	5.5	Volt	
Input Voltage	V_{IL}	L level	V_{SS}	$0.2 V_{DD}$	-	Volt	
	V_{IH}	H level	$0.8 V_{DD}$	V_{DD}	-	Volt	
LCM Recommend LCD Module Driving Voltage	$V_{DD}-V_{ADJ}$	$T_a \square 0 \square$	10.8	11.3	11.8	Volt	
		$T_a \square 25 \square$	10.0	10.5	11.0		
		$T_a \square 50 \square$	9.2	9.7	10.2		
Power Supply Current for LCM	I_{DD} (LED B/L OFF)	$V_{DD}=5.0V$ $T_a=25 \square$ $V_{DD}-V_0=8.7V$	-	2.0	1.8	mA	-
	I_{LED} (LED B/L ON)						
Power Supply for LED Backlight	$V_{EL+}-V_{EL-}$	$T_a=25 \square$	-		-	V	

OPTICAL CHARACTERISTICS

Item	Symbol	Condition	Min.	Typ	Max.	Unit	note
Viewing angle range	θ_f (12 o'clock)	When $Cr \square 2$	35	-	-	Degree	
	θ_b (6 o'clock)		30	-	-		
	θ_l (9 o'clock)		30	-	-		
	θ_r (3 o'clock)		30	35	-		
Rise Time	T_r	$V_{DD}-V_0=8.7V$ $T_a=25 \square$		112		mS	
Fall Time	T_f			250			
Contrast	Cr		-	5.4	-		

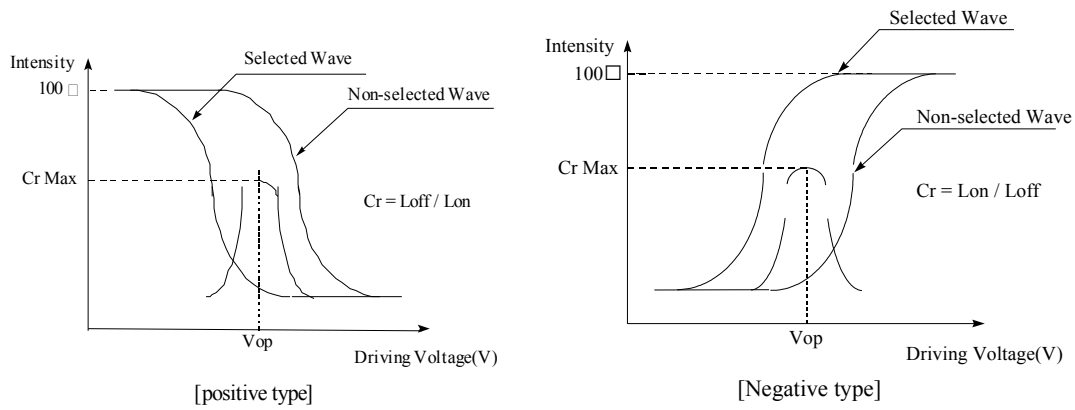
MECHANICAL SPECIFICATION

Product No.		HY-19264G-601
Module Size		120.0(W)×62.0(H)×14.0Mmax(D)
Dot Size		0.46(H)mm×0.46(W)mm
Dot Pitch		0.50(H)mm×0.50(W)mm
Resolution		192(W)×64(H) Dots Matrix
Duty Ratio		1/64 Duty
LCD Display Mode	STN	<input type="checkbox"/> Yellow Mode <input type="checkbox"/> Gray Mode <input type="checkbox"/> Blue Mode
	FSTN	<input checked="" type="checkbox"/> Black & White(Normally White/Positive Image) <input type="checkbox"/> Black & White(Normally White/Negative Image)
	Rear Polarizer:	<input type="checkbox"/> Reflective <input checked="" type="checkbox"/> Transflective <input type="checkbox"/> Transmissive <input type="checkbox"/> Transflective(High Transmissive)
Viewing Direction		<input type="checkbox"/> 12 O'clock <input checked="" type="checkbox"/> 6 O'clock <input type="checkbox"/> 3 O'clock <input type="checkbox"/> 9 O'clock
Back light		<input type="checkbox"/> W/O <input type="checkbox"/> CCFL <input type="checkbox"/> EL <input checked="" type="checkbox"/> LED
Controller		KS0108 or compatible
DC/DC Converter		Built-in
EL Driver		Without EL driver

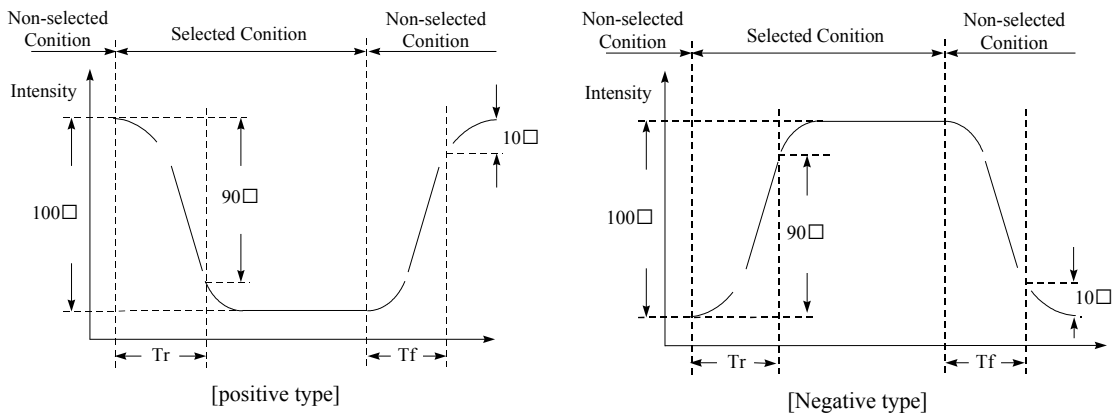
INTERFACE PIN ASSIGNMENT

Pin No.	Pin Out	Description
1	VSS	GND
2	VDD	Logic supply voltage (5.0V)
3	V0	Power Supply for Lcd
4	VEE	Negative voltage output
5	RS	Data/Instruction RS=high □ Indicates that data of DB0~DB7 is display data. RS=low □ Indicates that data of DB0~DB7 is instruction
6	R/W	Read/Write R/W=high □ Data of DB0~DB7 can be read by CPU. R/W=low □ Data of DB0~DB7 can be written into LCD driver IC at the falling edge of E when CS1 and CS2 is high.
7	E	Enable signal terminal
8	DB0	Data Bus line.
9	DB1	
10	DB2	
11	DB3	
12	DB4	
13	DB5	
14	DB6	
15	DB7	
16	CS1	Chip select signal for left part of the panel
17	CS2	Chip select signal for middle part of the panel
18	CS3	Chip select signal for right part of the panel
19	RST	Reset at Low Level and then RST='1'

[Note 7] Definition of Operation Voltage (Vop)



[Note 8] Definition of Response Time (Tr, Tf)

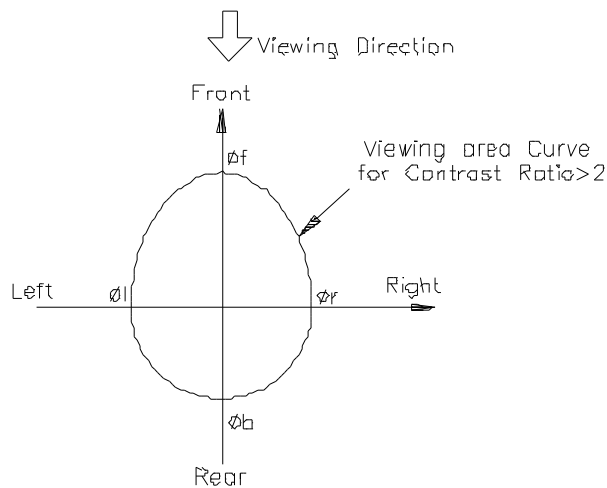


Conditions:

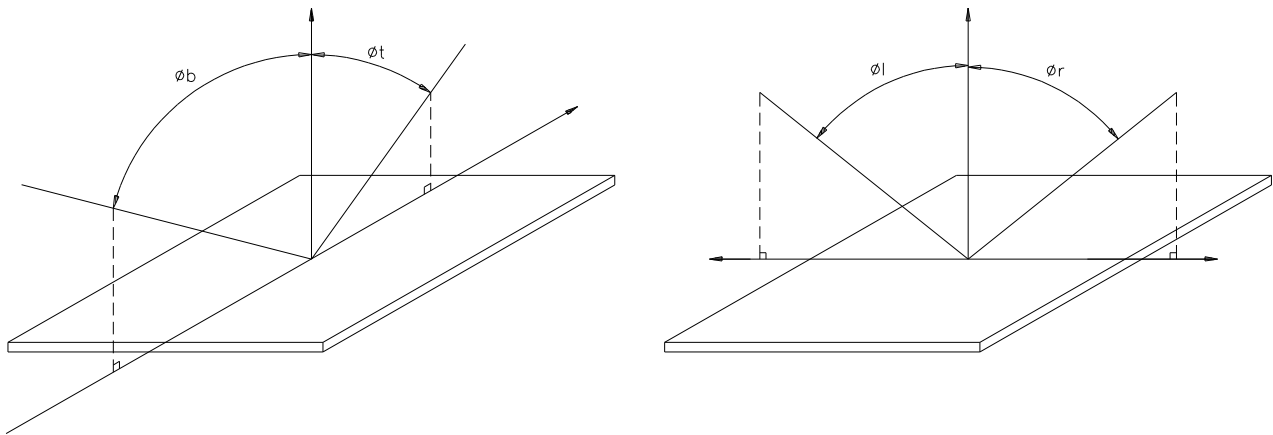
Operating Voltage : Vop
Frame Frequency : 64 Hz

Viewing Angle(θ, ϕ): $0^\circ, 0^\circ$
Driving Wave form : 1/N duty, 1/a bias

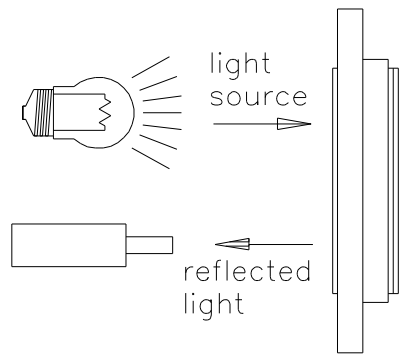
[Note 9] Definition of Viewing Direction



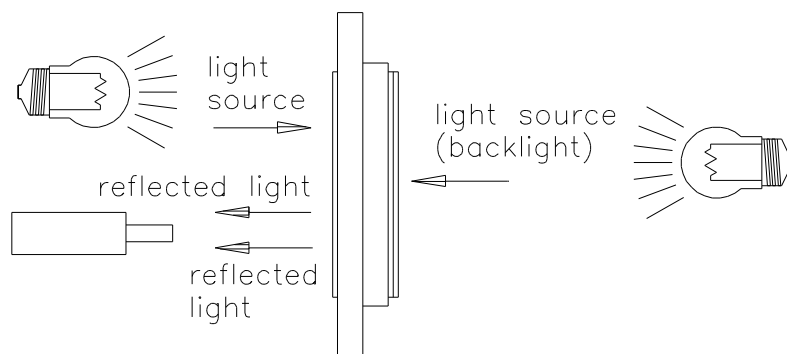
[Note 10] Definition of viewing angle



[Note 11] Description of Measuring Equipment



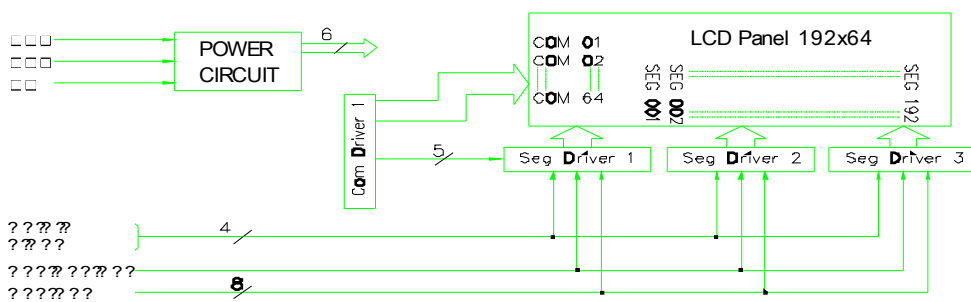
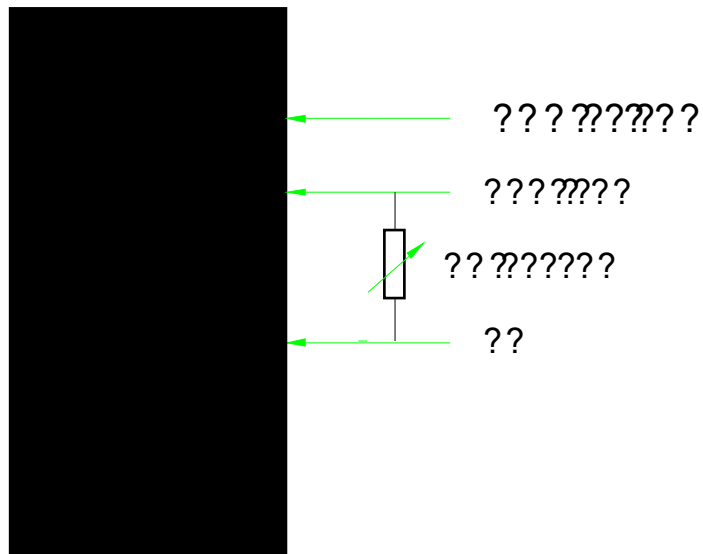
Reflective type



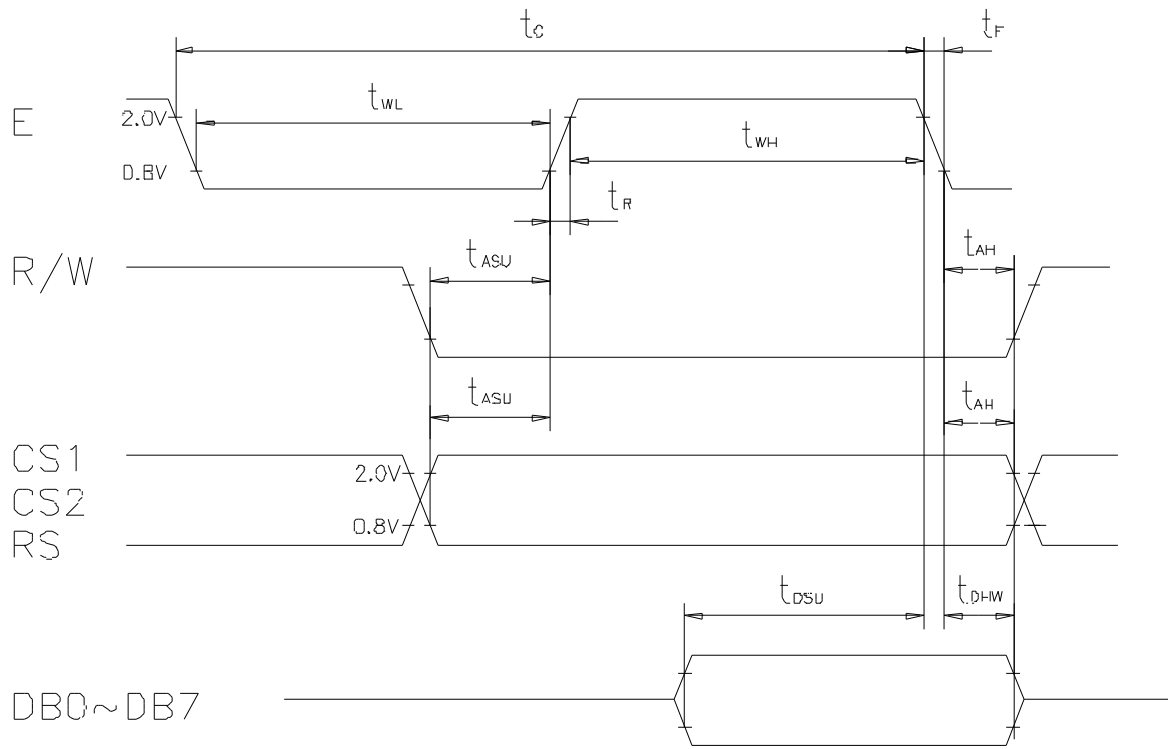
Transflective type

BLOCK DIAGRAM

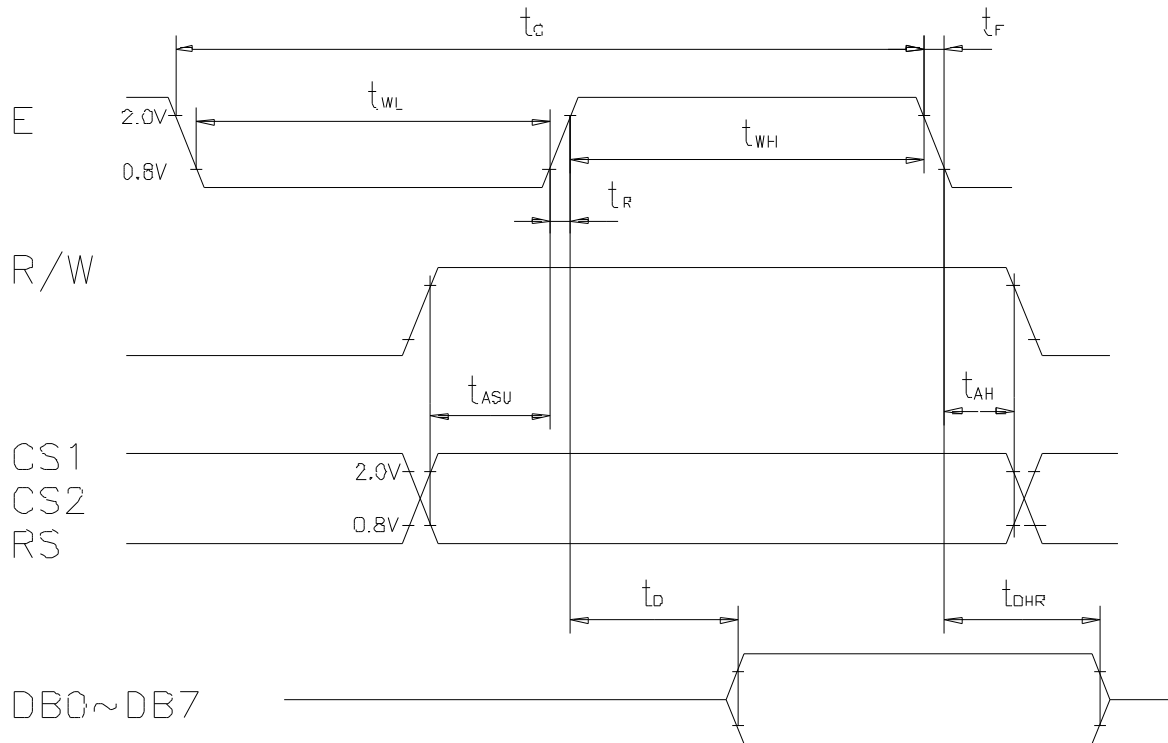
POWER SUPPLY



TIMING CHARACTERISTICS



MPU Write Timing



MPU Read Timing

MPU interface timing: ($V_{SS} = 0V$, $V_{DD} = 4.5V \sim 5.5V$, $T_a = 0$ to $50^\circ C$)

Item	Symbol	Min.	Typ.	Max.	Unit
E Cycle Time	t_c	1000	□	□	ns
E High Level Width	t_{WH}	450	□	□	ns
E Low Level Width	t_{WL}	450	□	□	ns
E Rise Time	t_r	□	□	25	ns
E Fall Time	t_f	□	□	25	ns
Address Setup Time	t_{ASU}	140	□	□	ns
Address Hold Time	t_{AH}	10	□	□	ns
Data Setup Time	t_{DSU}	200	□	□	ns
Data Delay Time	t_D	□	□	320	ns
Data Hold Time(Write)	t_{DHW}	10	□	□	ns
Data Hold Time(Read)	t_{DHR}	20	□	□	ns

DISPLAY COMMANDS

The display commands shown below control the internal state of the LCD driver ICs. Commands are sent from CPU to LCD module for the display control.

Command	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Function	
Display ON/OFF	0	0	0	0	1	1	1	1	1	1/0	To control the display ON or OFF. The internal status and display RAM data are not affected. 0:OFF, 1:ON	
Set address (Y address)	0	0	0	1	Y address (0~63)						To set the Y address in the Y address counter.	
Set page (X address)	0	0	1	0	1	1	1	Page(0~7)			To set the X address at the X address register.	
Display Start Line	0	0	1	1	Display Start Line(0~63)						To indicate the display data RAM displayed at the top of the screen.	
Status Read	0	1	Busy	0	ON/OFF	Reset	0	0	0	0	To read status of the LCD controller IC: Busy 0:Ready, 1: In operation ON/OFF: 0:Display ON, 1:Display OFF Reset: 0:Normal, 1:Reset	
Write display data	1	0	Write Data									To write data into display data RAM. Y address is increased by 1 after this command.
Read Display data	1	1	Read Data									To read data from display data RAM to the data bus.

MEMORY MAPPING

Relationship between RAM data and display

		RAM Y address(Y0 ~Y127)										Data				
1 s t p a g e (X = 0)	Line 0→	0	1	1	1	0	0	.....	0	0	1	0	0	0	←DB0(LSB)	
	Line 1→	1	0	0	0	1	0	.....	0	0	1	1	0	0	←DB1	
	Line 2→	1	0	0	0	1	0	.....	0	0	1	0	1	0	←DB2	
	Line 3→	1	0	0	0	1	0	.....	0	0	1	0	1	0	←DB3	
	.....		1	1	1	1	1	0	.....	0	0	1	0	0	0	←DB4
			1	0	0	0	1	0	.....	1	1	1	0	0	0	←DB5
			1	0	0	0	1	0	.....	1	1	1	0	0	0	←DB6
Line 7→	0	0	0	0	0	0	.....	0	0					←DB7(MSB)		
2 n d p a g e (X = 1)	Line 8→	1	1	1	1	0	0	.....	0	1	1	1	0	0	←DB0(LSB)	
	Line 9→	1	0	0	0	1	0	.....	0	1	0	0	1	0	←DB1	
	Line 10→	1	0	0	0	1	0	.....	0	1	0	0	1	0	←DB2	
	.....		1	1	1	1	0	0	.....	1	1	1	0	1	0	←DB3
			1	0	0	0	1	0	.....	0	1	0	0	1	0	←DB4
			1	0	0	0	1	0	.....	0	1	0	0	1	0	←DB5
			1	1	1	1	0	0	.....	0	1	1	1	0	0	←DB6
Line 15→	0	0	0	0	0	0	.....	0	0					←DB7(MSB)		
.....															
8 t h p a g e (X = 7)	Line 56→	1	0	0	0	1	0	.....	0	0	0	0	0	0	←DB0(LSB)	
	.....		1	0	0	0	1	0	.....	0	0	0	0	0	0	←DB1
			1	0	0	0	1	0	.....	0	1	0	0	1	0	←DB2
			1	1	1	1	1	0	.....	1	0	1	0	1	0	←DB3
			1	0	0	0	1	0	.....	1	0	0	1	0	0	←DB4
			1	0	0	0	1	0	.....	1	0	0	1	0	0	←DB5
	Line 62→	1	0	0	0	1	0	.....	0	1	1	0	1	0	←DB6	
Line 63→	0	0	0	0	0	0	.....							←DB7(MSB)		

ADDRESS CONFIGURATION OF DISPLAY DATA RAM

	Y address		
	0 1 2 3 .....126 127		
X=0→	DB0 To DB7	Page0	Line0 To Line7
X=1→	DB0 To DB7	Page1	Line8 To Line15
X=2→	DB0 To DB7	Page2	Line16 To Line23
X=3→	DB0 To DB7	Page3	Line24 To Line31
X=4→	DB0 To DB7	Page4	Line32 To Line39
X=5→	DB0 To DB7	Page5	Line40 To Line47
X=6→	DB0 To DB7	Page6	Line48 To Line55
X=7→	DB0 To DB7	Page7	Line56 To Line63
Address configuration of Display Data RAM			

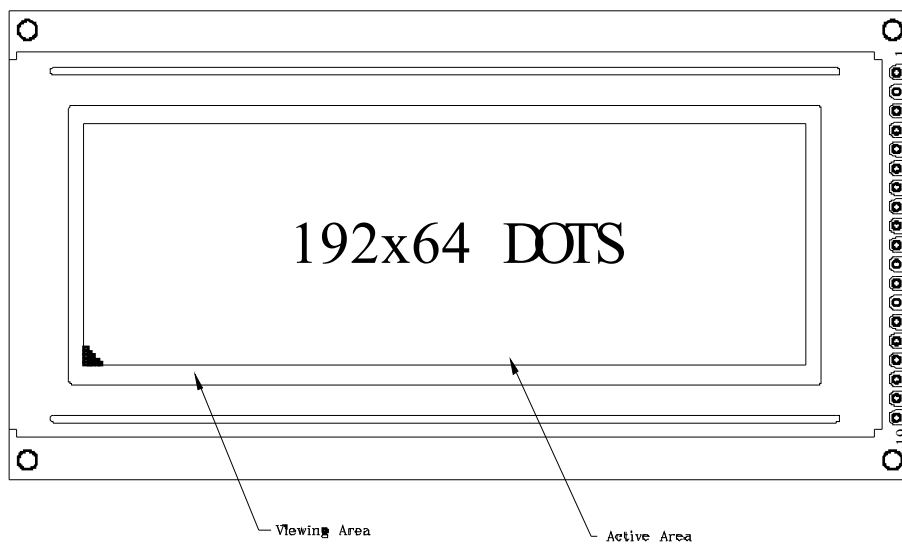
RELIABILITY TEST

No	Item	Conditions		Note
1	High Temp. Operation	50□	120HR	
2	High Temp. Storage	60□	120HR	
3	Low Temp. Operation	0□	120HR	
4	Low Temp. Storage	-20□	120HR	
5	High Temp./Humid Storage	60□ 90%RH	120HR	
6	Thermal Shock	-20□ ,30min 60□ ,30min	10 cycle	

APPEARANCE CHECK

CONDITON OF APPEARANCE CHECK:

- (1) Specimen shall be checked by eyes in distance of 30cm under 40w-fluorescence lamp.
- (2) Checking direction shall be in 45 degree from perpendicular line op specimen surface.



HANDLING PRECAUTIONS

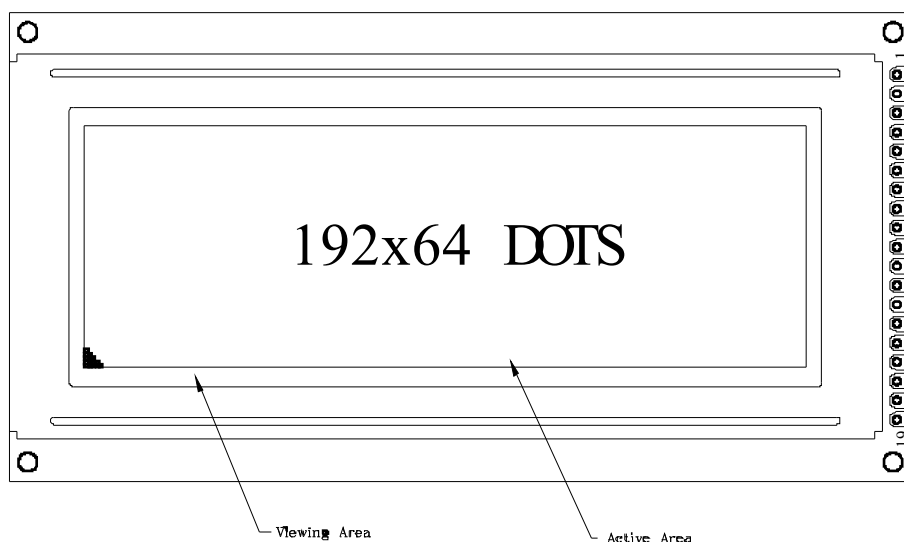
- (1) Treat polarizer very carefully since it is easy to be damaged.
- (2) When cleaning the display surface, use soft cloth (e.g. gauss) with a solvent (recommended below) and wipe lightly.
 - ethyl alcohol
 - iso-procolol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvents:

- water
- ketone
- aromatics

- (3) Direct current causes electro-chemical reaction with remarkable degradation of the display quality. Give careful consideration to prevent direct current at ON/OFF timing and during operation.
- (4) Avoid strong shock and drop from the height.
- (5) To prevent LCD panels from degradation, do not operate or store them exposed directly to sunshine or high temperature/humidity.
- (6) Give careful consideration to avoid electrical static discharge with causes uneven contrast.
- (7) Even a small condensation on the contact pads (terminals) causes electro-chemical reaction which makes missing row and column. Give careful attention to avoid condensation. When assembling with zebra connector, clean the surface of the pads with alcohol and keep the air very clean.



LCD PRODUCT QUALITY STANDARD

DISPLAY APPEARANCE

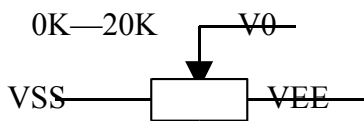
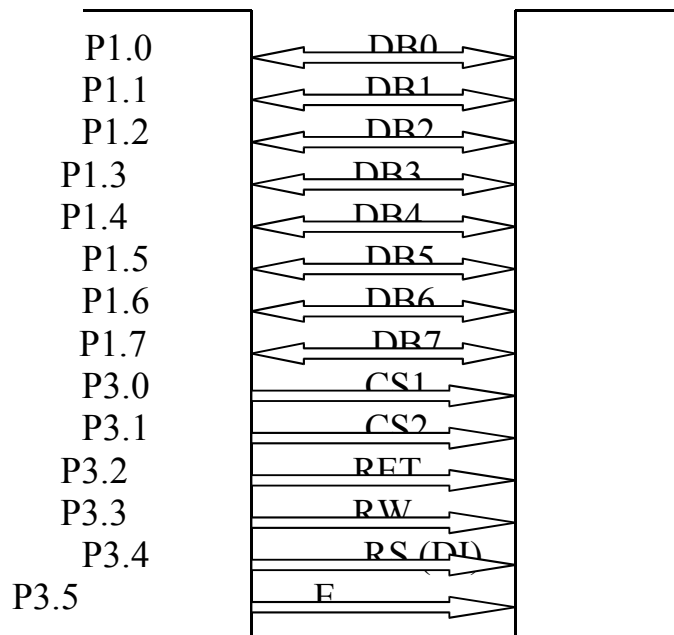
No	Item	Criteria
1	inclusions (black spot, white spot, dust)	<p>(1)round type diameter mm(a*) no of defect* a\leq0.20 neglect 0.20\leqa\leq0.35 5max 0.35\leqa none</p> <p>(2)linear type length mm(l) width mm(W) no. of defect na W\leq0.03 neglect 1\leq3 0.03\leqW\leq0.08 6 3\leq1 0.08\leqW none</p>
2	scratch	<p>1. scratch on protective film is permitted. 2. scratch on polarizer shall be as follow: (1)round type diameter mm(a*) no of defect a\leq0.15 neglect 0.15\leqa\leq0.20 2 max 0.20\leqa none</p> <p>(2)linear type be judged bye 1.-(2) linear type</p>
3	dent	diameter \leq 1.5mm
4	bubble	not exceeding 0.5mm average diameter is acceptable between glass and polarizing film
5	pin hole	<p>(a+b)/2 \leq 0.15mm maximum number: ignored 0.15\leq(a+b)/2\leq0.20mm maximum number:10</p>
6	dot defect	<p>(a+b)/2\leq0.20mm maximum number: ignored 0.20\leq(a+b)/2\leq0.30mm maximum number:5 x=width</p>
7	contrast irregularity(spot)	<p>diameter spec no of defect a\leq0.50mm neglect 0.50\leqa\leq0.75 5 0.75\leqa\leq1.00 3 1.00\leqa none</p>
8	dot width	design width \pm 15%
9	color tone and uniformity	obvious uneven color is not permitted

Interface circuit and driving programme on LCM of dots matrix series .

□. Interface circuit:

MPU 8031

LCM



□. Driving programme of testing for the module

```
#include<reg51.h>
```

```
sbit cs1=P3^0;
sbit cs2=P3^1;
sbit rst=P3^2;
sbit rw=P3^3;
sbit di=P3^4;
sbit e=P3^5;
unsigned char x,y;
```

```
void delay(int num)
{
    while(num--);
}
```

```
void lw(unsigned char x,unsigned char y,unsigned char dd)
{
    if(x<64)
    {
        cs1=cs2=0;
        di=rw=0;cs1=1;cs2=0;P1=0xb8|y;e=1;delay(2);e=0;delay(2);
        di=rw=0;cs1=1;cs2=0;P1=0x40|x;e=1;delay(2);e=0;delay(2);
    }
}
```

```

        di=1;rw=0;cs1=1;cs2=0;P1=dd;e=1;delay(2);e=0;delay(2);
        /*cs1=cs2=0;*/
    }
    else
    {
        cs1=cs2=0;x=x-64;
        di=rw=0;cs1=0;cs2=1;P1=0xb8|y;e=1;delay(2);e=0;delay(2);
        di=rw=0;cs1=0;cs2=1;P1=0x40|x;e=1;delay(2);e=0;delay(2);
        di=1;rw=0;cs1=0;cs2=1;
        ;P1=dd;e=1;delay(2);e=0;delay(2);
        cs1=cs2=1;
    }
    P1=0xff;
}

```

```

void lcd_init(void) {
    unsigned char x,y;
    rst=0;
    rst=1;
    e=di=rw=0;
    cs1=cs2=1;
    cs1=0;cs2=1;
    di=rw=0;P1=0x3f;e=1;delay(2);e=0;delay(2);
    cs1=0;cs2=1;
    di=rw=0;P1=0xc0;e=1;delay(2);e=0;delay(2);
    cs1=cs2=0;

    cs1=1;cs2=0;
    di=rw=0;P1=0x3f;e=1;delay(2);e=0;delay(2);
    cs1=1;cs2=0;
    di=rw=0;P1=0xc0;e=1;delay(2);e=0;delay(2);
    cs1=cs2=0;

    for (y=0;y<8;y++) {
        for (x=0;x<128;x++) lw(x,y,0);
    }
}

```

```

unsigned char code dat[8][128]={
0xFF,0xFF,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x23,0xE3,0x43,0x43,0x63,0x23,0x23,0x23,0x63,0x43,0x43,0x43,
0x43,0x83,0x83,0x83,0x83,0x83,0x83,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,0x03,
0xFF,0xFF,
0xFF,0xFF,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x20,0x30,0xF0,0xF8,0xF8,
0x88,0x88,0x80,0x80,0x00,0xFC,0xFC,0x00,0x00,0xC0,0xC0,0x80,0x00,0x00,0x00,0x00,
0x00,0xF0,0xF0,0x20,0x20,0x20,0x20,0xE0,0xE0,0x20,0x20,0x20,0x20,0x20,0xF0,0xF0,
0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,
0x00,0x00,0x00,0x00,0x00,0x01,0x03,0x0D,0x0A,0x08,0x10,0x20,0x20,0xE0,0x00,0x00,
0x80,0x00,0x00,0x00,0x00,0x00,0x00,0x01,0x03,0x06,0xF8,0x00,0x00,0x00,0x00,0x00,

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unsigned char a[16]=
{0xff,0x00,0x00,0xff,0xaa,0xaa,0x55,0x55,0xaa,0x55,0x55,0xaa,0xff,0xff,0x00,0x00};
unsigned char code zy[32]=
{0X00,0X00,0X10,0X30,0XD0,0X00,0XD0,0X30,0X10,0X00,0X00,0X00,0X00,0X00,0X00,0X0
0,
0X00,0X00,0X00,0X00,0X10,0X1F,0X10,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00};
unsigned char code zu[32]=
{0X00,0X00,0X10,0XF0,0X10,0X00,0X10,0XF0,0X10,0X00,0X00,0X00,0X00,0X00,0X00,0X00,
0X00,0X00,0X00,0X0F,0X10,0X10,0X10,0X0F,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00};
unsigned char code zs[32]=
{0X00,0X00,0X00,0X60,0X90,0X10,0X10,0X30,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00,
0X00,0X00,0X00,0X18,0X10,0X11,0X11,0X0E,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00};
unsigned char code zn[32]=
{0X00,0X00,0X10,0XF0,0X70,0X80,0X10,0XF0,0X10,0X00,0X00,0X00,0X00,0X00,0X00,0X00,
0X00,0X00,0X10,0X1F,0X10,0X03,0X0C,0X1F,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00};
;
unsigned char code zg[32]=
{0X00,0X00,0XC0,0X20,0X10,0X10,0X10,0X70,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00,
0X00,
0X00,0X00,0X07,0X08,0X10,0X10,0X12,0X0E,0X02,0X00,0X00,0X00,0X00,0X00,0X00,0X00,0X00};

unsigned char code yu[32]=
{0x00,0x00,0x88,0x88,0x4A,0xAC,0xB8,0xAA,0xBC,0xA8,0xB8,0xAC,0x4A,0x88,0x88,0x00,
0x00,0x00,0x00,0x3A,0x2A,0x2A,0x2A,0x2A,0x2A,0x2A,0x2A,0x3A,0x00,0x00,0x00};
unsigned char code xin[32]=
{0x00,0x00,0x80,0x60,0xF8,0x06,0x08,0xA8,0xA8,0xAA,0xAC,0xA8,0xA8,0xA8,0x08,0x00,
0x00,0x00,0x00,0x3F,0x00,0x00,0x3E,0x12,0x12,0x12,0x12,0x12,0x3E,0x00,0x00};
unsigned char code dian[32]=
{0x00,0x00,0xF0,0x90,0x90,0x90,0xFE,0x90,0x90,0x90,0x90,0xF0,0x00,0x00,0x00,
0x00,0x00,0x0F,0x04,0x04,0x04,0x04,0x1F,0x24,0x24,0x24,0x24,0x27,0x20,0x18,0x00};
unsigned char code zi[32]=
{0x00,0x00,0x80,0x82,0x82,0x82,0x82,0xE2,0x92,0x8A,0x86,0x82,0x80,0x80,0x00,
0x00,0x00,0x00,0x00,0x00,0x10,0x20,0x1F,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00};
unsigned char code you[32]=
{0x00,0x00,0x04,0x84,0x44,0xF4,0x9C,0x96,0x94,0x94,0x94,0xF4,0x04,0x04,0x00,
0x00,0x00,0x01,0x00,0x00,0x3F,0x04,0x04,0x04,0x14,0x24,0x24,0x1F,0x00,0x00,0x00};
unsigned char code xian[32]=
{0x00,0x00,0xFE,0x02,0x22,0x5A,0x86,0x00,0xFE,0x92,0x92,0x92,0x92,0xFE,0x00,0x00,
0x00,0x00,0x3F,0x04,0x08,0x04,0x03,0x00,0x3F,0x12,0x04,0x0A,0x11,0x30,0x10,0x00};
unsigned char code gong[32]=
{0x00,0x00,0x80,0x80,0x40,0x30,0x0C,0x00,0xC0,0x06,0x18,0x20,0xC0,0x80,0x80,0x00,
0x00,0x00,0x00,0x10,0x18,0x14,0x12,0x11,0x10,0x10,0x14,0x18,0x30,0x00,0x00,0x00};
unsigned char code si[32]=
{0x00,0x00,0x10,0x92,0x92,0x92,0x92,0x92,0x92,0x12,0x02,0x02,0xFE,0x00,0x00,
0x00,0x00,0x00,0x1F,0x08,0x08,0x08,0x08,0x08,0x1F,0x00,0x10,0x20,0x1F,0x00,0x00};
unsigned char code d[32]=
{0x00,0x00,0x00,0xC0,0x40,0x40,0x40,0x7E,0x48,0x48,0x48,0x48,0xC8,0x08,0x00,0x00,
0x00,0x00,0x20,0x1B,0x02,0x02,0x0A,0x32,0x02,0x0A,0x32,0x02,0x0B,0x10,0x20,0x00};
unsigned char code zhen[32]=
{0x00,0x00,0xFE,0x22,0x5A,0x86,0x08,0xC8,0xB8,0x8E,0xE8,0x88,0x88,0x08,0x00,
0x00,0x00,0x3F,0x02,0x04,0x03,0x04,0x04,0x04,0x04,0x3F,0x04,0x04,0x04,0x04,0x00};
unsigned char code ye[32]=
{0x00,0x00,0x12,0x24,0x8C,0x00,0x84,0xC4,0x34,0xC4,0xB6,0x24,0x24,0xE4,0x04,0x00,

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0x00,0x00,0x02,0x3F,0x00,0x01,0x00,0x3F,0x21,0x12,0x0C,0x05,0x0B,0x30,0x20,0x00};
unsigned char code jin[32]=
{0x00,0x00,0x00,0x80,0x80,0xBE,0xAA,0xAA,0x2A,0xAA,0xAA,0xBE,0x80,0x80,0x00,0x00,
0x00,0x00,0x00,0x3F,0x24,0x24,0x24,0x3F,0x00,0x3F,0x24,0x24,0x24,0x3F,0x00,0x00};
unsigned char code xi[32]=
{0x00,0x00,0x00,0x00,0xFE,0x92,0x92,0x92,0x92,0x92,0x92,0x92,0xFE,0x00,0x00,0x00,
0x00,0x00,0x21,0x22,0x26,0x20,0x3F,0x20,0x20,0x20,0x3F,0x20,0x24,0x22,0x23,0x00};
unsigned char code s[32]=
{0x00,0x00,0x20,0x22,0x22,0x22,0x22,0xE2,0x22,0x22,0x22,0x22,0x22,0x20,0x00,
0x00,0x00,0x08,0x04,0x02,0x03,0x10,0x20,0x1F,0x00,0x00,0x01,0x02,0x04,0x0C,0x00};
unsigned char code mo[32]=
{0x00,0x00,0x10,0xD0,0xFE,0x50,0x94,0xF4,0x5E,0x54,0x54,0x54,0x5E,0xF4,0x04,0x00,
0x00,0x00,0x03,0x00,0x3F,0x00,0x24,0x25,0x15,0x0D,0x07,0x0D,0x15,0x25,0x24,0x00};
unsigned char code kuai[32]=
{0x00,0x00,0x20,0x20,0xFE,0x20,0x20,0x10,0x10,0xFE,0x10,0x10,0x10,0xF0,0x00,0x00,
0x00,0x00,0x08,0x08,0x0F,0x24,0x25,0x11,0x0D,0x03,0x05,0x09,0x11,0x21,0x21,0x00};
void write_chinese(x,y,array)
unsigned char x,y;
unsigned char array[];
{
    unsigned char j,dd;
    for(j=0;j<32;j++)
    {
        dd=array[j];
        if(j<16) lw(x+j,y,dd);
        else lw(x+j-16,y+1,dd);
    }
}

void main()
{
    unsigned char i,dd;
loop:    lcd_init();
    write_chinese(0,2,yu);
    write_chinese(16,2,xin);
    write_chinese(32,2,dian);
    write_chinese(48,2,zi);
    write_chinese(64,2,you);
    write_chinese(80,2,xian);
    write_chinese(96,2,gong);
    write_chinese(112,2,si);

    write_chinese(0,4,d);
    write_chinese(16,4,zhen);
    write_chinese(32,4,ye);
    write_chinese(48,4,jin);
    write_chinese(64,4,xi);
    write_chinese(80,4,s);
    write_chinese(96,4,mo);
    write_chinese(112,4,kuai);

    write_chinese(0,0,zy);
    write_chinese(10,0,zu);

```

```

write_chinese(20,0,zs);
write_chinese(30,0,zu);
write_chinese(40,0,zn);
write_chinese(50,0,zg);
delay(60000);
for(i=0;i<8;i++)
{
  for(y=0;y<8;y++)
  {
    for(x=0;x<128;x++)
    {
      if(i==4){goto w;}
      else if(i==5){goto w;}
      else
        if(x%2==0)
          lw(x,y,a[2*i]);
        else
          lw(x,y,a[2*i+1]);
    }
  }
  delay(60000);
  delay(60000);
}

w: for(y=0;y<8;y++)
{
  for(x=0;x<128;x++)
  {
    lw(x,y,dat[y][x]);
  }
}
delay(60000);
delay(60000);
goto loop;
}

```