LCD Module Instructions

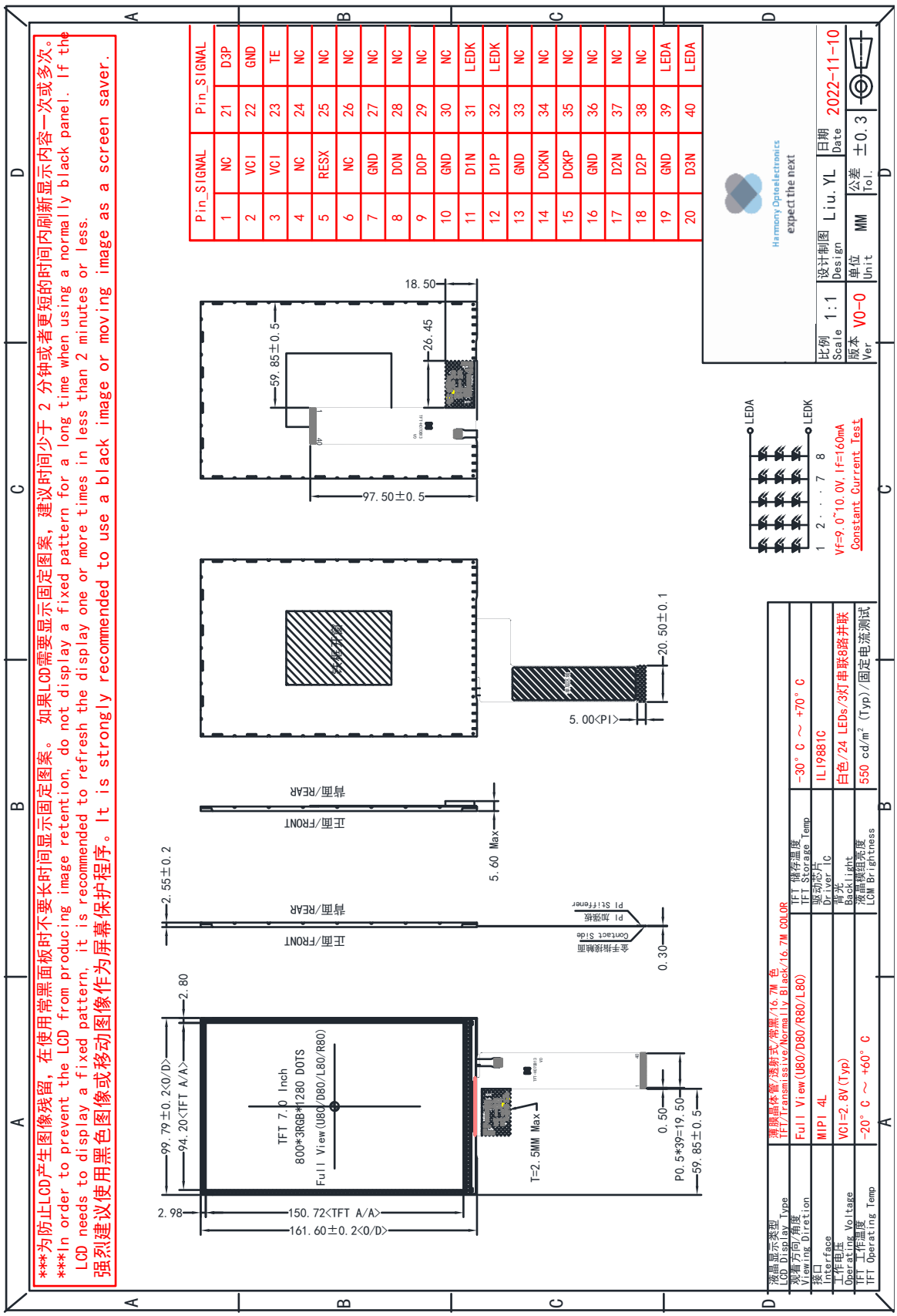
产品描述 Product Description	TFT LCD Module 800 x 3RGB x 1280 Dots 7.0 Inch TFT LCD

一、基本特征 General Feature:

项目 Item	标准值 Standard Value			单位 Unit
显示尺寸 Display Size	7.0			英寸 Inch
分辨率 Number of Pixels	800（H）*3(RGB)* 1280（V）			点 dots
显示区域 Active Area	94.20（H）* 150.72（V）			毫米 mm
外形尺寸 Outline Dimension	99.79(H) * 161.6(V) * 2.55(D)			毫米 mm
观看方向 Viewing Direction	全 视角 FULL O'clock			-
端口 Interface	MIPI 4 Lane			-
驱动芯片 Driver IC	ILI9881C			-
驱动电压 Driver Condition	VCI=3.3V(Typ)			伏 V
背光 Backlight	白色 LED/24 颗/3 颗串联 8 路并联 White LED/24 PCS/3 PCS serial 8 ways parallel			-
触摸屏 Touch Panel	☑不带触摸屏 Whitout TP	☐带电阻触摸屏 With RTP	☐带电容触摸屏 With CTP	-
电容触摸屏驱动芯片 CTP Driver IC	- - -			-
电容触摸屏驱动电压 CTP Driver Condition	- - -			伏 V
TFT 液晶工作温度 TFT Operation Temp	-20 ～ +60			摄氏度 ℃
TFT 液晶储存温度 TFT Storage Temp	-30 ～ +70			摄氏度 ℃

注释 Note:

二、外形尺寸 Outline Dimensions



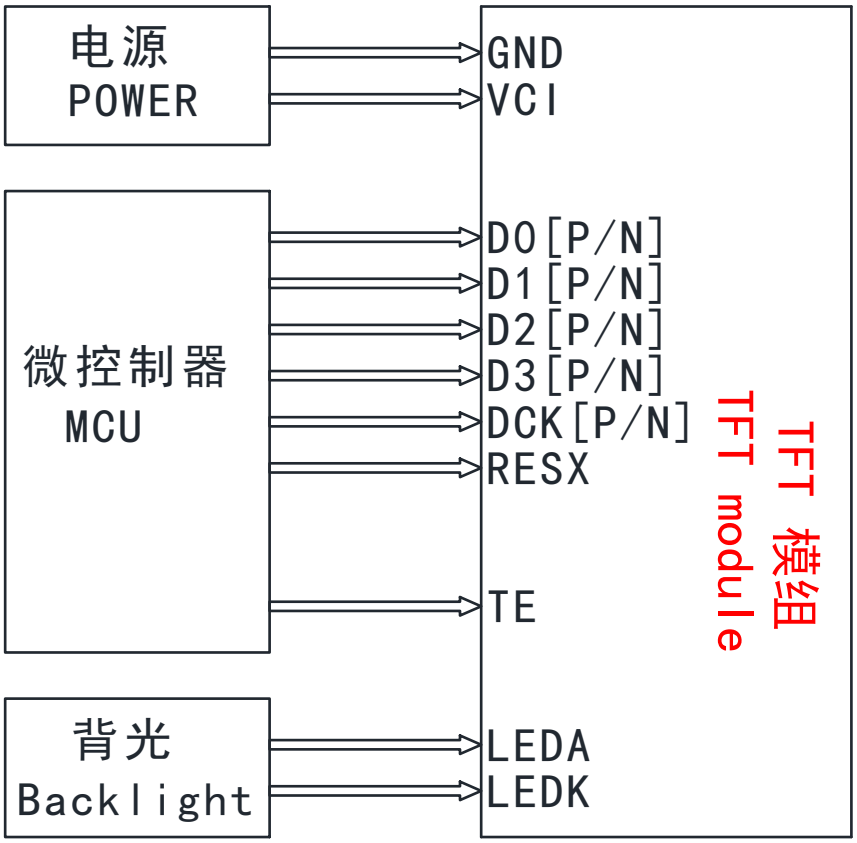
三、引脚说明 Pin Description

3.1 模组引脚说明 TFT Pin Description

引脚编号 Pin NO.	标号 Symbol	详细描述 Description
1	NC	不连接 Not connected
2 ～ 3	VCI	电源 Power supply
4	NC	不连接 Not connected
5	RESX	重置复位引脚 Reset pin
6	NC	不连接 Not connected
7	GND	电源地 Power supply ground
8	DON	MIPI 负数据信号 (-) MIPI Negative data signal (-)
9	DOP	MIPI 正数据信号 (+) MIPI Positive data signal (+)
10	GND	电源地 Power supply ground
11	D1N	MIPI 负数据信号 (-) MIPI Negative data signal (-)
12	D1P	MIPI 正数据信号 (+) MIPI Positive data signal (+)
13	GND	电源地 Power supply ground
14	DCKN	MIPI 负时钟信号 (-) MIPI Negative clock signal (-)
15	DCKP	MIPI 正时钟信号 (+) MIPI Positive clock signal (+)
- 接下页 - - Continued on next page -		

引脚编号 Pin NO.	标号 Symbol	详细描述 Description
16	GND	电源地 Power supply ground
17	D2N	MIPI 负数据信号（-） MIPI Negative data signal (-)
18	D2P	MIPI 正数据信号（+） MIPI Positive data signal (+)
19	GND	电源地 Power supply ground
20	D3N	MIPI 负数据信号（-） MIPI Negative data signal (-)
21	D3P	MIPI 正数据信号（+） MIPI Positive data signal (+)
22	GND	电源地 Power supply ground
23	TE	撕裂效果输出引脚。不使用时保持打开 Tearing effect output pin. Leave the pin open when not in use
24 ～ 30	NC	不连接 Not connected
31 ～ 32	LEDK	LED阴极 LED cathode
33 ～ 38	NC	不连接 Not connected
39 ～ 40	LEDA	LED阳极 LED anode
- END -		

3.2 接线说明 Wiring instructions



四、电气特性 Electrical Characteristics

4-1 TFT 模组工作条件 TFT LCD Module Operating Conditions

项目 Item	标号 Symbol	条件 Condition	最小值 Min	典型值 Type	最大值 Max	单位 Unit
数字电源 Digital Power	VCI	-	-0.3	-	4.0	伏 V
接口工作电压 IO Supply Voltage	IOVCC	-	-0.3	-	4.0	伏 V
输入电压范围 Input Voltage Range	VIN	-	-0.3	-	IOVCC +0.3	伏 V

注释 Note:

1. 超过上面列出的极限值可能会导致驱动 IC 永久损坏。 这些值仅用于测试。IC 应在芯片特性条件下正常运行。 如果不满足这些条件，IC 操作可能会出错，可靠性可能会下降。

That the exceeds the Limiting Value listed above it may cause the driver IC permanent damage. These values are for test only. IC should be operated under the Chip Characteristic conditions for normal operation. If these conditions are not met, IC operation may be error and the reliability may be deteriorated.

2. 参数在工作温度范围内有效，除非另有说明。 除非另有说明，所有电压均相对于 GND。

Parameters are valid over operating temperature range unless otherwise specified. All voltages are with respect to GND unless otherwise noted.

3. 确保 IOVCC、VCI 的电压电平始终符合正确的关系：2.6V ≦ IOVCC ≦ VCC ≦ 3.6V。

Insure the voltage levels of IOVCC, VCI, always matches the correct relation: 2.6V ≦ IOVCC ≦ VCC ≦ 3.6V.

4. VIN 应小于或等于 3.6V。 (VIN ≤ 3.6V)。

VIN should be less than or equal to 3.6V. (VIN ≦ 3.6V).

5. 面板显示质量取决于面板负载，在低温/高温下可能有不同的性能。

Panel display quality depends on panel loading, and it may have the different performance at low/high temperature.

4-2 TFT 面板工作条件 TFT Panel Operating Conditions

项目 Item	标号 Symbol	条件 Condition	最小值 Min	典型值 Type	最大值 Max	单位 Unit
数字电源 Digital Power	VCI	-	2.6	2.8	3.6	伏 V
接口工作电压 IO Supply Voltage	IOVCC	-	2.6	2.8	3.6	伏 V
输入电压范围 Input Voltage Range	VIN	-	2.6	2.8	3.6	伏 V
待机电流 Standby Current	Isc	No Load@ FR=60Hz	-	-	-	微安 uA
工作电流 Operation Current	Ioc		-	-	-	毫安 mA

4-3 背光工作条件 LED back light specification

项目 Item	标号 Symbol	条件 Condition	最小值 Min	典型值 Type	最大值 Max	单位 Unit
工作电压 Forward voltage	VF	If=3.2V/20mA /1-chip	9.0	9.6	10.0	伏 V
工作电流 Forward current	IF		-	160	-	毫安 mA
亮度（带 LCD） Luminance(With LCD)	Lv	Without TP	-	550	-	坎德拉/平方米 cd/m^2
		With TP	-	-	-	
LED 寿命 LED life time	Hr	Ta=25±3 ℃	20,000	30,000	-	小时 Hour

注释 Note:

1. LED 寿命 (Hr) 定义为在 Ta=25±3 ℃,上表所示的典型电压电流值条件下持续工作直至亮度低于 50% 的时间。

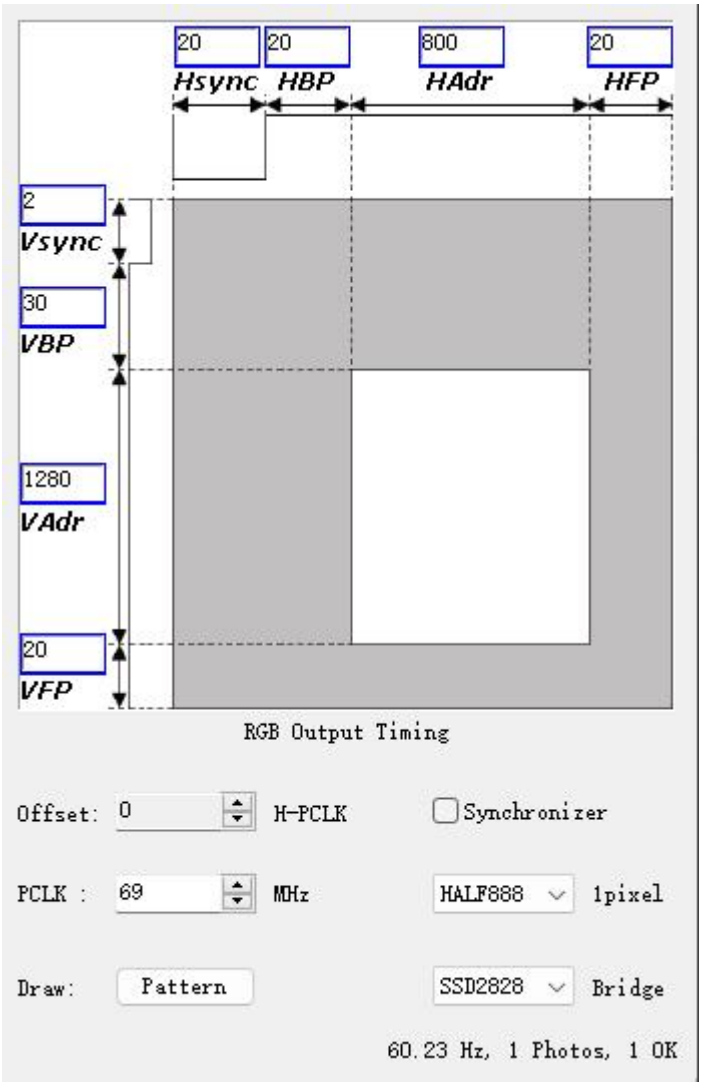
LED life time (Hr) can be defined as the time in which it continues to operate under the condition:Ta=25±3 ℃, typical IL value indicated in the above table until the brightness becomes less than 50%.

2. 以上结果是按 MTBF 計算方式预估判定的 LED 失效时间，实际测试 LED 在 Ta=25±3 ℃点亮 5000H，亮度衰减 8%.

The above results are estimated and judged by the MTBF calculation method of the LED failure time. The actual test LED is lit for 5000H at Ta=25±3 ℃, and the brightness decays by 8%.

初始化代码　　Initialization code

//我司测试盒参数（参考） Our test box parameters (reference)




```
Void Panel_initial_code(void)
{
    //---------------------Reset sequence----------//
    LCD_RESET=1;
    Delayms(1); //Delay 1ms
    LCD_RESET=0;
    Delayms(10); //Delay 10ms
    LCD_RESET=1;
    Delayms(120);  //Delay 120ms
    //-----------------------------------------------------------------------//

      Generic_Long_Write_3P(0xFF,0x98,0x81,0x03);
```

```
//GIP_1
Generic_Short_Write_1P(0x01,0x00);
Generic_Short_Write_1P(0x02,0x00);
Generic_Short_Write_1P(0x03,0x73);//STVA=STV1~4
Generic_Short_Write_1P(0x04,0x13);//STVB=STV0
Generic_Short_Write_1P(0x05,0x00);
Generic_Short_Write_1P(0x06,0x0A);//STVA_Rise
Generic_Short_Write_1P(0x07,0x05);//STVB_Rise
Generic_Short_Write_1P(0x08,0x00);
Generic_Short_Write_1P(0x09,0x28);//FTI1R(A) STV1=3.6H
Generic_Short_Write_1P(0x0a,0x00);
Generic_Short_Write_1P(0x0b,0x00);
Generic_Short_Write_1P(0x0c,0x00);
Generic_Short_Write_1P(0x0d,0x28);//FTI2F(B) STV0=3.6H
Generic_Short_Write_1P(0x0e,0x00);
Generic_Short_Write_1P(0x0f,0x28);//CLW1(ALR) Duty=45%
Generic_Short_Write_1P(0x10,0x28);//CLW2(ARR) Duty=45%
Generic_Short_Write_1P(0x11,0x00);
Generic_Short_Write_1P(0x12,0x00);
Generic_Short_Write_1P(0x13,0x00);
Generic_Short_Write_1P(0x14,0x00);
Generic_Short_Write_1P(0x15,0x00);
Generic_Short_Write_1P(0x16,0x00);
Generic_Short_Write_1P(0x17,0x00);
Generic_Short_Write_1P(0x18,0x00);
Generic_Short_Write_1P(0x19,0x00);
Generic_Short_Write_1P(0x1a,0x00);
Generic_Short_Write_1P(0x1b,0x00);
Generic_Short_Write_1P(0x1c,0x00);
Generic_Short_Write_1P(0x1d,0x00);
Generic_Short_Write_1P(0x1e,0x40);//CLKA 40 `笆は C0も笆は(X8把σCLKB)
Generic_Short_Write_1P(0x1f,0x80);//C0
Generic_Short_Write_1P(0x20,0x06);//CLKA_Rise
Generic_Short_Write_1P(0x21,0x01);//CLKA_Fall
Generic_Short_Write_1P(0x22,0x00);
Generic_Short_Write_1P(0x23,0x00);
Generic_Short_Write_1P(0x24,0x00);
Generic_Short_Write_1P(0x25,0x00);
Generic_Short_Write_1P(0x26,0x00);
```

```
Generic_Short_Write_1P(0x27,0x00);
Generic_Short_Write_1P(0x28,0x33);//CLK Phase
Generic_Short_Write_1P(0x29,0x33);//CLK overlap
Generic_Short_Write_1P(0x2a,0x00);
Generic_Short_Write_1P(0x2b,0x00);
Generic_Short_Write_1P(0x2c,0x04);//GCH R
Generic_Short_Write_1P(0x2d,0x04);//GCL R
Generic_Short_Write_1P(0x2e,0x05);//GCH F);
Generic_Short_Write_1P(0x2f,0x05);//GCL F);
Generic_Short_Write_1P(0x30,0x00);
Generic_Short_Write_1P(0x31,0x00);
Generic_Short_Write_1P(0x32,0x31);//
Generic_Short_Write_1P(0x33,0x00);
Generic_Short_Write_1P(0x34,0x00);
Generic_Short_Write_1P(0x35,0x0A);//
Generic_Short_Write_1P(0x36,0x00);
Generic_Short_Write_1P(0x37,0x08);//
Generic_Short_Write_1P(0x38,0x00);
Generic_Short_Write_1P(0x39,0x00);
Generic_Short_Write_1P(0x3a,0x00);
Generic_Short_Write_1P(0x3b,0x00);
Generic_Short_Write_1P(0x3c,0x00);
Generic_Short_Write_1P(0x3d,0x00);
Generic_Short_Write_1P(0x3e,0x00);
Generic_Short_Write_1P(0x3f,0x00);
Generic_Short_Write_1P(0x40,0x00);
Generic_Short_Write_1P(0x41,0x00);
Generic_Short_Write_1P(0x42,0x00);
Generic_Short_Write_1P(0x43,0x08);//GCH/L
Generic_Short_Write_1P(0x44,0x00);

//GIP_2
Generic_Short_Write_1P(0x50,0x01);
Generic_Short_Write_1P(0x51,0x23);
Generic_Short_Write_1P(0x52,0x44);
Generic_Short_Write_1P(0x53,0x67);
Generic_Short_Write_1P(0x54,0x89);
Generic_Short_Write_1P(0x55,0xab);
Generic_Short_Write_1P(0x56,0x01);
Generic_Short_Write_1P(0x57,0x23);
```

```
Generic_Short_Write_1P(0x58,0x45);
Generic_Short_Write_1P(0x59,0x67);
Generic_Short_Write_1P(0x5a,0x89);
Generic_Short_Write_1P(0x5b,0xab);
Generic_Short_Write_1P(0x5c,0xcd);
Generic_Short_Write_1P(0x5d,0xef);

//GIP_3
Generic_Short_Write_1P(0x5e,0x11);
Generic_Short_Write_1P(0x5f,0x02);//
Generic_Short_Write_1P(0x60,0x08);//FW_CGOUT_L[2]  STV0
Generic_Short_Write_1P(0x61,0x0E);//FW_CGOUT_L[3]  CLK1
Generic_Short_Write_1P(0x62,0x0F);//FW_CGOUT_L[4]  CLK3
Generic_Short_Write_1P(0x63,0x0C);//FW_CGOUT_L[5]  CLK5
Generic_Short_Write_1P(0x64,0x0D);//FW_CGOUT_L[6]  CLK7
Generic_Short_Write_1P(0x65,0x17);//FW_CGOUT_L[7]  GCL
Generic_Short_Write_1P(0x66,0x01);//FW_CGOUT_L[8]  VDS
Generic_Short_Write_1P(0x67,0x01);//FW_CGOUT_L[9]  VDS
Generic_Short_Write_1P(0x68,0x02);//FW_CGOUT_L[10] VGL
Generic_Short_Write_1P(0x69,0x02);//FW_CGOUT_L[11] VGL
Generic_Short_Write_1P(0x6a,0x00);//FW_CGOUT_L[12] VSD
Generic_Short_Write_1P(0x6b,0x00);//FW_CGOUT_L[13] VSD
Generic_Short_Write_1P(0x6c,0x02);//FW_CGOUT_L[14]
Generic_Short_Write_1P(0x6d,0x02);//FW_CGOUT_L[15]
Generic_Short_Write_1P(0x6e,0x16);//FW_CGOUT_L[16] GCH
Generic_Short_Write_1P(0x6f,0x16);//FW_CGOUT_L[17] GCH
Generic_Short_Write_1P(0x70,0x06);//FW_CGOUT_L[18] STV1
Generic_Short_Write_1P(0x71,0x06);//FW_CGOUT_L[19] STV1
Generic_Short_Write_1P(0x72,0x07);//FW_CGOUT_L[20] STV3
Generic_Short_Write_1P(0x73,0x07);//FW_CGOUT_L[21] STV3
Generic_Short_Write_1P(0x74,0x02);//FW_CGOUT_L[22]

Generic_Short_Write_1P(0x75,0x02);//BW_CGOUT_L[1]
Generic_Short_Write_1P(0x76,0x08);//BW_CGOUT_L[2]
Generic_Short_Write_1P(0x77,0x0E);//BW_CGOUT_L[3]
Generic_Short_Write_1P(0x78,0x0F);//BW_CGOUT_L[4]
Generic_Short_Write_1P(0x79,0x0C);//BW_CGOUT_L[5]
Generic_Short_Write_1P(0x7a,0x0D);//BW_CGOUT_L[6]
Generic_Short_Write_1P(0x7b,0x17);//BW_CGOUT_L[7]
Generic_Short_Write_1P(0x7c,0x01);//BW_CGOUT_L[8]
```

```
Generic_Short_Write_1P(0x7d,0x01);//BW_CGOUT_L[9]
Generic_Short_Write_1P(0x7e,0x02);//BW_CGOUT_L[10]
Generic_Short_Write_1P(0x7f,0x02);//BW_CGOUT_L[11]
Generic_Short_Write_1P(0x80,0x00);//BW_CGOUT_L[12]
Generic_Short_Write_1P(0x81,0x00);//BW_CGOUT_L[13]
Generic_Short_Write_1P(0x82,0x02);//BW_CGOUT_L[14]
Generic_Short_Write_1P(0x83,0x02);//BW_CGOUT_L[15]
Generic_Short_Write_1P(0x84,0x16);//BW_CGOUT_L[16]
Generic_Short_Write_1P(0x85,0x16);//BW_CGOUT_L[17]
Generic_Short_Write_1P(0x86,0x06);//BW_CGOUT_L[18]
Generic_Short_Write_1P(0x87,0x06);//BW_CGOUT_L[19]
Generic_Short_Write_1P(0x88,0x07);//BW_CGOUT_L[20]
Generic_Short_Write_1P(0x89,0x07);//BW_CGOUT_L[21]
Generic_Short_Write_1P(0x8A,0x02);//BW_CGOUT_L[22]

//CMD_Page 4
Generic_Long_Write_3P(0xFF,0x98,0x81,0x04);
Generic_Short_Write_1P(0x6E,0x1A);   //VGH 12V 0x1A
Generic_Short_Write_1P(0x6F,0x37);   //
Generic_Short_Write_1P(0x3A,0xA4);   //POWER SAVING
Generic_Short_Write_1P(0x8D,0x1F);   //VGL -12V
Generic_Short_Write_1P(0x87,0xBA);   //ESD
Generic_Short_Write_1P(0xB2,0xD1);
Generic_Short_Write_1P(0x88,0x0B);
Generic_Short_Write_1P(0x38,0x01);
Generic_Short_Write_1P(0x39,0x00);
Generic_Short_Write_1P(0xB5,0x02);   //gamma bias
Generic_Short_Write_1P(0x31,0x25);   //source bias
Generic_Short_Write_1P(0x3B,0x98);

//CMD_Page 1
Generic_Long_Write_3P(0xFF,0x98,0x81,0x01);
Generic_Short_Write_1P(0x22,0x0A);  //BGR,0x SS
Generic_Short_Write_1P(0x31,0x00);  //Column inversion
Generic_Short_Write_1P(0x53,0x3D);  //VCOM1
Generic_Short_Write_1P(0x55,0x3D);  //VCOM2
Generic_Short_Write_1P(0x50,0xA0);  //VREG1OUT 4.6V
Generic_Short_Write_1P(0x51,0x9C);  //VREG2OUT -4.6V
Generic_Short_Write_1P(0x60,0x06);  //SDT
Generic_Short_Write_1P(0x62,0x20);
```

```
//============Gamma START=============
//Pos Register
Generic_Short_Write_1P(0xA0,0x00);
Generic_Short_Write_1P(0xA1,0x21);
Generic_Short_Write_1P(0xA2,0x35);
Generic_Short_Write_1P(0xA3,0x19);
Generic_Short_Write_1P(0xA4,0x1E);
Generic_Short_Write_1P(0xA5,0x33);
Generic_Short_Write_1P(0xA6,0x27);
Generic_Short_Write_1P(0xA7,0x26);
Generic_Short_Write_1P(0xA8,0xAF);
Generic_Short_Write_1P(0xA9,0x1B);
Generic_Short_Write_1P(0xAA,0x27);
Generic_Short_Write_1P(0xAB,0x8D);
Generic_Short_Write_1P(0xAC,0x1A);
Generic_Short_Write_1P(0xAD,0x1B);
Generic_Short_Write_1P(0xAE,0x50);
Generic_Short_Write_1P(0xAF,0x26);
Generic_Short_Write_1P(0xB0,0x2B);
Generic_Short_Write_1P(0xB1,0x54);
Generic_Short_Write_1P(0xB2,0x5E);
Generic_Short_Write_1P(0xB3,0x23);

//Neg Register
Generic_Short_Write_1P(0xC0,0x00);
Generic_Short_Write_1P(0xC1,0x21);
Generic_Short_Write_1P(0xC2,0x35);
Generic_Short_Write_1P(0xC3,0x19);
Generic_Short_Write_1P(0xC4,0x1E);
Generic_Short_Write_1P(0xC5,0x33);
Generic_Short_Write_1P(0xC6,0x27);
Generic_Short_Write_1P(0xC7,0x26);
Generic_Short_Write_1P(0xC8,0xAF);
Generic_Short_Write_1P(0xC9,0x1B);
Generic_Short_Write_1P(0xCA,0x27);
Generic_Short_Write_1P(0xCB,0x8D);
Generic_Short_Write_1P(0xCC,0x1A);
Generic_Short_Write_1P(0xCD,0x1B);
Generic_Short_Write_1P(0xCE,0x50);
```

```
Generic_Short_Write_1P(0xCF,0x26);
Generic_Short_Write_1P(0xD0,0x2B);
Generic_Short_Write_1P(0xD1,0x54);
Generic_Short_Write_1P(0xD2,0x5E);
Generic_Short_Write_1P(0xD3,0x23);
//============ Gamma END===========

//CMD_Page 0
Generic_Long_Write_3P(0xFF,0x98,0x81,0x00);
Generic_Short_Write_1P(0x35,0x00);
Generic_Short_Write_1P(0x11,0x00);
Delay(120);   //Delay,0x120
Generic_Short_Write_1P(0x29,0x00);
Delay(120);   //Delay,0x120
}
```

- - END - -