P39403

64x128 White OLED
SPI Application Notes
(For SPI Interface)

Revision History

Version	REVISION DESCRIPTION
X01	First release

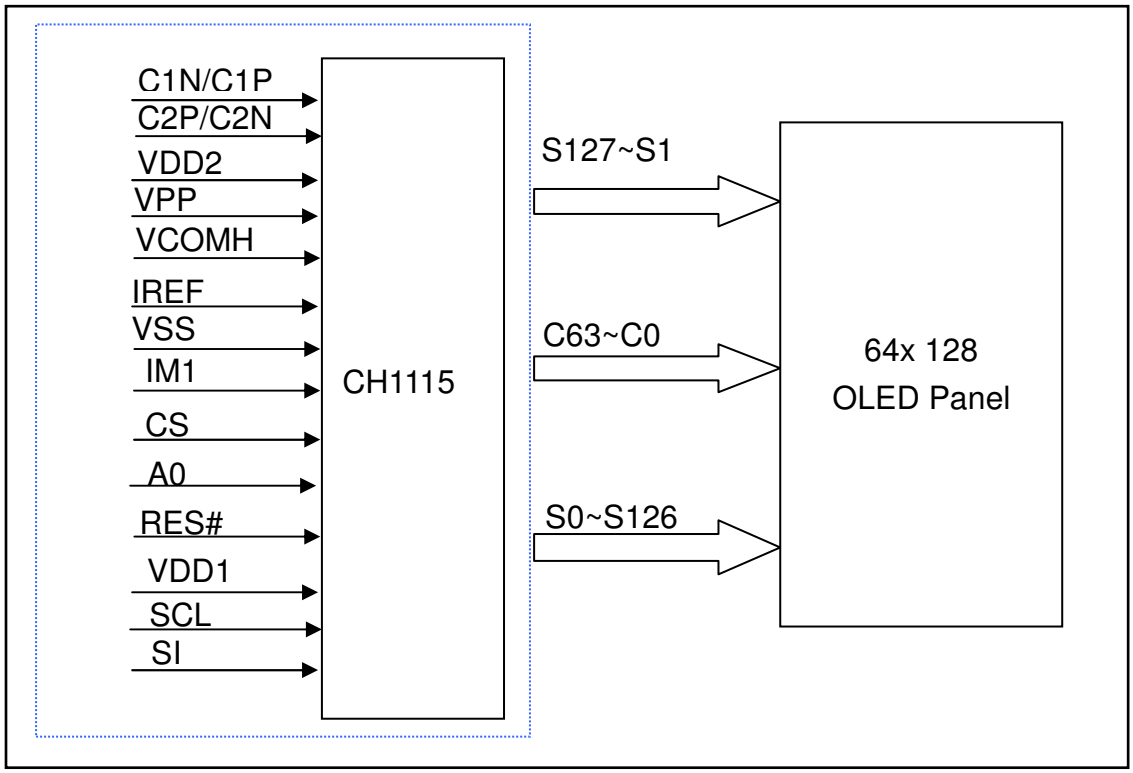
DESCRIPTION

P39403 is a dot matrix White passive OLED module with controller for many compact portable applications.

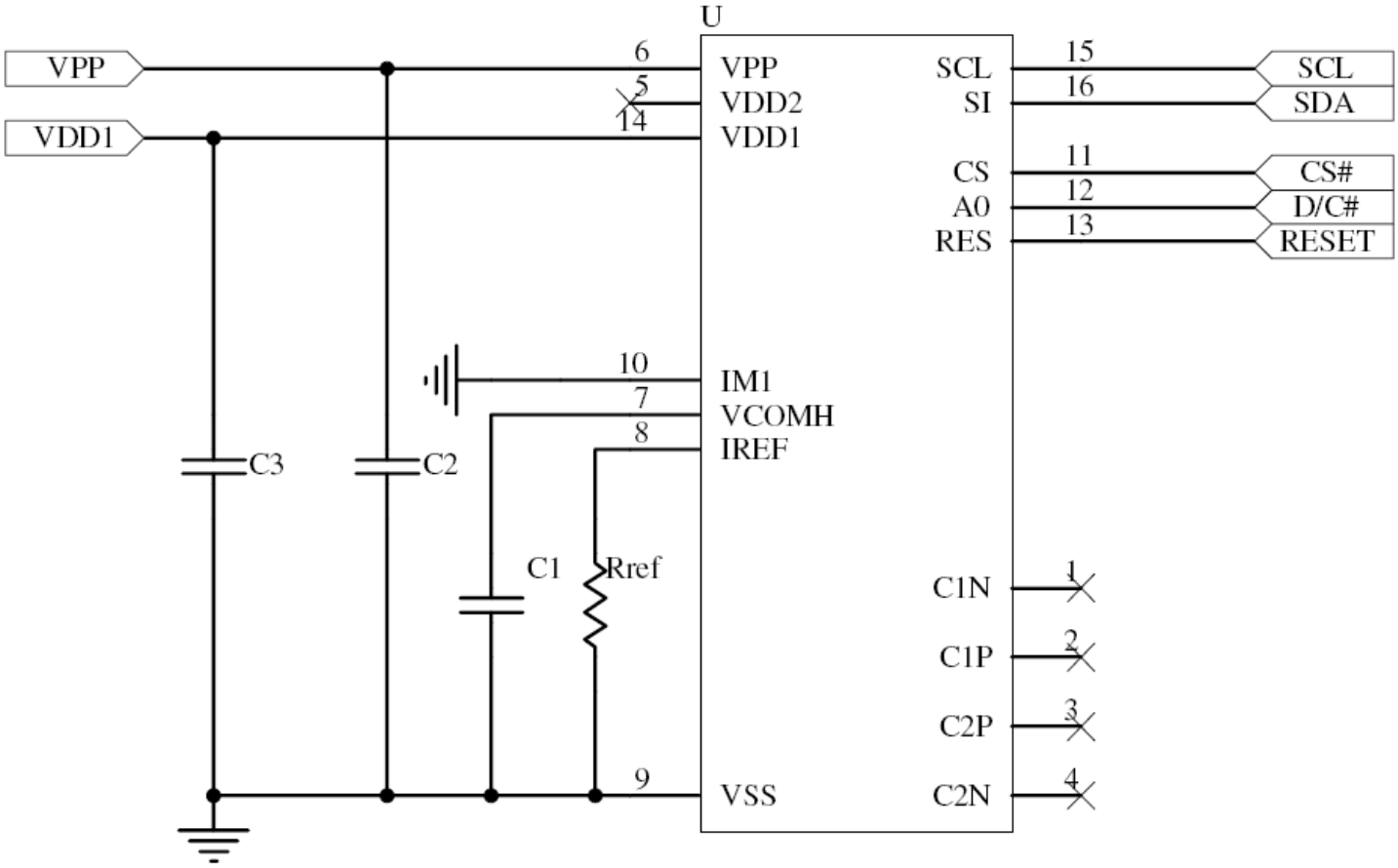
FEATURE

- Panel resolution：64×128
- Driver IC：CH1115
- VPP = 10V
- VDD1 = 1.65V ~ 3.5V
- Interface: SPI interface and I^2C interface.
- Display data RAM : 64x128 = 8192 bits

FUNCTION BLOCK DIAGRAM



APPLICATION CIRCUIT



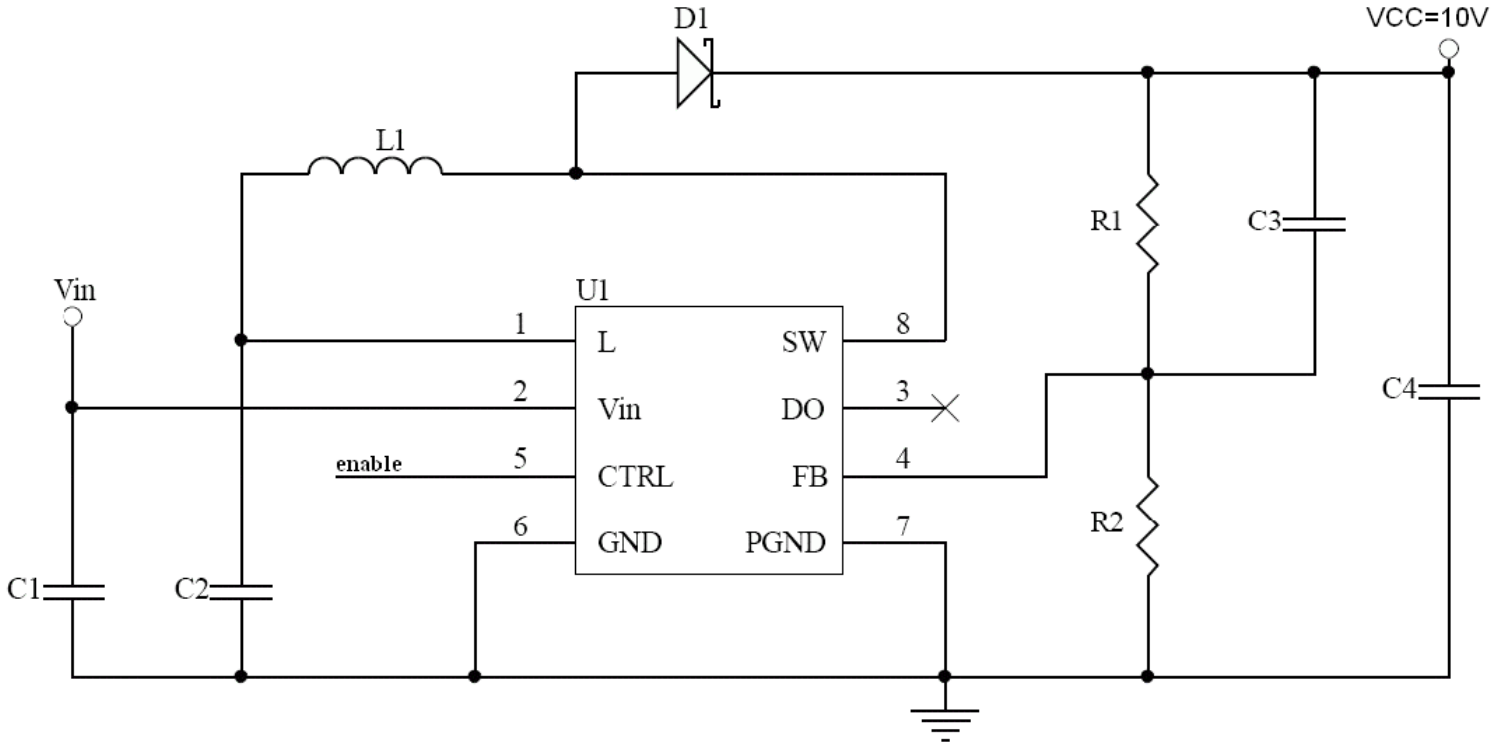
Recommend components：

U：P39403
C1,C2：1nF/50V
C3：100nF/50V
Rref：390K ohm 1% (0603)

Note:

The circuit is designed for SPI interface.

DC-DC application circuit



Recommend components：

C1：0.1uF/6.3V
C2：4.7uF/6.3V
C3：10pF/16V
C4：4.7uF/25V Tantalum type capacitor
R1：1M ohm/ 1%
R2：137K ohm/ 1%
D1：SCHOTTY DIODE
L1：10uH
U1：TPS61045

Note:

The R1, R2 and C3 value should be fine tune by customer.

PIN ASSIGNMENTS

Pin No.	Pin Name	Description	Setting at each interface		
			8080	SPI	IIC
1	C1N	Connect to charge pump capacitor.			
2	C1P	Connect to charge pump capacitor.			
3.	C2P	Connect to charge pump capacitor.			
4	C2N	Connect to charge pump capacitor.			
5	VDD2	Power supply for charge pump circuit.			
6	VPP	OLED panel power supply			
7.	VCOMH	A capacitor should be connected between this pin and VSS.			
8	IREF	This is a segment current reference pad.			
9	VSS	Ground.			
10	IM1	I MCU bus interface selection pins.	NA	Low	High
11	CS	This pad is the chip select input.	NA	CS#	Low
12	A0	This is the Data/Command control pad.	NA	A0	Low
13	RES	This is a reset signal input pad	NA	Reset	Reset
14	VDD1	Power supply pin for core logic operation.			
15	SCL	When the serial interface is selected, then D0 serves as the serial clock input pad (SCL) and D1 serves as the serial data input pad (SI). When the I2C interface is selected, then D0 serves as the serial clock input pad (SCL) and D1 serves as the serial data input pad (SDA).	NA	SCL	SCL
16	SI		NA	SDA	SI

Note

(1) Low is connected to VSS

(2) High is connected to VDD1

Application Software

```
void initial_code(void)
{
   comm_out(0xAE); //Set Display Off
   comm_out(0xD5); //Display divide ratio/osc. freq. mode
   comm_out(0x83);
   comm_out(0xA8); //1/64 duty
   comm_out(0x3F);
   comm_out(0xD3); //Set Display Offset
   comm_out(0x00);//Right-left
   comm_out(0x40); //Set Display Start Line
   comm_out(0xAD); //DC-DC Control Mode Set
   comm_out(0x8A);
   comm_out(0xA0);//Segment Remap
   comm_out(0xC0);//Set COM Output Scan Direction
   comm_out(0xDA); //Common pads hardware: alternative
   comm_out(0x12);
   comm_out(0x81); //Contrast control
   comm_out(0x80);//For VCC=10V
   comm_out(0xD9); //Set pre-charge period
   comm_out(0x1F);
   comm_out(0xDB); //VCOM deselect level mode
   comm_out(0x2D);
   comm_out(0xA4); //Set Entire Display On/Off
   comm_out(0xA6); //Set Normal Display
   cleanDDR ( ) ; //Clear the whole DDRAM
   comm_out ( 0xAF ) ; //Set display on
}
```

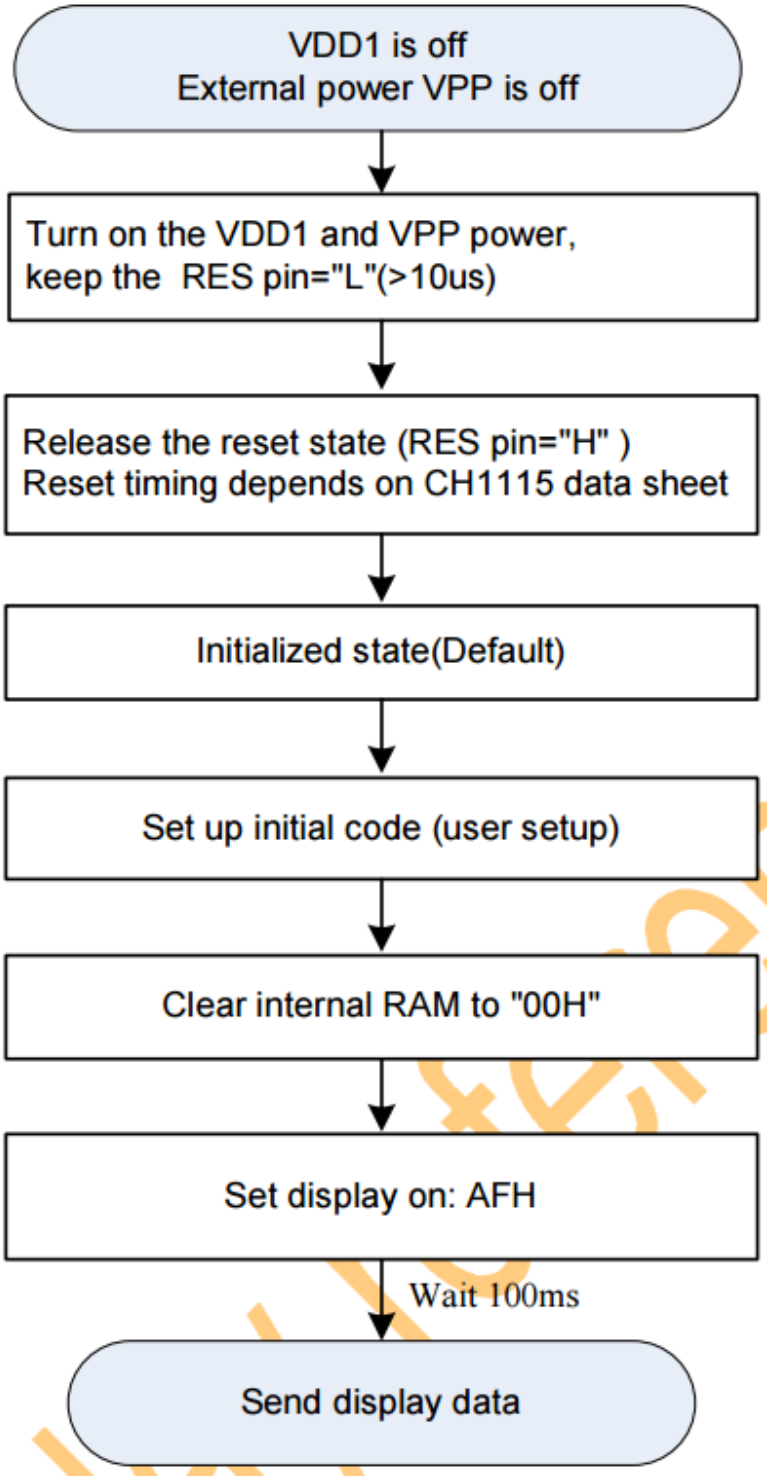
```
void cleanDDR(void)
{
  int i,j;
  for(i=0;i<8;i++)
     {
       comm_out(0xb0+i);
       comm_out(0x00);
       comm_out(0x10);
       for(j=0;j<128;j++)
          {
          data_out(0x00);
          }
     }
}
```

After initial the driver IC, user can display all pixels on.

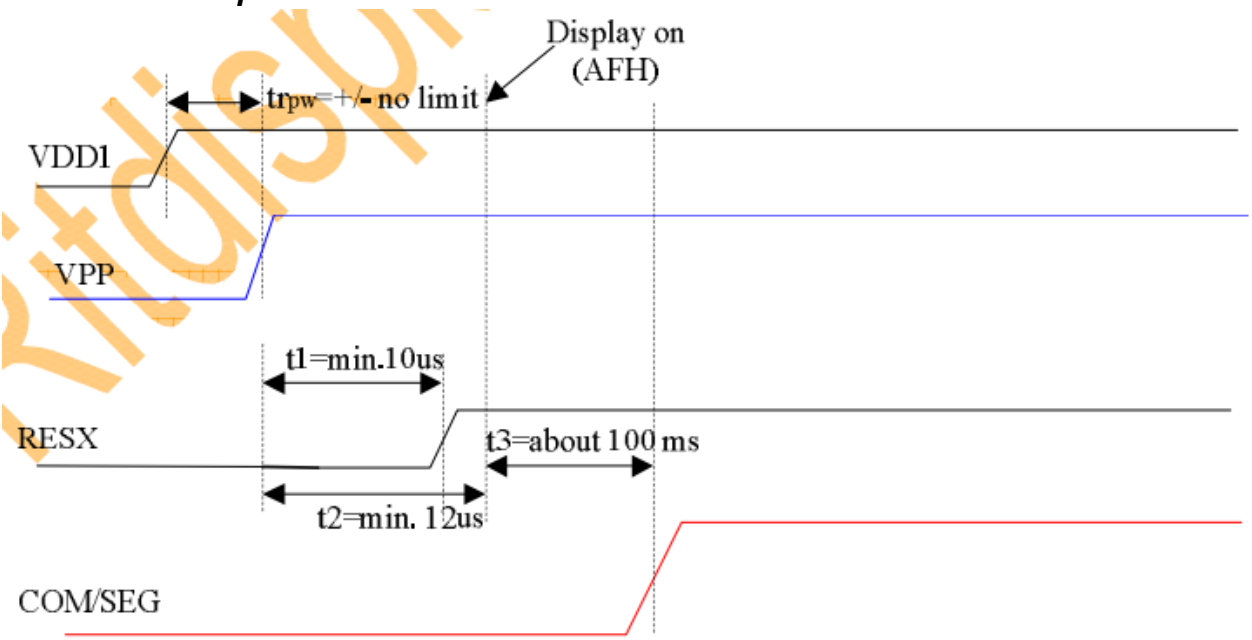
```
void show_data(void)
   {
   int i,j;
   for(i=0;i<8;i++)
        {
          comm_out(0xb0+i);
          comm_out(0x00);
          comm_out(0x10);
          for(j=0;j<128;j++)
             {
             data_out(0xff);
             }
        }
   }
```

POWER ON and OFF SEQUENCE

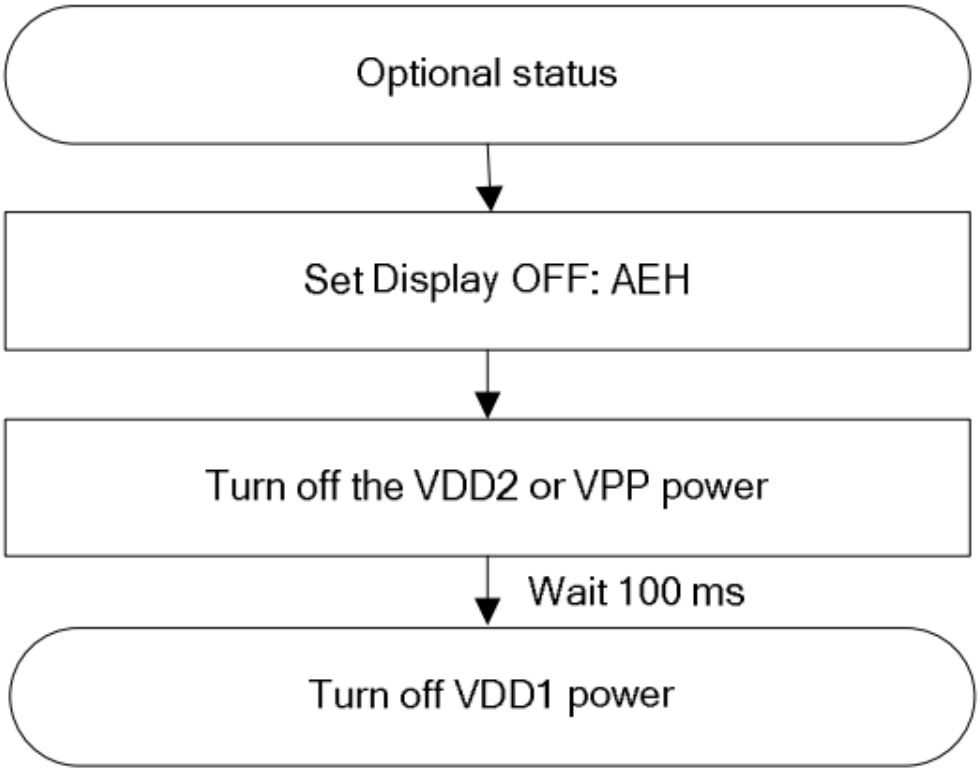
Power ON sequence：



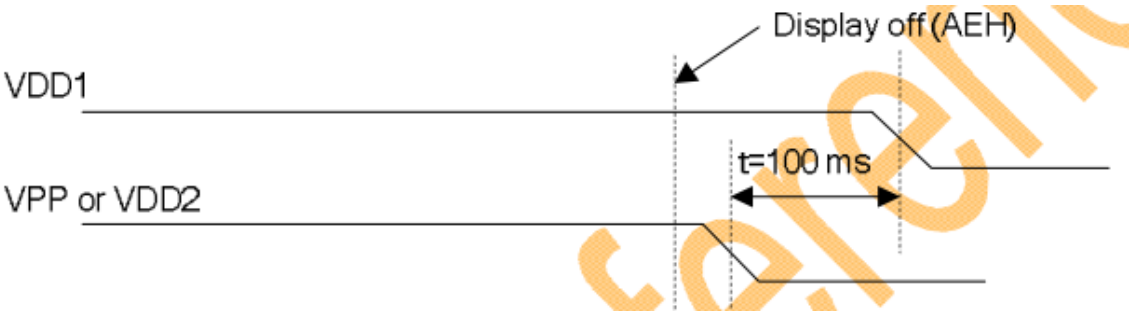
Power on sequence：



Power OFF sequence:



Power off sequence：



Thank You