

## 1. Abstract

H28A-I is a I2C interface 2.8 inch TFT color display module. Module with 64M bit memory, can store BMP image and resource file. With the flexible interface mode and simple and convenient operation instructions, the whole man-machine interactive graphical interface can be formed by touch screen.

(1) built in memory capacity: 64Mbit

Font occupied 16Mbit, the remaining space 48Mbit used to store resource data.

(2) integrated graphics function

LCDs to send commands and coordinate parameters, can be achieved in point, line, square, round, button, form, edit box display. Contains text, buttons, edit box, check box, slider, thermometer, water level meter, curve waveform, ruler, battery and other controls Object.

## 2. Description

no	Item	Standard value	Unit	Remarks
1	Display dot matrix number	320*RGB*240	Dots	
2	LCD Size	2.8	inch	
3	LCM Exterior dimension	61(L)*89(W)	mm	
4	Dynamic display area	41(L)*57(W)	mm	
5	Pixel size	0.18(L)*0.18(W)	mm	
6	Pixel component	a-Si TFT		
7	LCD mode	65 k TFT		16 bit color
8	visual angle	12 o'clock		
9	Backlight	White led		
10	Module power supply	3.3~5	V	

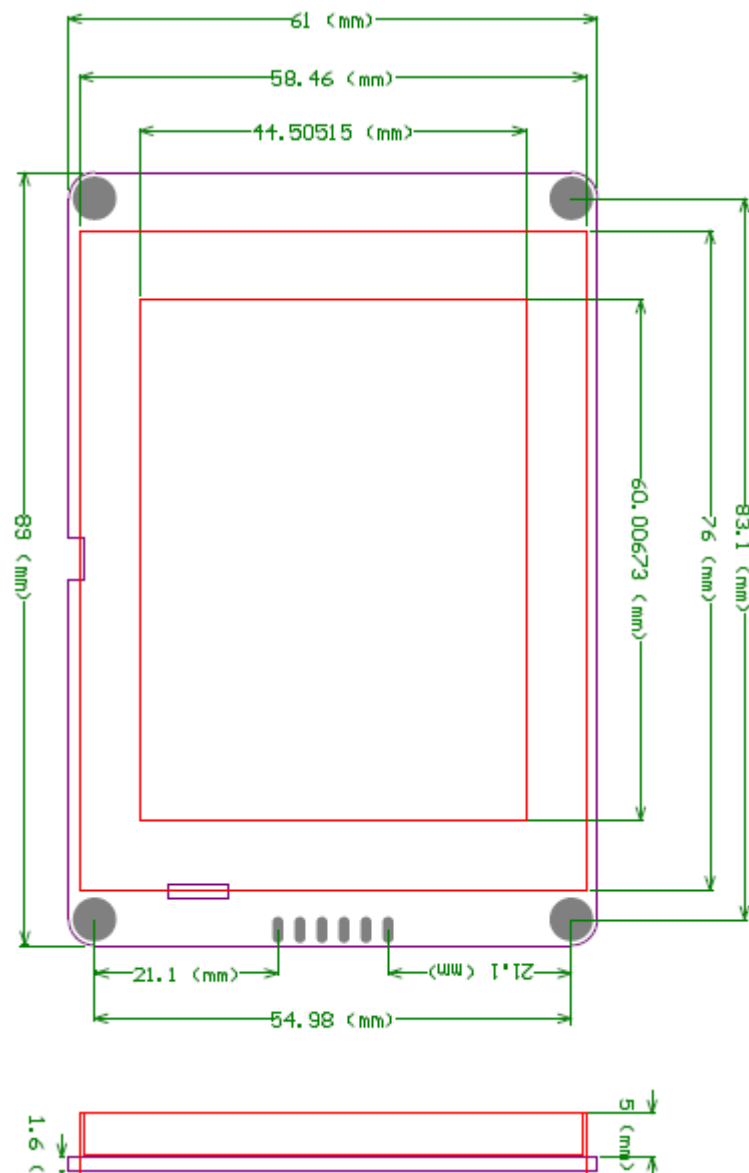
Maximum product rating:

Item	Symbol	MIN	Typical	MAX	Unit	Remarks
Operating temperature	Top	-20	-	+70	°C	
Storage temperature	Tst	-30	-	+80	°C	
Supply voltage	VDD	-0.3	-	5.4	V	
Input voltage	Vin	-0.3	-	VDD+0.3	V	According to the input voltage

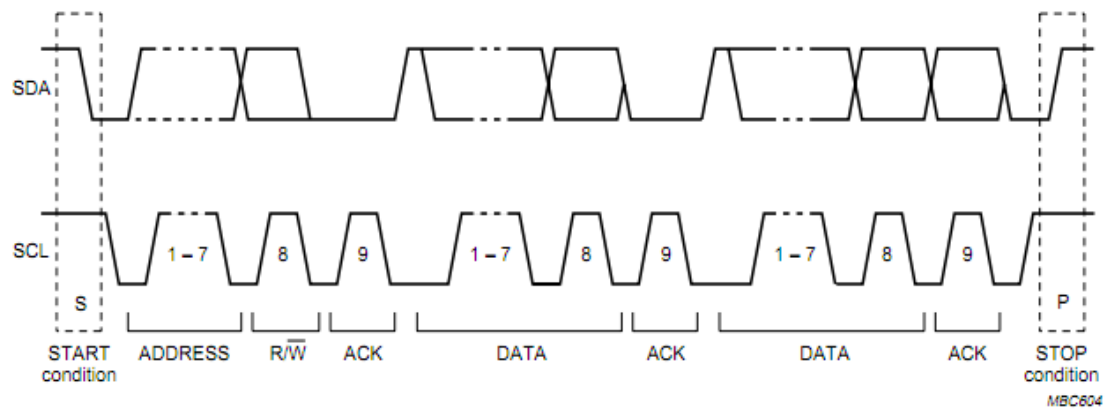
Product electrical characteristics:

Item	Symbol	MIN	Typical	MAX	Unit	Remarks
Working voltage	VDD	3.3	5.0	5.4	V	3.3V/5V power supply
Operating current	I	43	46	50	mA	Backlight on
	I	20	28	35		Backlight off

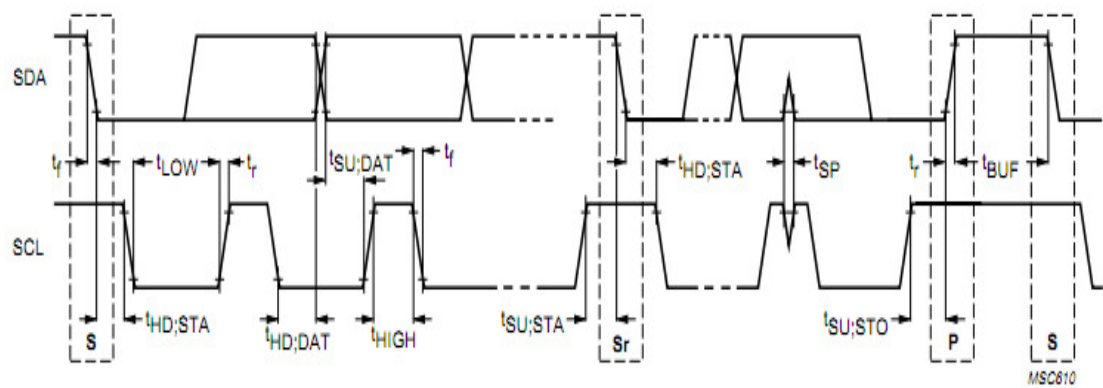
### 3. Structure and pin



#### 4.I2C interface timing diagram:



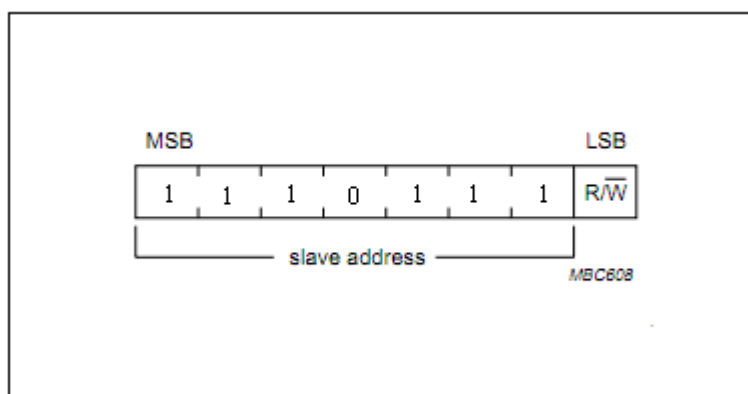
A complete data transfer.



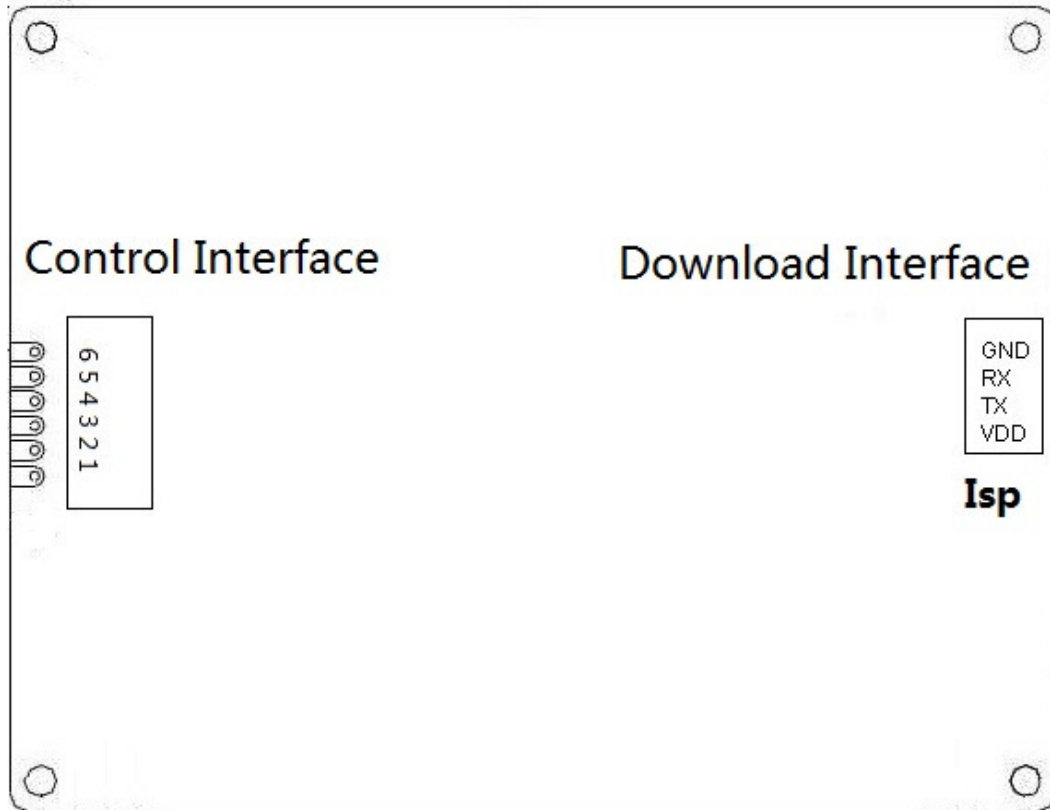
AC parameter:

PARAMETER	SYMBOL	STANDARD-MODE		UNIT
		MIN.	MAX.	
SCL clock frequency	$f_{SCL}$	0	100	kHz
Hold time (repeated) START condition. After this period, the first clock pulse is generated	$t_{HD;STA}$	4.0	–	$\mu s$
LOW period of the SCL clock	$t_{LOW}$	4.7	–	$\mu s$
HIGH period of the SCL clock	$t_{HIGH}$	4.0	–	$\mu s$
Set-up time for a repeated START condition	$t_{SU;STA}$	4.7	–	$\mu s$
Data hold time: for CBUS compatible masters (see NOTE, Section 10.1.3) for I <sup>2</sup> C-bus devices	$t_{HD;DAT}$	5.0 0 <sup>(2)</sup>	– 3.45 <sup>(3)</sup>	$\mu s$ $\mu s$
Data set-up time	$t_{SU;DAT}$	250	–	ns
Rise time of both SDA and SCL signals	$t_r$	–	1000	ns
Fall time of both SDA and SCL signals	$t_f$	–	300	ns
Set-up time for STOP condition	$t_{SU;STO}$	4.0	–	$\mu s$
Bus free time between a STOP and START condition	$t_{BUF}$	4.7	–	$\mu s$
Capacitive load for each bus line	$C_b$	–	400	pF
Noise margin at the LOW level for each connected device (including hysteresis)	$V_{nL}$	0.1V <sub>DD</sub>	–	V
Noise margin at the HIGH level for each connected device (including hysteresis)	$V_{nH}$	0.2V <sub>DD</sub>	–	V

5.I2C device address is 0x77.



## 6. Control and download interface



### I2C control interface specification:

Item	Interface name
1	VDD power
2	GND ground
3	SDA Serial data
4	SCL Serial clock
5	INT interrupt
6	NC

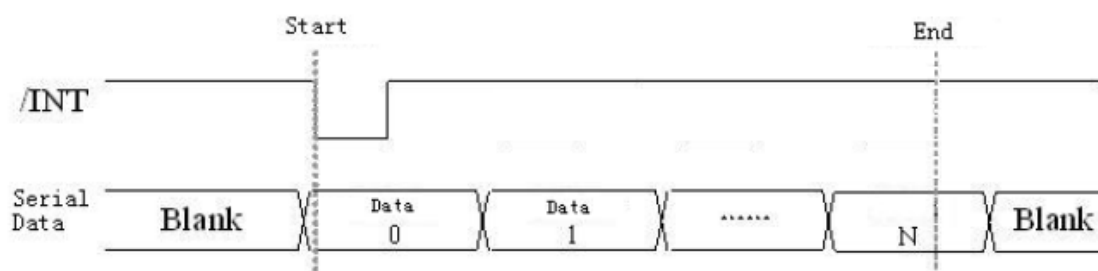
### Download interface description:

Item	Interface name
1	VDD power
2	TX Serial transmission
3	RX Serial reception
4	GND ground

Note: download interface the default serial communication baud rate is 921600 KBPS

Slave addr								Data											
S	A	A	A	A	A	A	A	R	A	D	D	D	D	D	D	D	A	P	
	6	5	4	3	2	1	0	W		7	6	5	4	3	2	1	0		
Start								Read	ACK								NO ACK	Stop	

Host need to use both interrupt control signal and serial data interface to get the H35B-I data. Here is the timing to get H35B-I data:



As for interrupt trigger style, /INT signal will be low if there is valid touch detected. But for per update of valid touch data, H35B-I will produce a valid pulse for /INT signal, host can read the touch data periodically according to the frequency of this pulse. In this style, the pulse frequency is the touch data update frequency and read valid Instruction data.

