

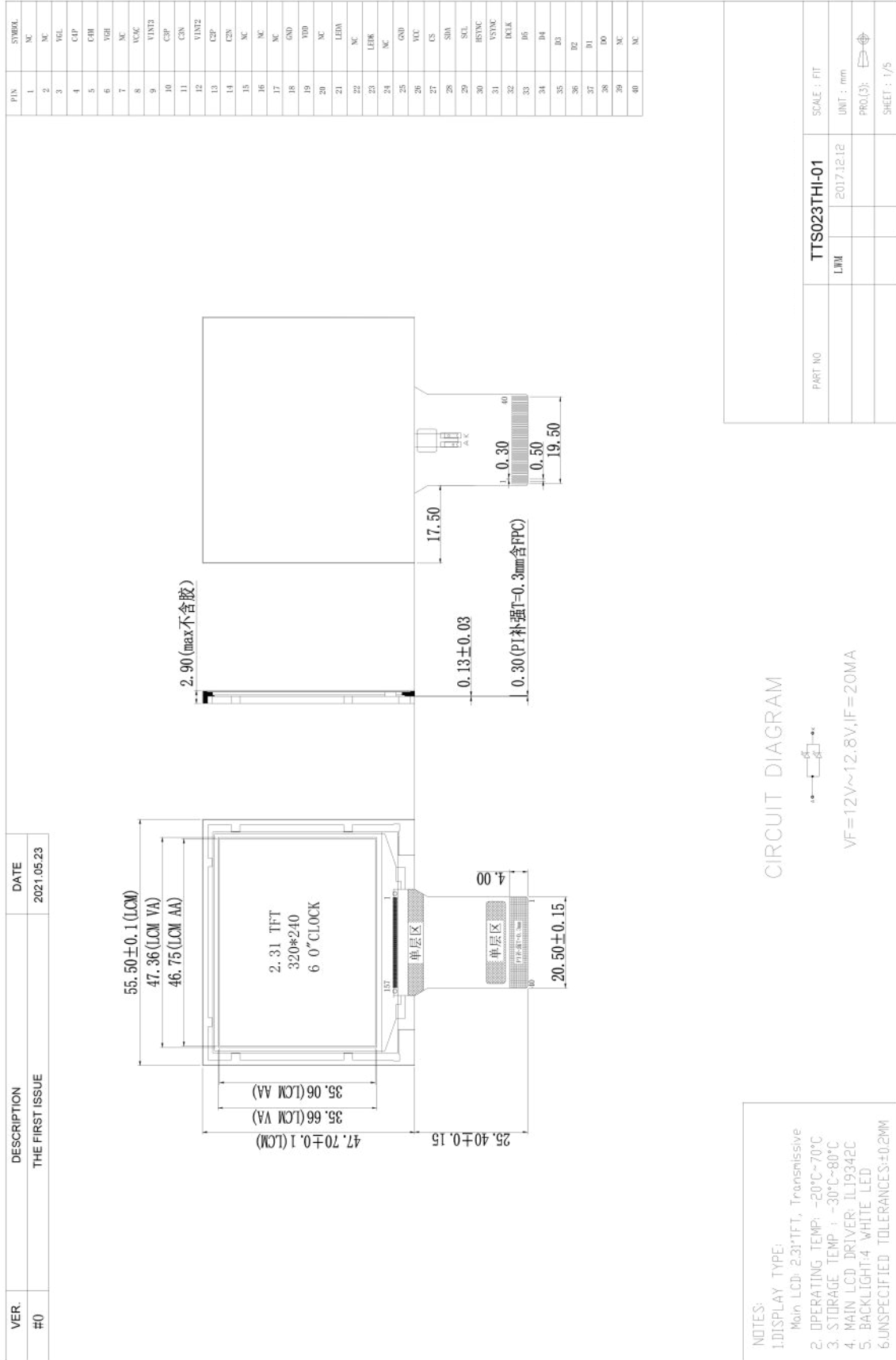
Product Specification

2.3" TFT Display Module (320*240)

2 General Specifications

ITEM	Standard value	UNIT
LCD Type	TFT Transmissive	/
Driver Element	TFT Active matrix	
Number of Dots	320* (RGB)*240	Dots
Pixel Arrangement	RGB Stripe	
Dot Size (W*H)	/	mm
Dot Pitch (W*H)	/	mm
Active Area	46.75(W) x35.06(H)	mm
Viewing Area (W*H)	47.36(W) x35.66(H)	mm
Glass Area (W*H)	/	mm
LCD Duty	/	
LCD Bias	/	
Viewing Direction	6 O'CLOCK (Human Eye)	
Control IC	ILI9342C	
Module Size(W*H*T)	55.50*47.70*2.90±0.1	mm
Approx. Weight	TBD	g
Back Light	2 White LED	

3 Mechanical Drawing



4 Interface

NO.	SYMBOL	Description
1	NC	DUMMY
2	NC	DUMMY
3	VGL	Capacitor For power setting
4	C4P	Capacitor For power pump
5	C4N	Capacitor For power pump
6	VGH	Capacitor For power setting
7	NC	DUMMY
8	VCAC	Capacitor For power setting
9	VINT3	Capacitor For power setting
10	C3P	Capacitor For power pump
11	C3N	Capacitor For power pump
12	VINT2	Capacitor For power setting
13	C2P	Capacitor For power pump
14	C2N	Capacitor For power pump
15	NC	DUMMY
16	C1P	Capacitor For power pump
17	C1N	Capacitor For power pump
18	GND	Ground
19	VDD	High voltage power supply for analog circuit blocks (2.8 ~ 3.3 V)
20	NC	DUMMY
21	LEDA	Back light power +
22	NC	DUMMY
23	LEDK	Back light power -
24	NC	DUMMY
25	GND	Ground
26	VCC	Power Supply for I/O System
27	CS	Chip select input pin
28	SDA	Serial in/out signal.
29	SCL	This pin is used serial interface clock
30	HSYNC	Line synchronizing signal for RGB interface operation
31	VSYNC	Frame synchronizing signal for RGB interface operation
32	DCLK	Dot clock signal for RGB interface operation
33-38	D5-D0	data bus for RGB
39	NC	Dummy
40	NC	Dummy

5 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply voltage	VDD	-0.3	4.2	V
Supply voltage (I/O)	VCC	-0.3	3.0	V
Supply current (one LED)	I _{LED}	-	20	mA
Operating temperature	T _{OP}	-20	+70	°C
Storage temperature	T _{ST}	-30	+80	°C

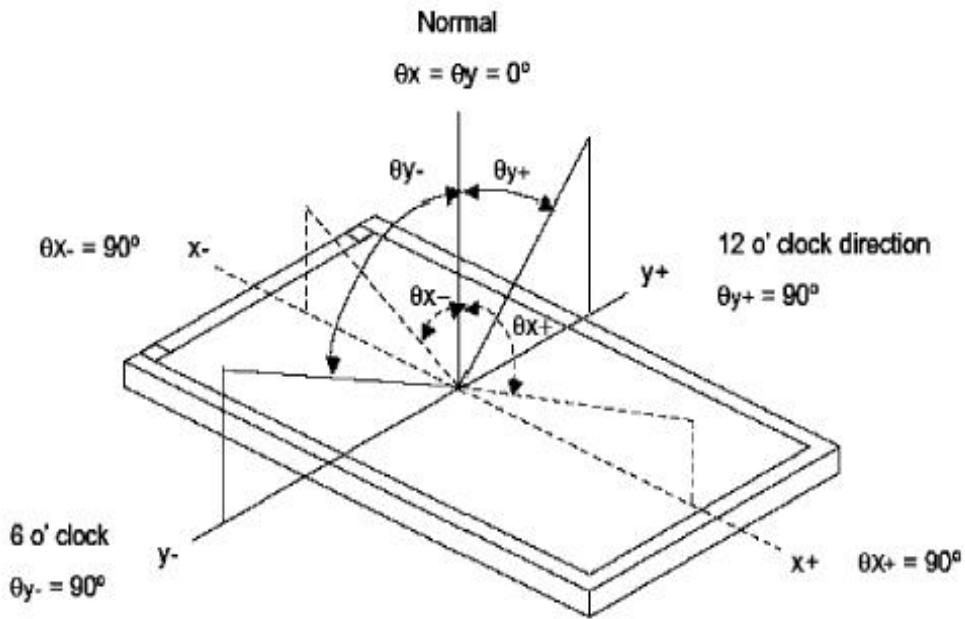
6 Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit
Supply voltage (I/O)	VCC	1.65	1.8	2.8	V
Supply voltage	VDD	2.6	2.8	3.3	V
Input voltage	V _{IL}	VSS	-	0.3 VCC	V
	V _{IH}	0.7 VCC	-	VCC	V
LED Forward voltage	V _f	2.7	3.0	3.3	V
Input backlight current	I _{LED} (One LED)	-	20	-	mA

7 Optical Characteristics

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT	NOTE
				MIN.	TYP.	MAX		
Brightness		B	Viewing normal angle	TBD	220	TBD	Cd/m ²	All left side data are based on SHENG JING's product reference only
Contrast Ratio		CR		400	500	--	--	
Response Time		Tr+Tf		--	20	30	ms	
CIE Color coordinate	Red	XR		0.614	0.644	0.674		
		YR		0.290	0.320	0.350		
	Green	XG		0.270	0.300	0.330		
		YG		0.540	0.570	0.600		
	Blue	XB		0.104	0.134	0.164		
		YB		0.097	0.127	0.157		
	White	XW		0.267	0.297	0.327		
		YW	0.302	0.332	0.362			
Viewing Angle	Hor.	θ_{x+}	Center CR>=10	--	70	--	Deg.	
		θ_{x-}		--	70	--		
	Ver.	θ_{y+}		--	70	--		
		θ_{y-}		--	60	--		
Uniformity	Un		--	80	--	%		

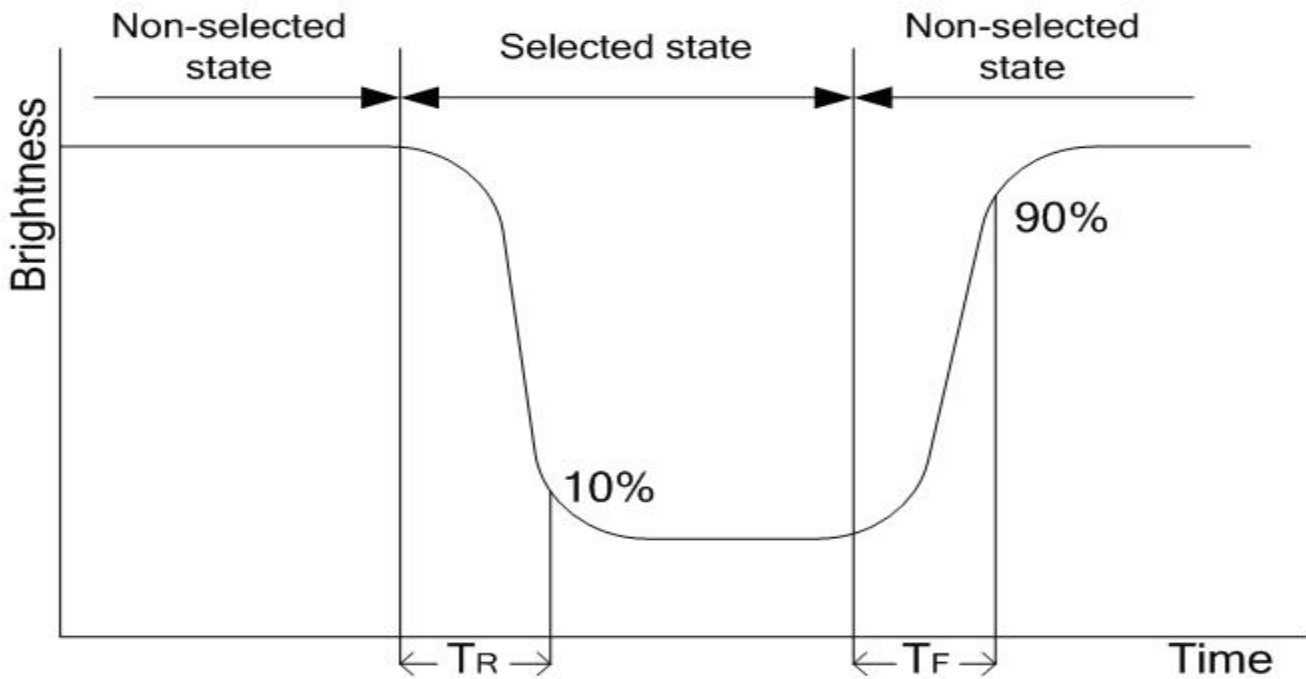
Note 1 : Definition of Viewing Angle θ_x and θ_y :



Note 2: Definition of contrast ratio CR:

$$CR = \frac{\text{Brightness of non-selected dots (white)}}{\text{Brightness of selected dots (black)}}$$

Note 3: Definition of response time (TR, TF)



8 Environmental / Reliability Tests

No	Test Item	Condition	Remarks
1	High Temperature Operation	T _s = +70°C, 240hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Operation	T _a = -20°C, 240hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	T _a = +80°C, 240hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	T _a = -30°C, 240hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	T _a = +60°C, 90% RH max, 160 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-30°C 30 min ~ +80°C 30 min Change time: 5min, 30 Cycle	Start with cold temperature, end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Static Discharge (Operation)	C=150pF, R=330 Ω, 5 points/panel Air:±6KV, 5 times; Contact: ±2KV, 5 times; (Environment: 15°C ~ 35°C, 30% ~ 60%, 86Kpa ~ 106Kpa)	IEC61000-4-2 GB/T17626.2-1998
8	Vibration (Non-operation)	Frequency range: 10~55Hz, Stroke: 1.mm Sweep: 10Hz~55Hz~10Hz 2 hours for each direction of X.Y. Z. (package condition)	IEC60068-2-6 GB/T2423.5-1995
9	Shock (Non-operation)	60G 6ms, ± X, ±Y, ± Z 3 times for each direction	IEC60068-2-27 GB/T2423.5-1995
10	Package Drop Test	Height: 60 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

Note: 1. T_s is the temperature of panel's surface.
2. T_a is the ambient temperature of sample.