OCM24064 图形点阵液晶显示模块

使用说明书

感谢您关注和使用我们的液晶显示器产品，欢迎您提出您的要求、意见和建议，我们将竭诚为您服务、让您满意。您可以浏览**http://www.shsixian.com**了解最新的产品与应用信息，或拨打热线电话**021－53083613**以及向 **sx@shsixian.com** 邮箱发 E-mail 获取具体的技术咨询与服务。

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目　　录

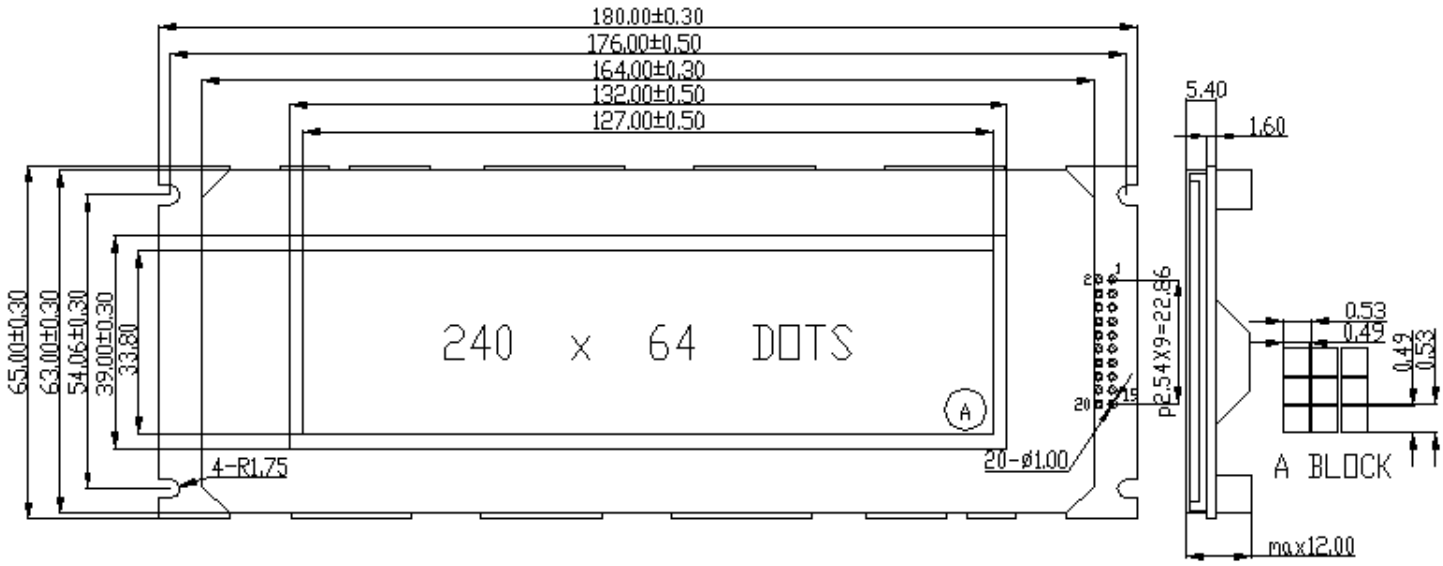
一、概述

OCM24064-1 是一种图形点阵液晶显示器,它主要由行驱动器/列驱动器及格 240×64 全点阵液晶显示器组成。可完成图形显示，也可以显示 15×4 个(16×16 点阵)汉字。

主要技术参数和性能：

1. 电源：VDD：3V∽+5V；
2. 显示内容：240(列)×64(行)点
3. 全屏幕点阵
4. 与 CPU 接口采用 8 位数据总线并行输入输出和 8 条控制线
5. 占空比 1/64
6. 工作温度：-10℃～+60℃，存储温度：-20℃～+80℃
7. 显示模式：STN 黄绿膜
8. 背光特性：LED 背光（黄绿色）
9. 模块封装方式：COB
10. 视角方向：6:00
11. 功耗：5mA

二、外形尺寸图



2.1 Outline Dimensions

2.2 Dot Matrix：240×64

2.3 Dot size： 0.49×0.49(mm)

2.4 Dot pitch: 0.53×0.53(mm)

2.5 weight: 132g

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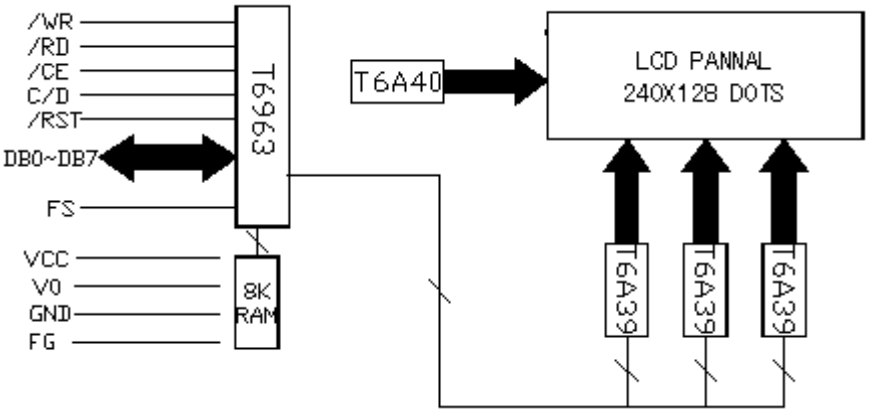
三、电路结构框图



四、限定参数

Item	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	VDD-VSS	0	7.0	V	
LCD Driving Voltage	VDD-VEE	---	18.0		
Operating Temperature Range	Top	0	50	℃	NO Condensation
Storage Temperature Range	Tst	-20	60		

五、电气特性及使用说明

5.1 Electrical Characteristics

Item		Symbol	Min.	Typ.	Max.	Unit	Remark
Supply Voltage(logic)		VDD-VSS	4.5	5.0	5.5	V	
Supply Voltage(LCD Drive)		VSS-VEE	---	6.0	---	V	
Input Signal Voltage	“H” Level	VIH	VDD-2.2	---	VDD	V	

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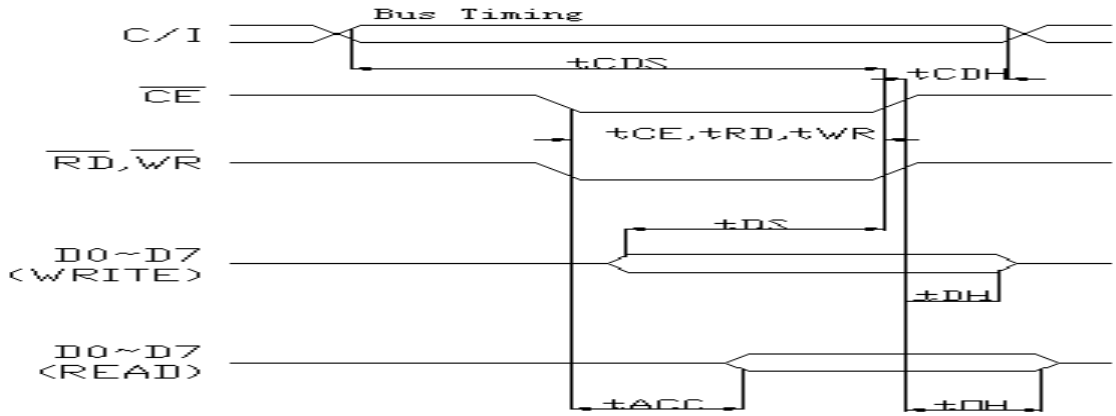
	“L” Level	VIL	0	---	0.8	V	
Supply current(logic)		IDD	---	24	---	mA	
Supply rrent (LCD Drive)		IEE	---	2.0	---	mA	

5.2 Interface Signals

Pin NO.	Symbol	Description(Function)	Remark
1	FG	Module Frame Ground	
2	VSS	Ground	
3	VDD	Supply voltage for logic and LCD(+)	
4	V0	Operating voltage for LCD	variable
5	/WR	Data Write into T6963C	
6	/RD	Data Read F from T6963C	
7	/CE	Chip enable Signal	
8	C/D	Command/Data Selection	
9	NC	No connection	
10	Reset	Reset signal	
11	DB0	Data bit 0	
12	DB1	Data bit 1	
13	DB2	Data bit 2	
14	DB3	Data bit 3	
15	DB4	Data bit 4	
16	DB5	Data bit 5	
17	DB6	Data bit 6	
18	DB7	Data bit 7	
19	FS	Font Selection	
20	NC		

5.3 Interface Timing Chart:



时序参数表, VDD=5.0±10％,VSS=0V,Ta=-10~70℃

Item	Symbol	Test Condition	MIN	MAX	UNIT
C/D Set up Time	tCDS		100	--	ns
C/D Hold Time	tCDH		10	--	ns
CE,RD,WR Width	tCE,tRD,tWR		80	--	ns
Data Set up Time	tDS		80	--	ns
Data Hold Time	tDH		40	--	ns
Access Time	tACC		--	150	ns
Output Hold Time	tOH		10	50	ns

5.4 Instruction Code

COMMAND	CODE	D1	D2	FUNCTION
REGISTERS	00100001	X address	Y address	Set Cursor Pointer
	00100010	Data	00H	Set Offset Register
SETTING	00100100	Low address	High address	Set Address Pointer
	01000000	Low address	High address	Set Text Home Address

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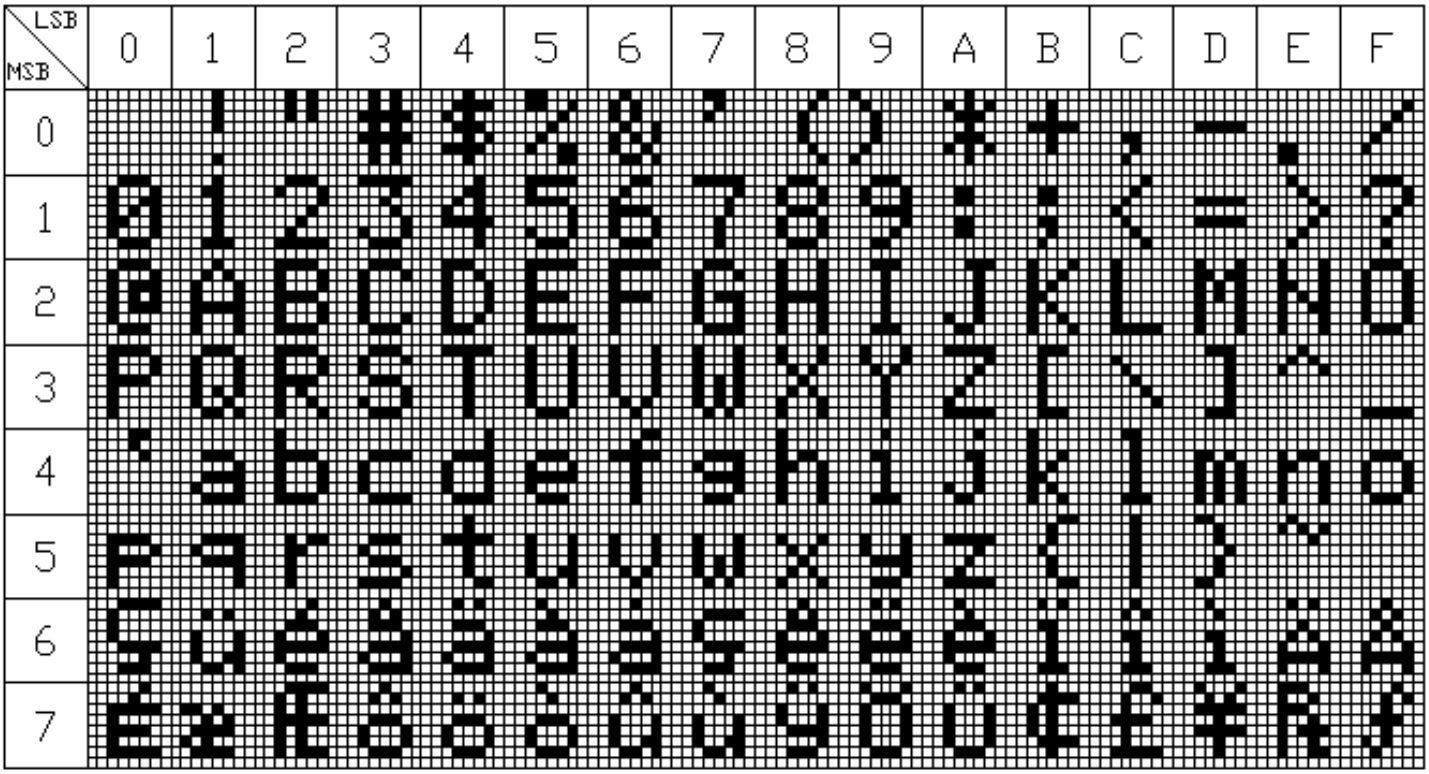
SET CONONTROL	**01000001**	**Columns**	**00H**	**Set Text Area**
WORD	**01000010**	**Low address**	**High address**	**Set Graphic Home Address**
	01000011	**Columns**	**00H**	**Set Graphic Area**
MODE SET	**1000x000**	**--**	**--**	**OR mode**
	1000x001	**--**	**--**	**EXOR mode**
	1000x011	**--**	**--**	**AND mode**
	1000x100	**--**	**--**	**Text Attribute mode**
	10000xxx	**--**	**--**	**Internal CG ROM mode**
	10001xxx	**--**	**--**	**External CG RAM mode**
DISPLAY MODE	**10010000**	**--**	**--**	**Display off**
	1001xx10	**--**	**--**	**Cursor on, blink off**
	1001xx11	**--**	**--**	**Cursor on, blink on**
	100101xx	**--**	**--**	**Text on, graphic off**
	100110xx	**--**	**--**	**Text off, graphic on**
	100111xx	**--**	**--**	**Text on , graphic on**
	10100000	**--**	**--**	**1-line cursor**
	10100001	**--**	**--**	**2-line cursor**
	1010001	**--**	**--**	**3-line cursor**

	0			
CURSOR	10100011	--	--	4-line cursor
PATTERN ELECT	10100100	--	--	5-line cursor
	10100101	--	--	6-line cursor
	10100110	--	--	7-line cursor
	10100111	--	--	8-line cursor
DATA AUTO	10110000	--	--	Set Data Auto Write
	10110001	--	--	Set Data Auto Read
READ/WRITE	10110010	--	--	Auto Reset
	11000000	--	--	Data Write and Increment
	11000001	--	--	Data Read and Increment
DATA	11000010	--	--	Data Write and Decrement
READ/WRITE	11000011	--	--	Data Read and Decrement
	11000100	--	--	Data Write and Non variable
	11000101	--	--	Data Read and Non variable
SCREEN PEEK	11100000	--	--	Screen Peek
SCREEN COPY	11101000	--	--	Screen Copy
	11110xxx	--	--	Bit reset
	11111xx	--	--	Bit set

	x			
	1111x000	**--**	**--**	**Bit0(LSB)**
	1111x001	**--**	**--**	**Bit1**
BIT SET/RESET	**1111x010**	**--**	**--**	**Bit2**
	1111x011	**--**	**--**	**Bit3**
	1111x100	**--**	**--**	**Bit4**
	1111x101	**--**	**--**	**Bit5**
	1111x110	**--**	**--**	**Bit6**
	1111x111	**--**	**--**	**Bit7(MSB)**

5.5 Character Code Map



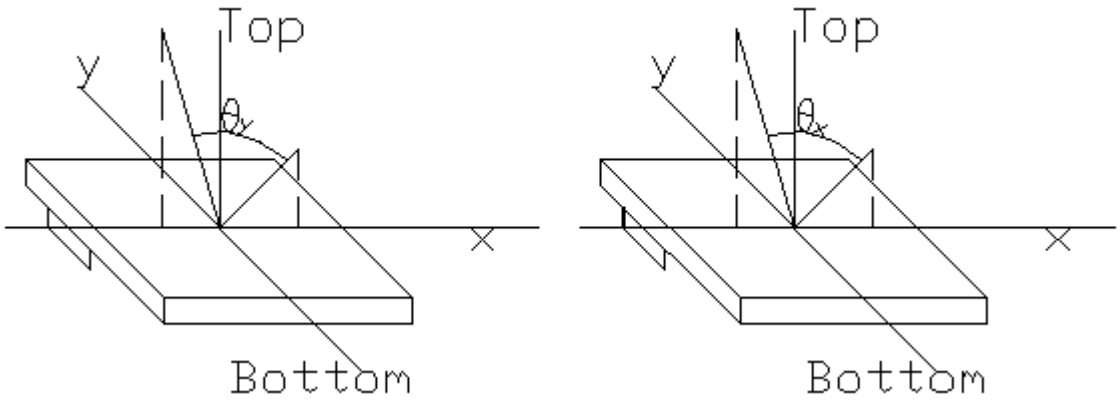
6 Optical Characteristics

6.1 Optical Characteristics Ta=25℃

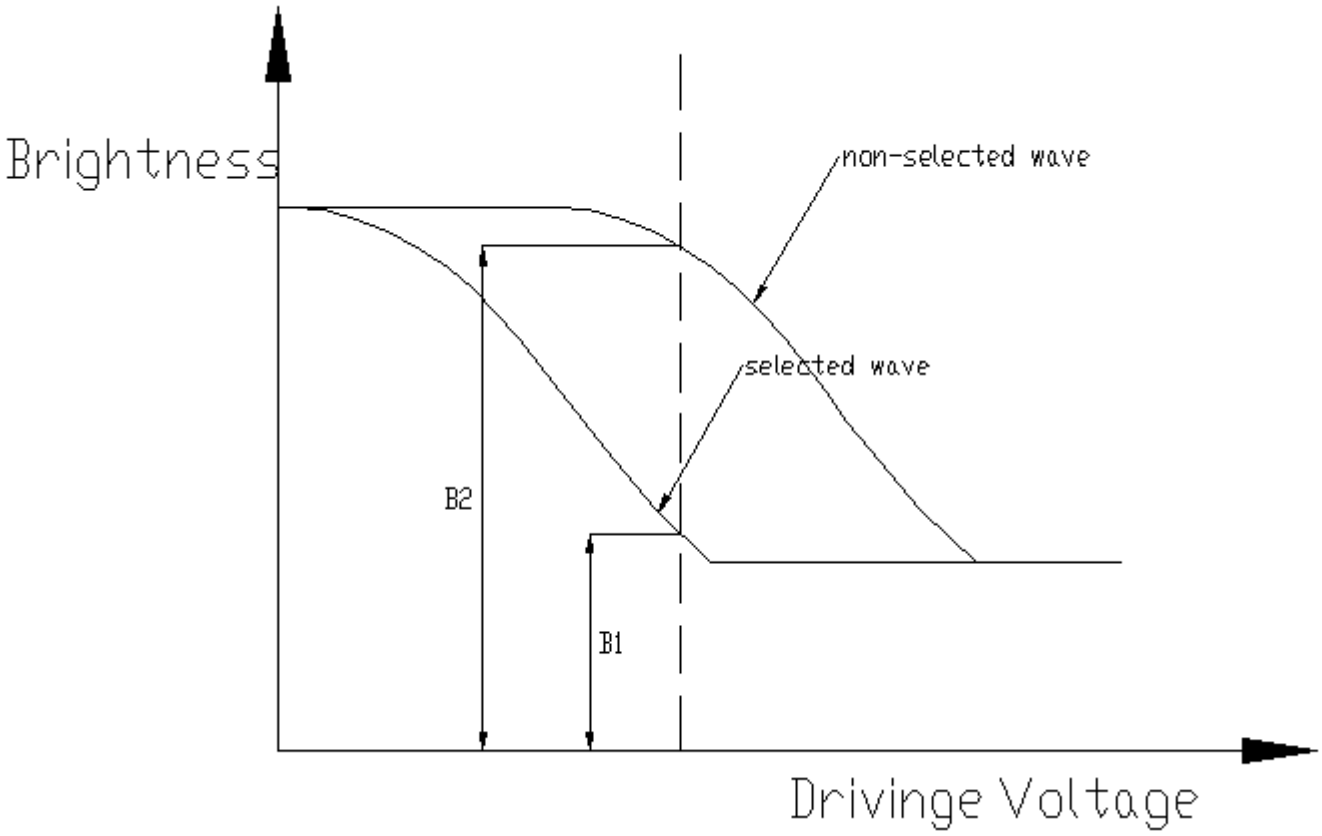
Item		Symbol	Condition		Min.	Typ.	Max.	Unit	Remark
Viewing angle		θ x	Cr	θ y=0	-20	----	20	deg	
		θ y	>3	θ x=0	-25	----	-25		
Contrast Ratio		Cr	θ x=0° θ y=15°		3				
Response Time	Turn on	Ton	θ x=0°				200	ms	
	Turn off	Toff	θ y=0°				360		

6.2 Definition of optical characteristics

6.2.1Definition of viewing Angle(see fig.as follow)



6.2.2Definition of Contrast Ratio(see fig.as follow)



non-selected state brightness

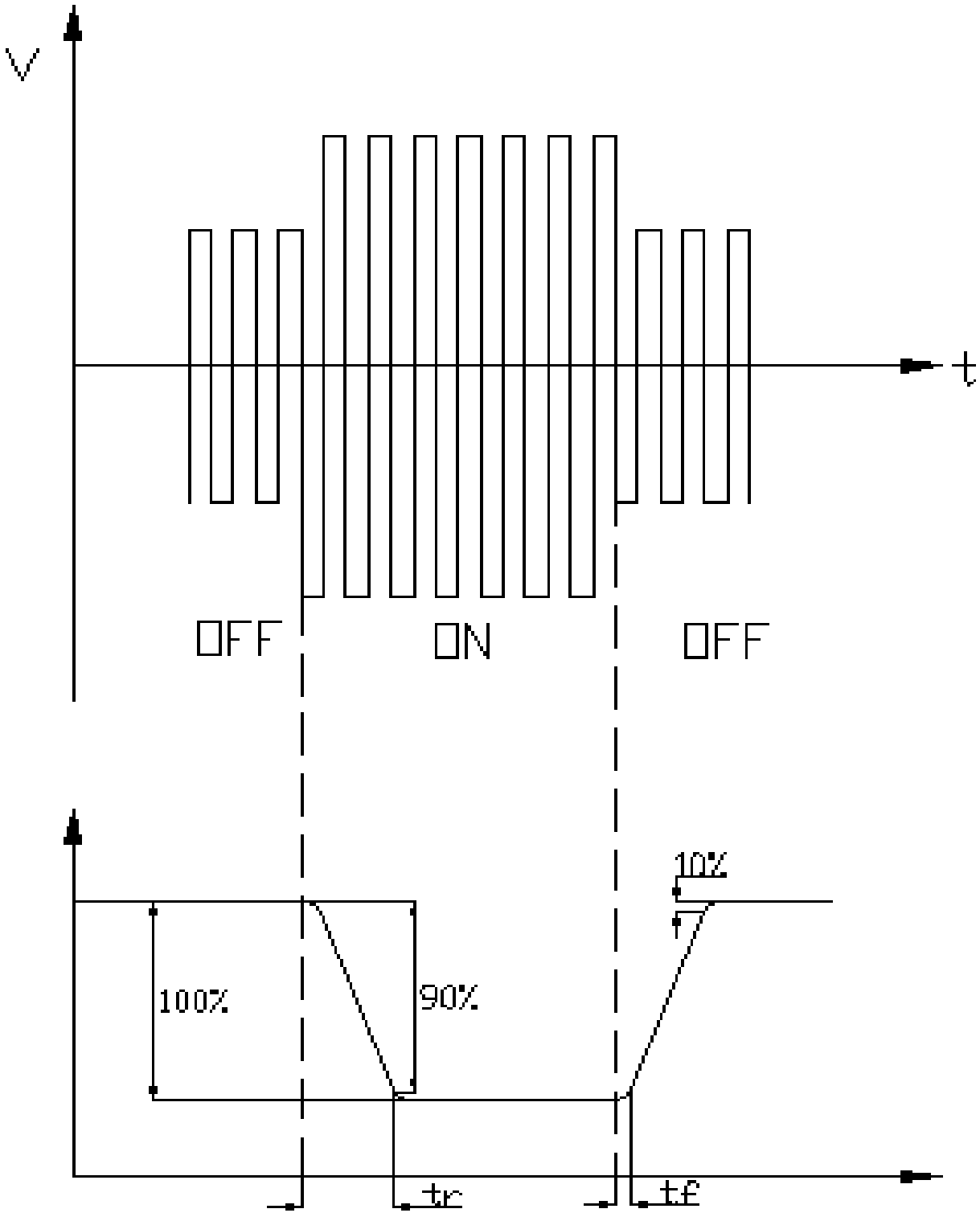
Contrast Ratio(K)=B2/B1-

selected state brightness

Measuring Conditions:

1）Ambient Temperature: 25℃；2) Frame freguency : 32Hz

6.2.3Definition of Response time (see fig.as follow)



7 Reliability

7.1 Content of Reliablity Test

NO.	Test Item	Content of Test	Test condition
1	High Temperature Storage	Endurance test applying the high storage temperature for a long time	60℃ 96H
2	Low Temperature Storage	Endurance test applying the low storage temperature for a long time	50℃ 96H
3	High Temperature Operation	Endurance test applying the Temperature electric stress (voltage &current) and the thermal stress to the element for a long time	50℃ 96H
4	High Temperature Operation	Endurance test applying the Temperature electric stress (voltage &current) and the thermal stress to the element for a long time	0℃ 96H
5	High Temperature /Humidity Storage	Endurance test applying the high temperature and high humidity storage for a long time	40℃ 90%RH 96H
6	Temperature Cycle	Endurance test applying the low and high temperature cycle 10 cycle -20℃--25℃--60℃--25℃ 30min 5min 30min 5min 1cycle	-20℃/60℃

7	Vibration Test (package state)	Endurance test applying the vibration during transportation	10Hz~55Hz ~10Hz 1.5mmP-P,1.5 g X.Y.-5mm
8	Shock Test (package state)	Endurance test applying the shock during transportation	Drop a product form a height of 79cm to a solid unbending and horizontal plane
9	Atmospheric Pressure Test	Endurance test applying the atmospheric prssure during transportation by air	40kPa 24H

7.2 Failure Judgment Criterion

Criterion Item	Test Item NO.									Failure Judgement Criterion
	1	2	3	4	5	6	7	8	9	
Basic Specification	0	0	0	0	0	0	0	0	0	Out of the basic Specification
Electrical Specification	0	0	0	0	0					Out of the electrical specification
Mechanical Specification						0	0	0		Out of the mechanical specification
Optical Characteristic	0	0	0	0	0	0				Out of the optical specification
Remark	Basic specification = Display specification + Mechanical specification									

8. Precautions for use of LCD Modules

8.1 Handling Precautions

8.1.1The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

8.1.2If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

8.1.3Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

8.1.4The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

8.1.5If the display surface become contaminated, breathe on the surface and gently wipe it with a soft dry cloth. if still not completely clear, moisten cloth with one of the following solvents:

-----Isopropyl alcohol

-----Ethyl alcohol

Solvents other than those mentioned above may damage the Polarizer. Especially, see the following:

-----Water

-----Ketone

-----Aromatic solvents

8.1.6Do not attempt to disassemble the LCD Module

8.1.7NC terminal should be open. do not connect anything

8.1.8If the logic circuit power is off, do not apply the input signals

8.1.9To prevent destruction of the elements by electricity, be careful to maintain an optimum work environment

a. Be sure to ground the body when handling the LCD Modules

b. Tools required for assembly, such as soldering

c. irons, must be properly ground.

d. To reduce the amount of static electricity generated do not conduct assembly and other work under dry conditions.

e. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.