

图形点阵液晶显示模块使用手册

YM128128A

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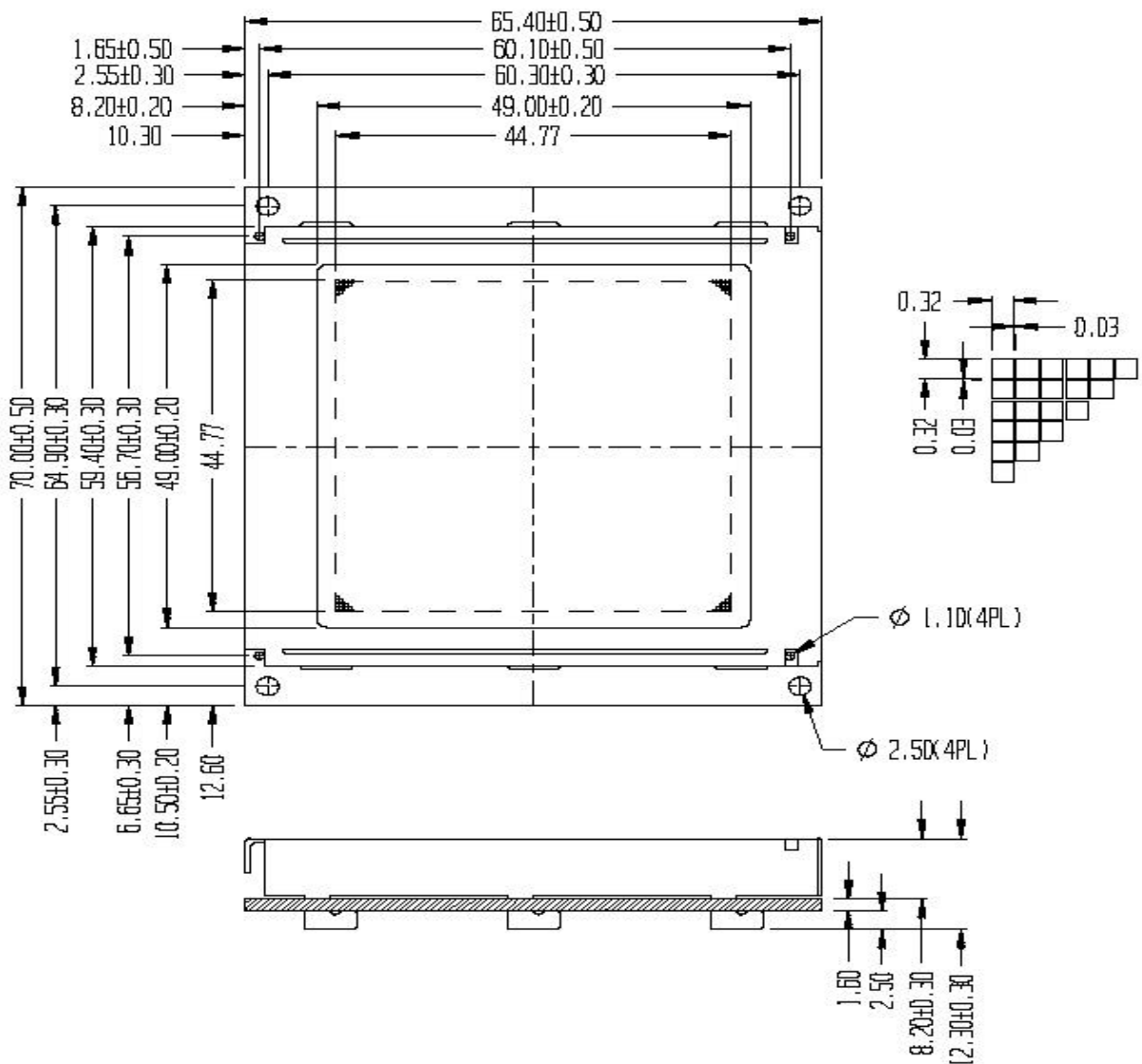
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PHYSICAL DATA:

Item	Contents	Unit
LCD type	STN	—
LCD duty	1/128	—
LCD bias	1/12	—
Viewing direction	6	o'clock
Module size (W×H×T)	65.0×70.0×12.3	mm
Viewing area (W×H)	49×49	mm
Number of dots	128×128	dots
Dot size (W×H)	0.32×0.32	mm
Dot pitch (W×H)	0.35×0.35	mm

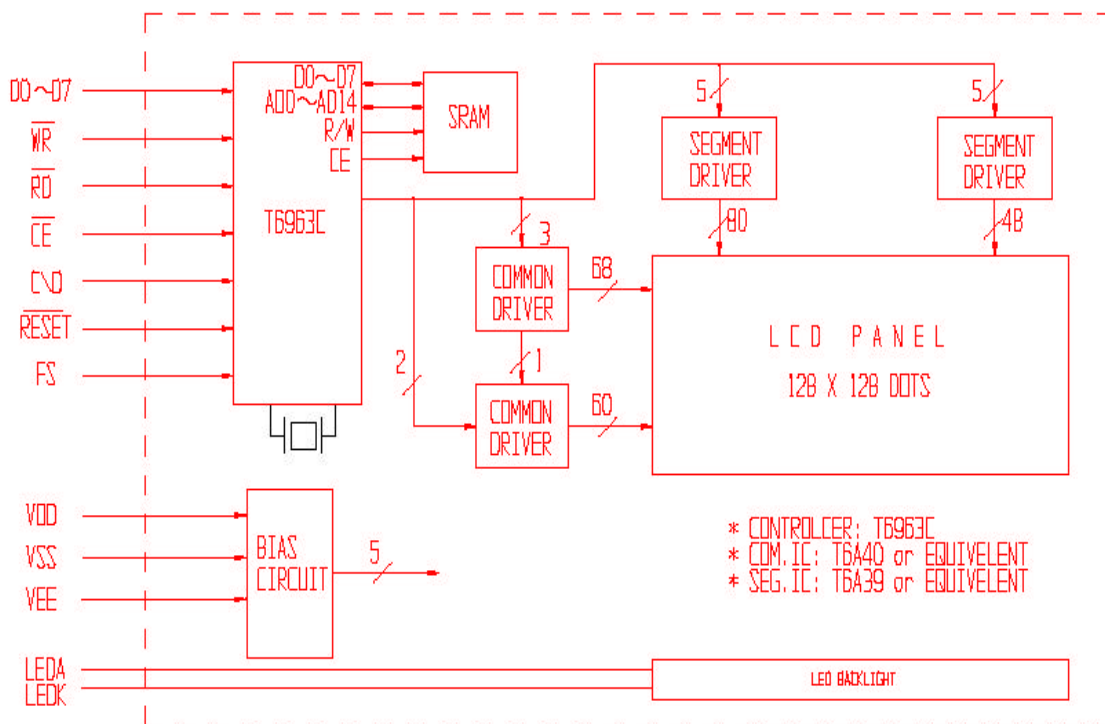
EXTERNAL DIMENSIONS:



INTERFACE PIN CONNECTIONS :

Pin NO.	Symbol	Remark	Description(Function)
1	VSS	0V	Ground
2	VDD	5V	Supply voltage for logic and LCD(+)
3	VEE		Input Voltage for LCD
4	/WR	L	Data Write into T6963C
5	/RD	L	Data Read F from T6963C
6	/CE	L	Chip enable Signal
7	C/D	H/L	H:Command L:Data
8	/Reset	L	Reset signal
9	DB0	H/L	Data bit 0
10	DB1	H/L	Data bit 1
11	DB2	H/L	Data bit 2
12	DB3	H/L	Data bit 3
13	DB4	H/L	Data bit 4
14	DB5	H/L	Data bit 5
15	DB6	H/L	Data bit 6
16	DB7	H/L	Data bit 7
17	FS	H/L	Font Selection (H:6x8 dots, L:8x8dots)
18	—		NC
19	LEDK	GND	LED Backlight(-)
20	LEDA	5V	LED Backlight(+)

BLOCK DIAGRAM :



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Min	Max	Unit
Supply voltage for logic	VDD	0	6.7	V
Supply voltage for LCD	VDD-V0	0	28	V
Input Voltage	VI	0	VDD	V
Operating temperature	TOP	0	50	
Storage temperature	TST	-10	60	

ELECTRICAL CHARACTERISTICS (VDD = +5V ±10% , VSS = 0V, Ta = 25°C)**DC Characteristics**

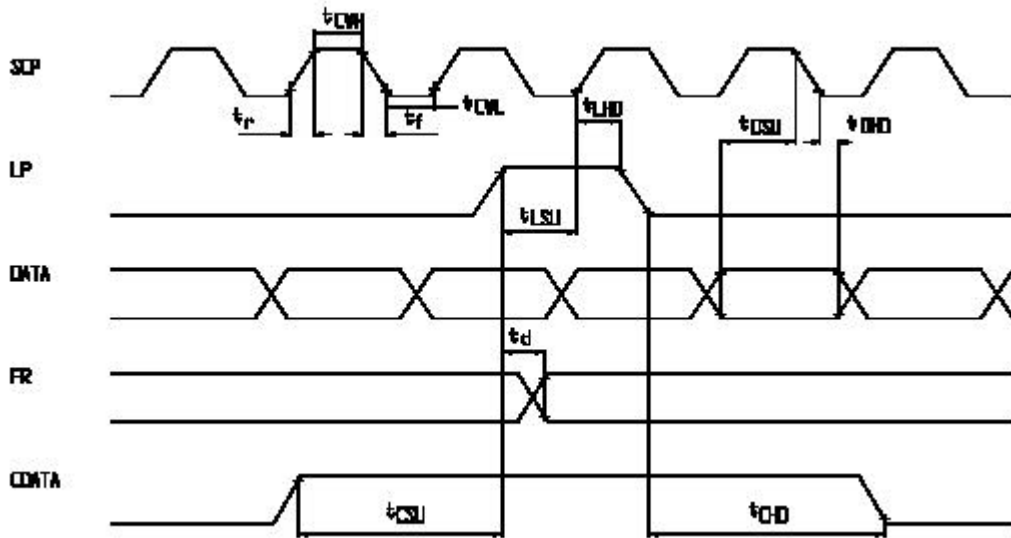
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Supply voltage for logic	VDD	—	4.5	5.0	5.5	V
Supply current for logic	IDD	—	—	5.8	12	mA
Operating Voltage for LCD	VDD-V0	0	17.1	18.0	18.9	V
		25	16.6	17.5	18.4	V
		50	16.0	16.9	17.8	V
Supply voltage for backlight	VF	—	—	4.2	4.6	V
Supply current for back light	IF	VF=4.2V	—	380	640	mA
Input voltage 'H' level	VIH	—	VDD-2.2	—	VDD	V
Input voltage 'L' level	VIL	—	0	—	0.8	V

AC Characteristics

AC Characteristics (1)

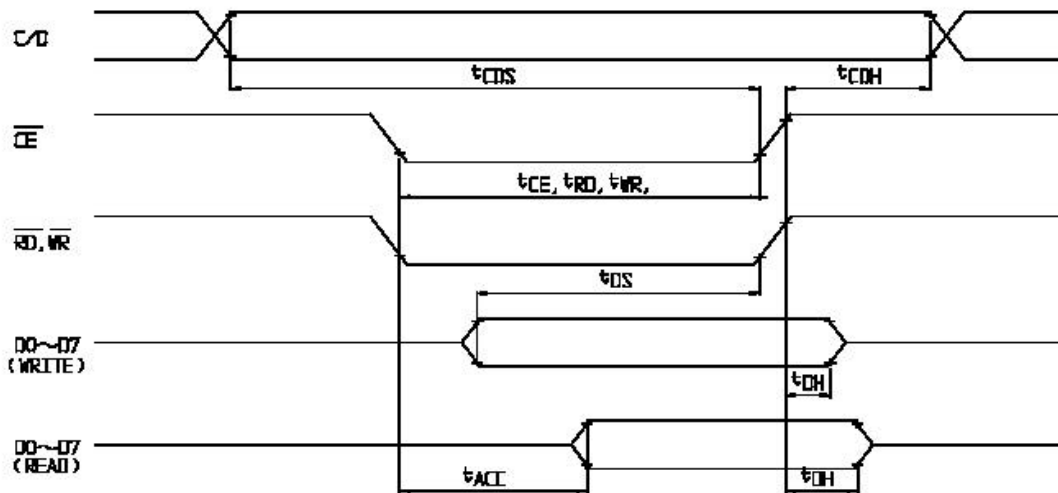
Parameter	Symbol	Min	Max	Unit
Operating frequency	fSCP	—	2.75	MHz
SCP pulse width	tCWH, tCWL	150	—	ns
SCP rise/fall time	tr, tf	—	30	ns
LP set up time	tLSU	150	290	ns
LP hold time	tLHD	5	40	ns
Data set up time	tDSU	170	—	ns
Data hold time	tDHD	80	—	ns
FR delay time	td	0	90	ns
CDATA set up time	tCSU	450	850	ns
CDATA hold time	tCHD	450	950	ns

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AC Characteristics (2)

Parameter	Symbol	Min	Max	Unit
C/D set up time	t_{CDS}	100	—	ns
C/D hold time	t_{CDH}	10	—	ns
CE,RD,WR pulse width	t_{CE}, t_{RD}, t_{WR}	80	—	ns
Data set up time	t_{DS}	80	—	ns
Data hold time	t_{DH}	40	—	ns
Access time	t_{ACC}	—	150	ns
Output hold time	t_{OH}	10	50	ns



Command List :

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
SET CONONTROL WORD	01000000	Low address	High address	Set Text Home Address
	01000001	Columns	00H	Set Text Area
	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
CURSOR PATTERN ELECT	10100000	--	--	1-line cursor
	10100001	--	--	2-line cursor
	10100010	--	--	3-line cursor
	10100011	--	--	4-line cursor
	10100100	--	--	5-line cursor
	10100101	--	--	6-line cursor
	10100110	--	--	7-line cursor
	10100111	--	--	8-line cursor
DATA AUTO READ/WRITE	10110000	--	--	Set Data Auto Write
	10110001	--	--	Set Data Auto Read
	10110010	--	--	Auto Reset
DATA READ/WRITE	11000000	--	--	Data Write and Increment
	11000001	--	--	Data Read and Increment
	11000010	--	--	Data Write and Decrement
	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
BIT SET/RESET	11110xxx	--	--	Bit reset
	11111xxx	--	--	Bit set
	1111x000	--	--	Bit0(LSB)
	1111x001	--	--	Bit1
	1111x010	--	--	Bit2
	1111x011	--	--	Bit3
	1111x100	--	--	Bit4
	1111x101	--	--	Bit5
	1111x110	--	--	Bit6
	1111x111	--	--	Bit7(MSB)

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Character Code Map

ROM CODE 0101

LSB MSB	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	!	"	#	\$	%	&	'	()	*	+	,	-	.	/		
1	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
2	0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
3	P	Q	R	S	T	U	U	W	X	Y	Z	[\]	^	_
4	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
5	P	q	r	s	t	u	u	w	x	y	z	[]	^	_	
6	5	0	é	á	á	á	á	á	á	á	á	á	á	á	á	á
7	é	á	á	á	á	á	á	á	á	á	á	á	á	á	á	á