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fiducia

# PRODUCT SPECIFICATION

MONOCHROME LCD MODULE

PART NUMBER : FDG128064D

DESCRIPTION : 64x128Graphic

REVISION : Rev A

Approval for Specification only		Approval for Sample Only
Approval for Pre-production	<b>x</b>	Approval for Mass Production

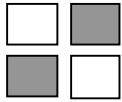
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05/08/2005

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# FDG128064D ( 128 DOTS X 64 DOTS )

## FEATURES

- ◆ BUILT-IN CONTROLLER (KS0107 OR EQUIVALENT)
- ◆ +5 V POWER SUPPLY
- ◆ 1/64 DUTY CYCLE
- ◆ 8-BIT PARALLEL INTERFACE
- ◆ 4.2 V LED FORWARD VOLTAGE

## INTERFACE PIN CONNECTIONS

NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	0V	Power Supply Ground
2	V <sub>DD</sub>	5V	Power Supply Voltage
3	V <sub>o</sub>	-	Contrast Adjustment Voltage
4	D/I	H/L	H : Data, L : Instruction Code
5	R/W	H/L	H : Read / L : Write
6	E	H→L	Enable Signal
7~14	DB0~DB7	H/L	Data Bus Line
15	CS1	H	Chip Select Signal For IC1
16	CS2	H	Chip Select Signal For IC2
17	/RES	L	Reset Signal
18	V <sub>out</sub>	-	Power Supply Voltage For LCD
19	K	0V	LED Power (-)
20	A	4.2V	LED Power (+)

## MECHANICAL DATA

ITEM	DIMENSIONS	UNIT
Module Size (W x H x T)	93.0 x 70.0 x 11.8	mm
Viewing Area ( W x H )	70.7 x 40.0	mm
Active Area ( W x H )	66.52 x 33.24	mm
Dot Size ( W x H )	0.48 x 0.48	mm
Dot Pitch ( W x H )	0.52 x 0.52	mm

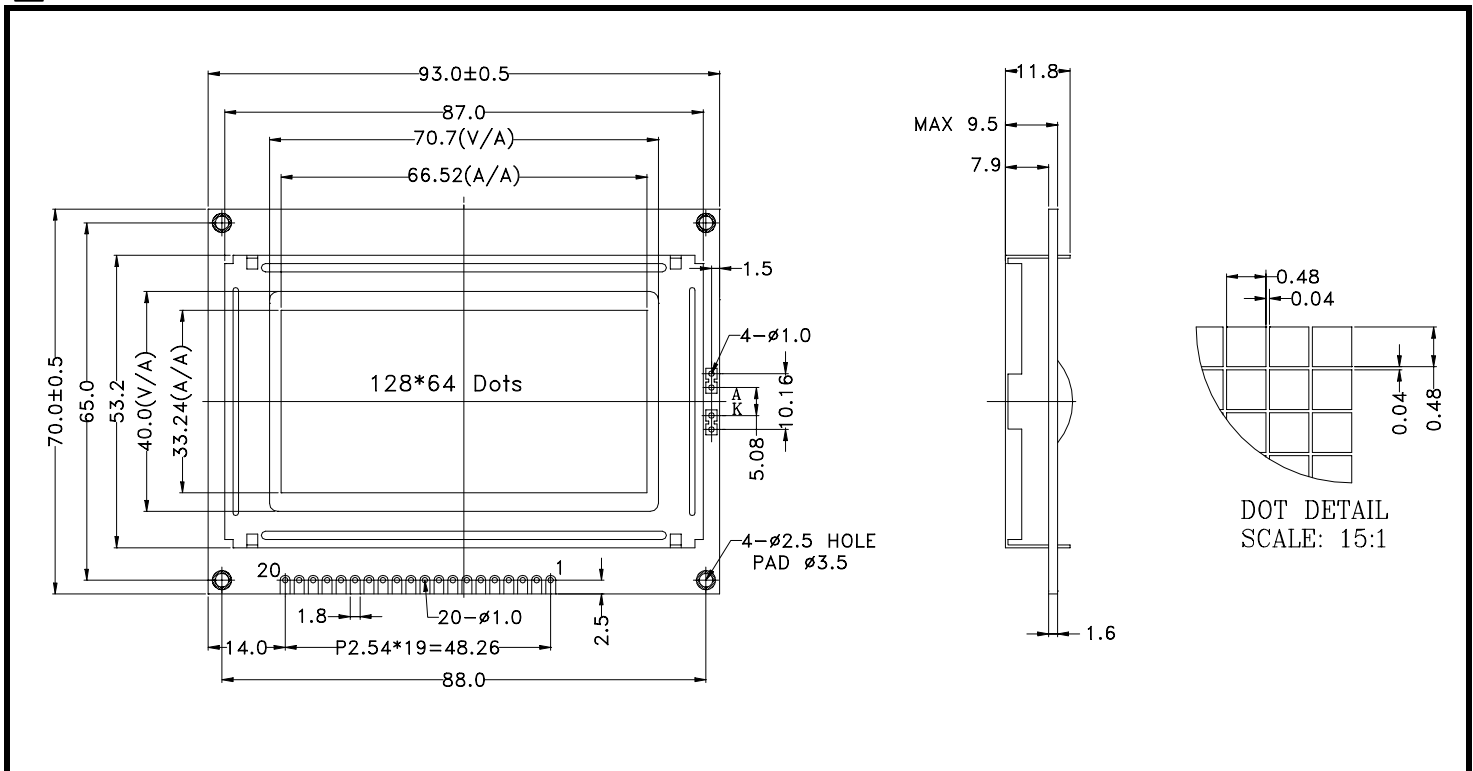
## ABSOLUTE MAXIMUM RATINGS

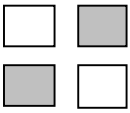
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V <sub>DD</sub> -V <sub>SS</sub>	0	-	7	V
Supply Voltage For LCD Drive	V <sub>DD</sub> -V <sub>o</sub>	0	-	14	V
Input Voltage	V <sub>I</sub>	V <sub>SS</sub>	-	V <sub>DD</sub>	V

## ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V <sub>DD</sub> -V <sub>SS</sub>	-	4.5	5	5.5	V
Supply Voltage For LCD	V <sub>DD</sub> -V <sub>o</sub>	V <sub>DD</sub> =5V Ta=25°C	7.6	8.3	9.2	V
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> =5V	-	4.5	10	mA
Input Voltage	"HIGH" Level	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub> V
	"LOW" Level	V <sub>IL</sub>	-	-	-	0.6 V
Output Voltage	"HIGH" Level	V <sub>OH</sub>	-	2.4	-	V
	"LOW" Level	V <sub>OL</sub>	-	-	-	0.4 V

## EXTERNAL DIMENSIONS





# FDG128064D ( 128 DOTS X 64 DOTS )

## TIMING CHARACTERISTICS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT.	FIG
E Cycle Time	$t_{CYC}$	1000	-	-	ns	1,2
E High Level Width	$P_{WEH}$	450	-	-	ns	1,2
E Low Level Width	$P_{WEL}$	450	-	-	ns	1,2
E Rise Time	$t_r$	-	-	25	ns	1,2
E Fall Time	$t_f$	-	-	25	ns	1,2
Address Setup Time	$t_{AS}$	140	-	-	ns	1,2
Address Hold Time	$t_{AH}$	10	-	-	ns	1,2
Data Setup Time	$t_{DSW}$	200	-	-	ns	1
Data Delay Time	$t_{DDR}$	-	-	320	ns	2
Data Hold Time	Write	$t_{DHW}$	10	-	ns	1
Data Hold Time	Read	$t_{DHR}$	20	-	ns	2

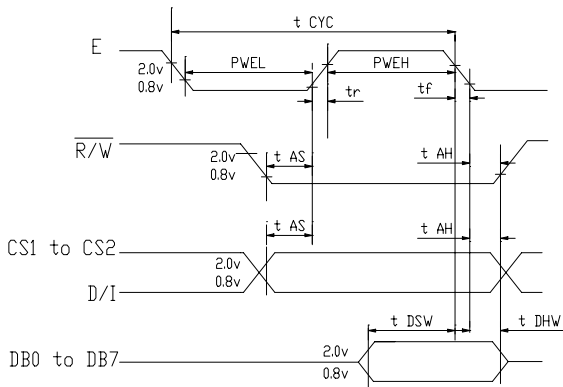


Fig1:CPU Write Timing

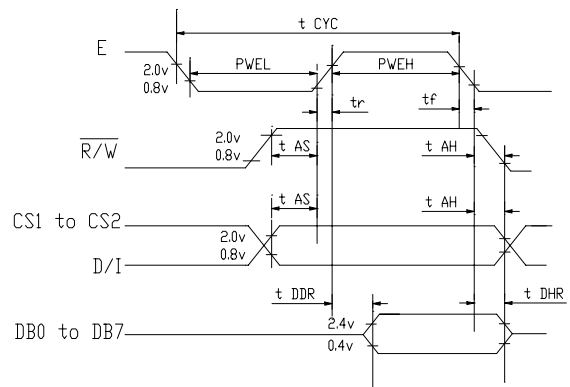
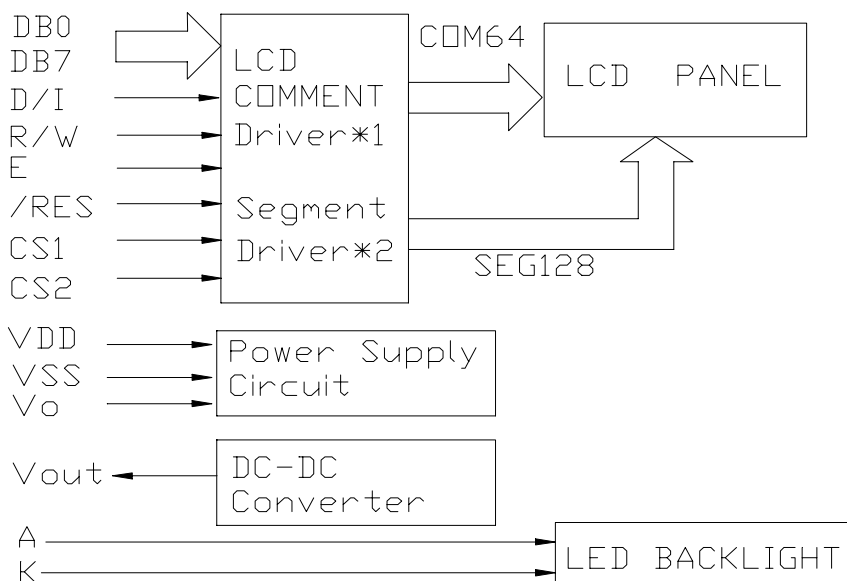
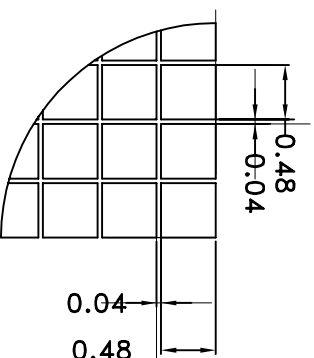
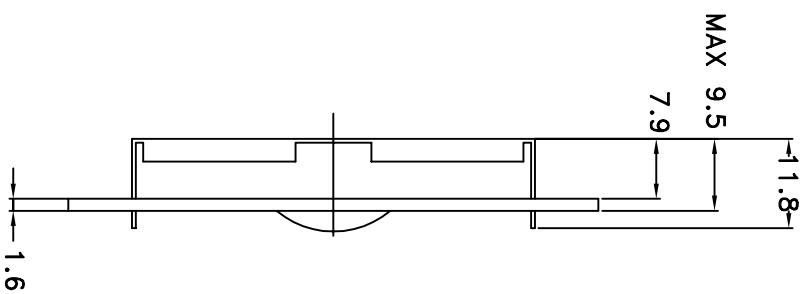
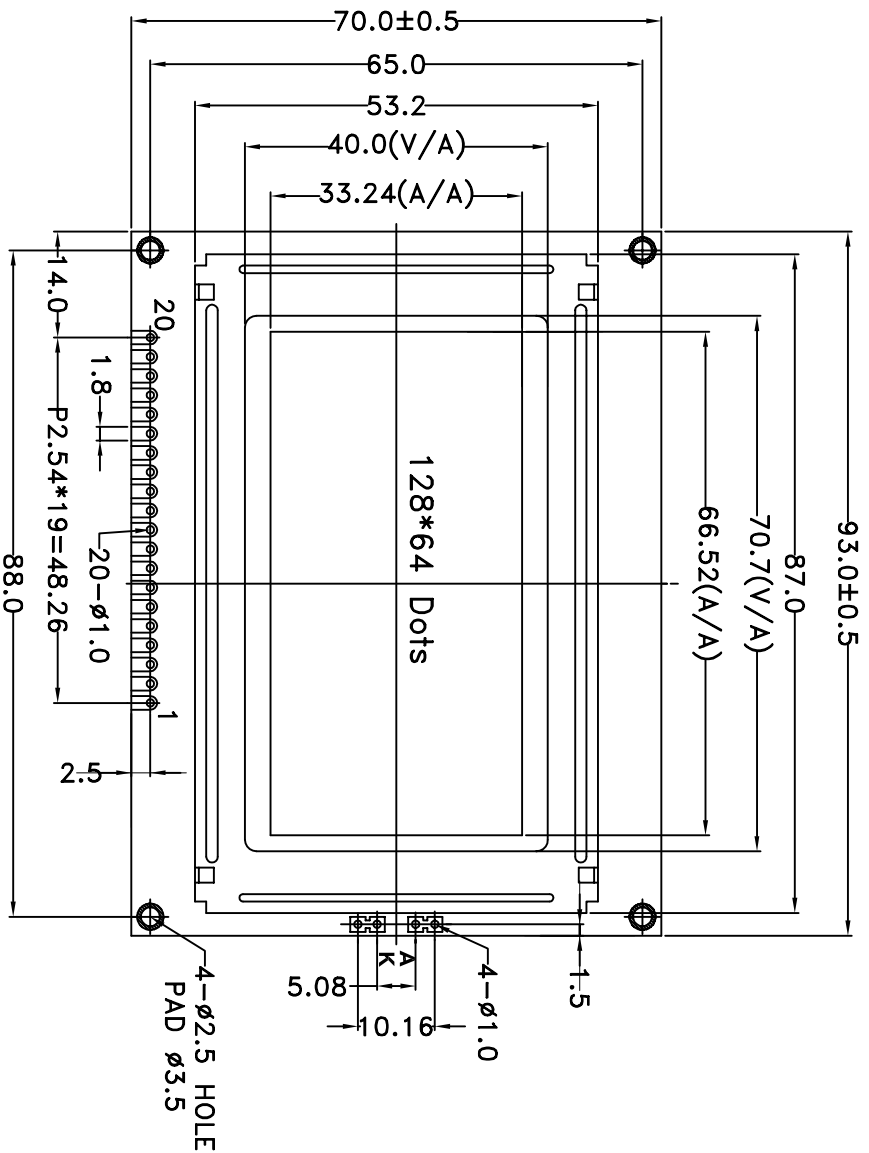


Fig2:CPU Read Timing

## BLOCK DIAGRAM





PIN NO	SIGNAL
1	VSS
2	VDD
3	VO
4	D/I
5	R/W
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	CS1
16	CS2
17	RST
18	VOUT
19	A
20	K

**DOT DETAIL**  
**SCALE: 15:1**

NOTE	ITEM	CONTENT	DATA	REV	TOLERANCE	SCALE	UNIT	DWYN	CUSTOMER DATE	TITLE	MODEL	DWG NO	PAGE
		CHANGE NUMBER	2004.03.01	0	X. ±0.30 X ±0.20 .XX±0.05	1/1	mm	Gilli	2004.03.01	SG12864D	SG12864D	A-A2-0035	1/1

**SUNLIKE DISPLAY**