

# SG12832A ( 8 CHARACTERS X 2 LINES )

## FEATURES

- ◆ BUILT-IN CONTROLLER (ST7920 OR EQUIVALENT)
- ◆ +5 V POWER SUPPLY
- ◆ 1/16 DUTY CYCLE
- ◆ 8-BIT PARALLEL INTERFACE

## MECHANICAL DATA

ITEM	DIMENSIONS	UNIT
Module Size (W x H x T)	66.0 x 26.0 x 8.5 ( 12.0 LED )	mm
Viewing Area ( W x H )	51.0 x 14.8	mm
Active Area ( W x H )	47.32 x 12.12	mm
Dot Size ( W x H )	0.33 x 0.34	mm
Dot Pitch ( W x H )	0.37 x 0.38	mm

## INTERFACE PIN CONNECTIONS

NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	0V	Supply Ground
2	V <sub>DD</sub>	5V	Supply Voltage
3	V <sub>o</sub>	-	Contrast Adj.
4	RS	H/L	Register Select
5	R/W	H	Read/Write
6	E	H	Enable Signal
7-14	DB0-DB7	H/L	Data Bus Line
15	A	4.2V	LED Power (+)
16	K	0V	LED Power (-)

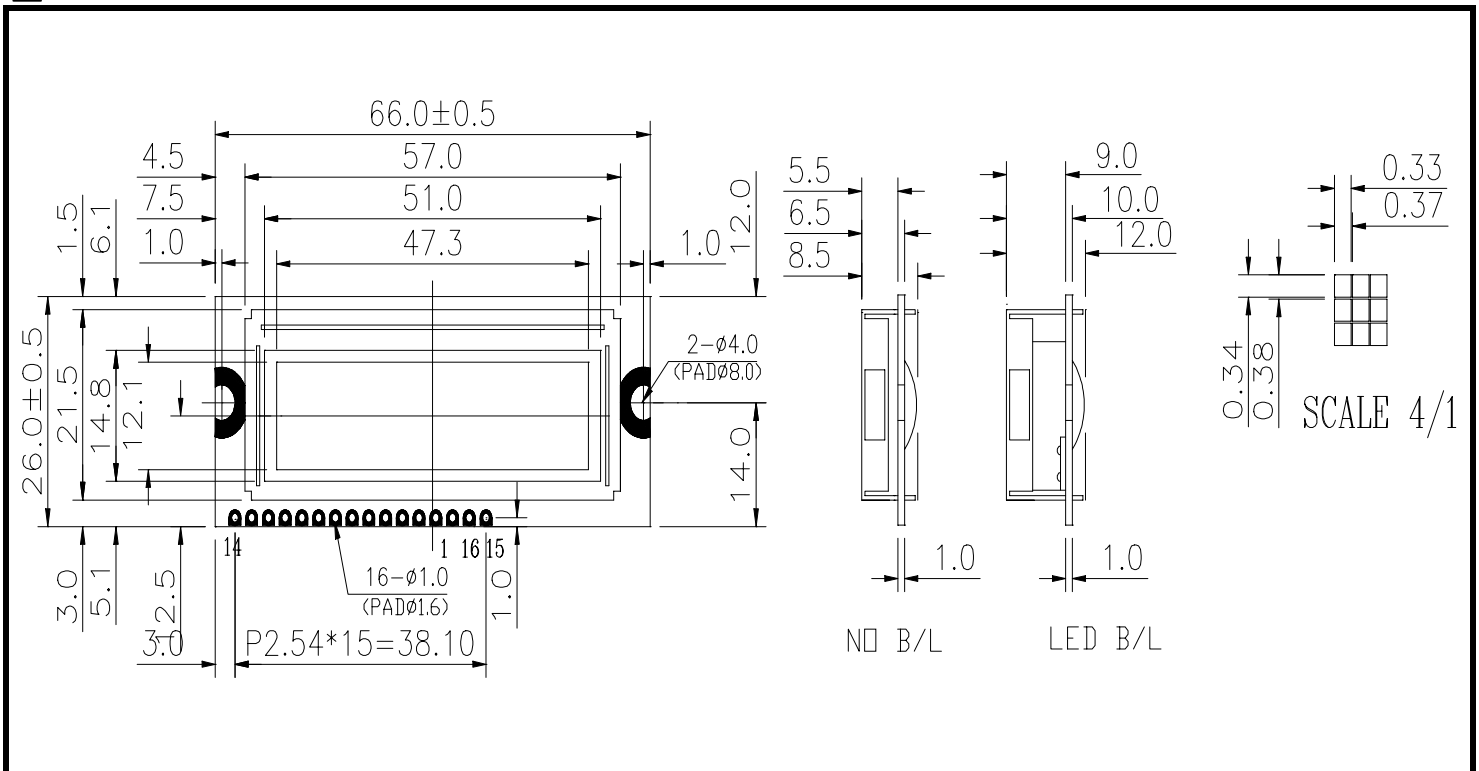
## ABSOLUTE MAXIMUM RATINGS

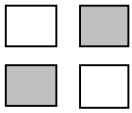
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V <sub>DD</sub> -V <sub>SS</sub>	0	-	7	V
Supply Voltage For LCD Drive	V <sub>DD</sub> -V <sub>o</sub>	0	-	12	V
Input Voltage	V <sub>I</sub>	V <sub>SS</sub>	-	V <sub>DD</sub>	V

## 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	4.4	4.8	5.2	V	
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> =5V	-	2.5	4.5	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	V
	"LOW" Level	V <sub>OL</sub>	-	-	-	0.4	V

## EXTERNAL DIMENSIONS





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## TIMING CHARACTERISTICS

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT.
E Cycle Time		$t_{CYCE}$	1200	-	-	ns
Enable Pulse Width	"High Level"	$P_{WEH}$	140	-	-	ns
Enable Rise/Fall Time		$t_{ER}, t_{EF}$	-	-	25	ns
Address Set-up Time	RS,R/W to E	$t_{AS}$	10	-	-	ns
Address Hold Time		$t_{AH}$	20	-	-	ns
Data Sep-up Time		$t_{DSW}$	40	-	-	ns
Data delay Time		$t_{DDR}$	-	-	100	ns
Data Hold Time	Write	$t_H$	20	-	-	ns
Data Hold Time	Read	$t_{DHR}$	20	-	-	ns

FIG.1 WRITE OPERATION

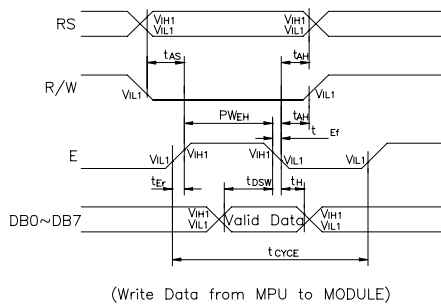
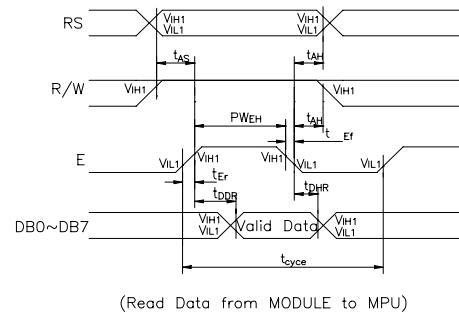


FIG.2 READ OPERATION



## BLOCK DIAGRAM

