

# ***ME* DISPLAYS**

**SPECIFICATIONS**

**FOR**

**LCD MODULE**

**SG19232B**

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## • FEATURES

Number of Dots	192 x 32
Built-in Controller IC	SED1520 or equivalent
Duty Cycle	1/32 Duty
Power Supply	5V
LED Forward Voltage	4.2V
Options	LED/EL Backlight, STN

## • MECHANICAL PARAMETERS

Module Size	116.0W x 37.0H x 9.4 mm
Viewing Area Size	88.0W x 19.0H mm
Active Area Size	80.6W x 16.28H mm
Dot Size	0.38 x 0.47 mm
Dot Pitch	0.42 x 0.51 mm

## • ABSOLUTE MAXIMUM

Item	Symbol	Min.	Max	Unit
Supply Voltage for Logic	$V_{DD} - V_{SS}$	0	+7.0	V
Supply Voltage for LCD Drive	$V_{DD} - V_O$	0	+12.0	V
Input Voltage	$V_i$	$V_{SS}$	$V_{DD}$	V
Operating Temperature	$T_a$	0	+50	C
Storage Temperature	$T_{stg}$	-10	+60	C

## • ELECTRICAL CHARACTERISTICS

Item	Symbol	Condition	Min	Typ	Max	U
Power Supply Voltage for Logic	$V_{DD} - V_{SS}$	--	4.5	5.0	5.5	V
Power Supply Voltage for LCD	$V_{DD} - V_O$	$V_{DD}=5V$ $T_a=25C$	4.4	4.8	5.2	V
Input "High" Voltage(1)	$V_{ih}$	--	2.2	--	$V_{DD}$	V
Input "Low" Voltage(1)	$V_{il}$	--	--	--	0.6	V
Output "High" Voltage(1)	$V_{oh}$	--	2.4	--	--	V
Output "Low" Voltage(1)	$V_{ol}$	--	--	--	0.4	V
Power Supply Current	$I_{DD}$	$V_{DD} = 5.0V$	--	3	4.5	mA

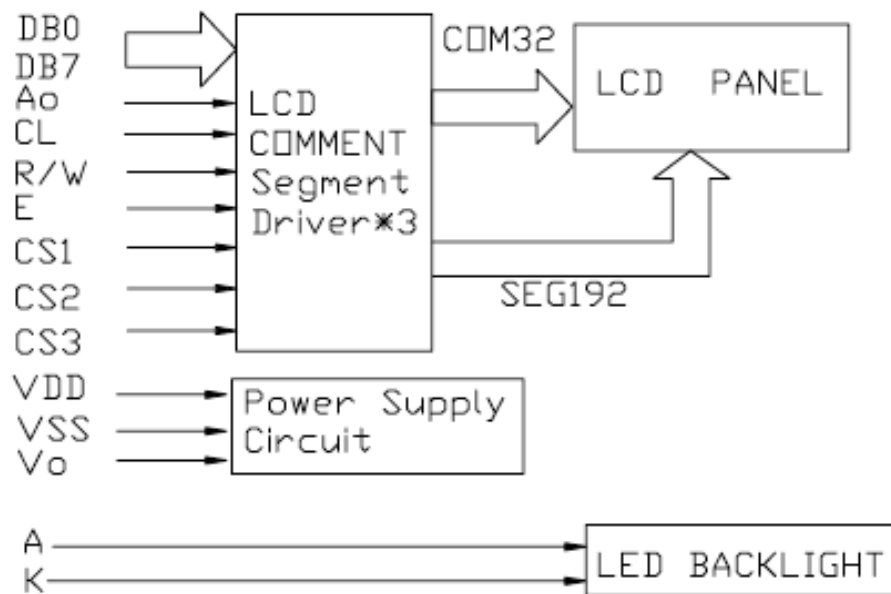
(1) Applied to terminals CS1, CS2, DB0~DB7, R/W, D/I, E RST

- PIN ASSIGNMENT**

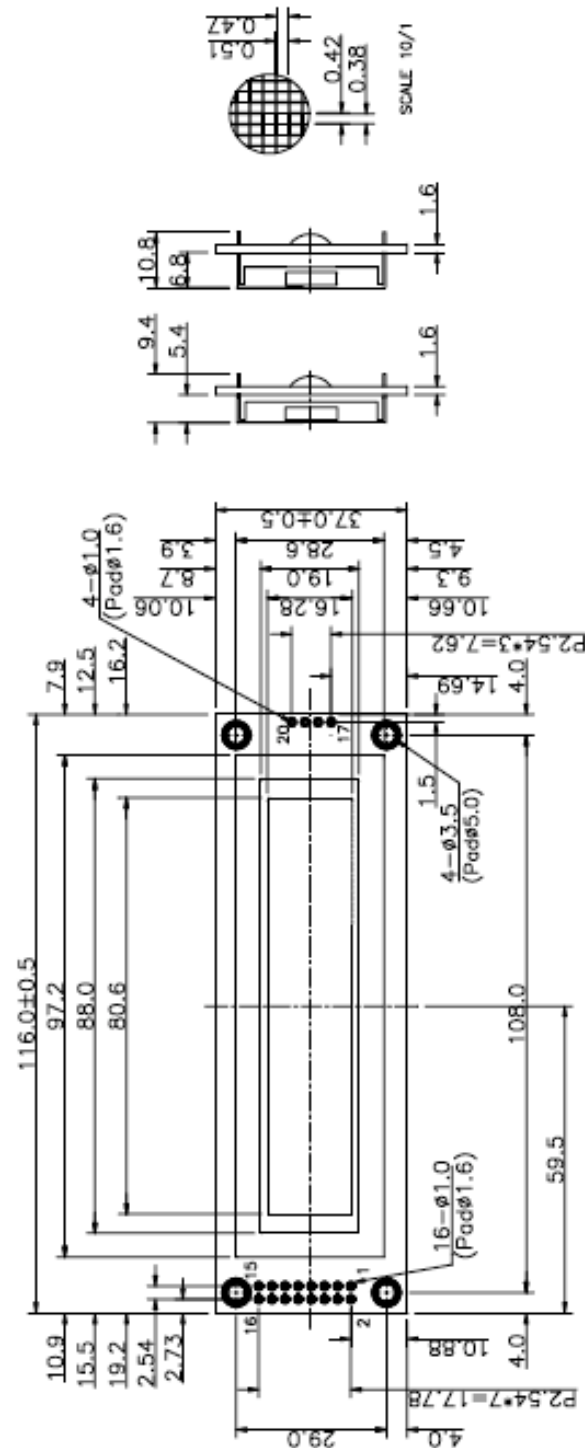
No.	Symbol
1	V <sub>SS</sub>
2	V <sub>DD</sub>
3	V <sub>O</sub>
4	A <sub>O</sub>
5	R/W
6	E
7	DB0
8	DB1
9	DB2
10	DB3

No.	Symbol
11	DB4
12	DB5
13	DB6
14	DB7
15	A
16	K
17	CS1
18	CS2
19	CS3
20	CL

- BLOCK DIAGRAM**



• DIAGRAM SG19232B



## • TIMING CHARACTERISTICS

Item	Symbol	Min	Max	Unit
System Cycle Time	$t_{CYC6}$	1000	--	ns
Address Set-up time	$t_{AW6}$	20	--	ns
Address Hold Time	$t_{AH6}$	10	--	ns
Data Set-up Time	$t_{DS6}$	80	--	ns
Data Hold Time	$t_{DH6}$	10	--	ns
Output Disable Time	$t_{OH6}$	10	60	ns
Access Time	$t_{AAC6}$	--	90	ns
Enable Pulse Width (Read)	$t_{EW}$	100	--	ns
Enable Pulse Width (Write)	$t_{EW}$	80	--	ns

## • TIMING DIAGRAMS

