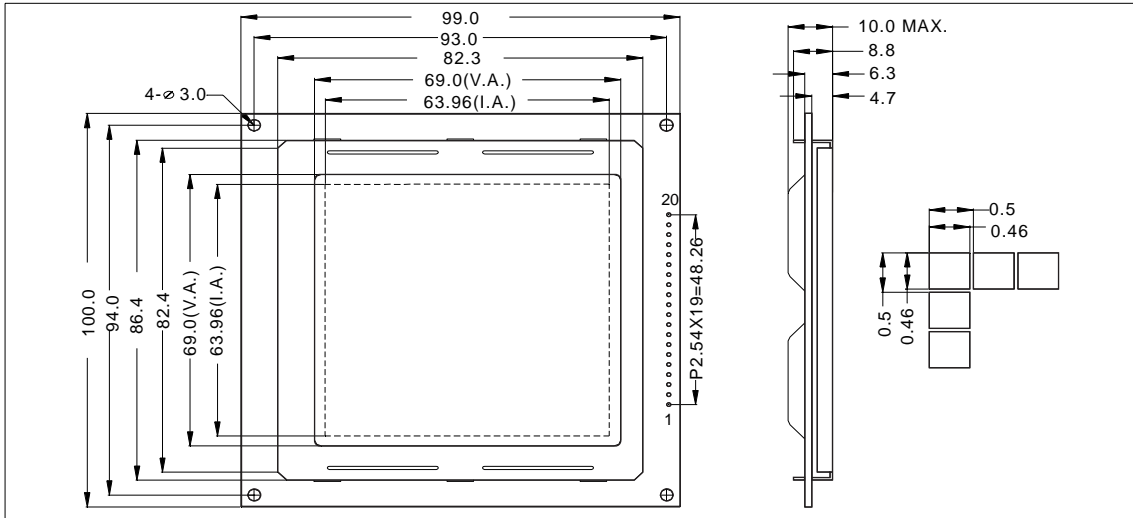


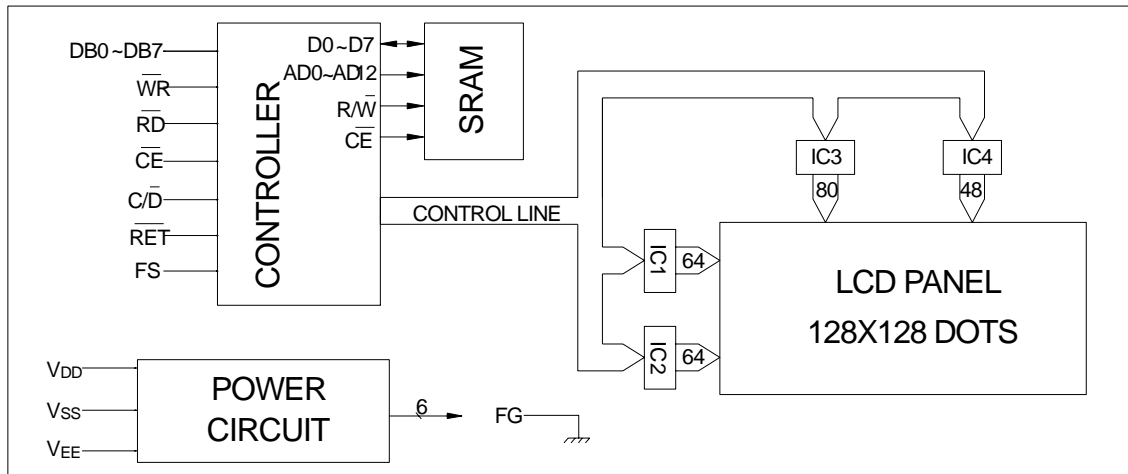
### 1.0 Features

- \* Display Mode: Reflective/Transflective/Transmissive and Positive Type STN
- \* Input Data: 8-Bits Parallel Data Input from a MPU
- \* Assembly: SMT
- \* Backlight: Optional

### 2.0 External Dimensions



### 3.0 Block Diagram



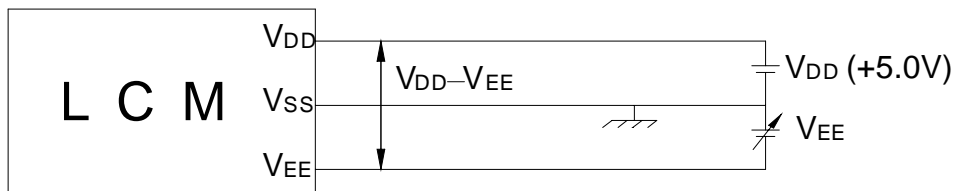
### 4.0 Maximum Rating

Item	Symbol	Test Condition	Standard Value		Unit
			Min.	Max.	
Supply Voltage for Logic	V <sub>DD</sub> -V <sub>SS</sub>	Ta=25 °C	0	6.0	V
Supply Voltage for LCD	V <sub>DD</sub> -V <sub>EE</sub>		0	24.0	V
Input Voltage	V <sub>I</sub>		0	V <sub>DD</sub>	V
Operating Temperature	Topr	—	0	+50	°C
Storage Temperature	Tstg	—	-10	+60	°C

## 5.0 Electro-Optical Characteristics

Item	Symbol	Conditions	Standard Value			Unit
			Min.	Typ.	Max.	
Power Supply for Logic	Logic	Vdd	4.75	5.0	5.25	V
	LCD Drive	Vdd-Vee	—	21.0	22.25	
Frame Frequency	f FLM	Vdd=5.0V	70	75	80	Hz
Current Consumption	Idd	Vdd=5.0V, Vdd-V0=21.0 f FLM=75Hz	—	13.8	23.0	mA
LCD Driving Voltage(Recommended)	Vdd-V0	Ta=25 °C; $\phi$ , $\theta=0^\circ$	—	21.0	—	V
Response Time(Rising)	Tr	Ta=25 °C; $\phi$ , $\theta=0^\circ$	—	200	250	ms
Response Time(Decay)	Td		—	250	300	ms
Viewing Angle	$\phi 2-\phi 1$	$K \geq 2$	5	—	45	DEG.
Contrast Ratio	K	$\phi=0^\circ$ , $\theta=0^\circ$	2.0	3.0	—	—

## 6.0 Power Supply for LCM



V<sub>DD</sub>-V<sub>EE</sub>: LCD Driving Voltage

## 7.0 I/O Connection

Pin No	Symbol	Level	Function
1	FG	0V	Frame ground
2	GND	0V	Ground
3	Vcc	5.0V	Power supply for logic and LCD
4	VEE	—	Power supply for LCD
5	WR	L	Write signal
6	RD	L	Read signal
7	CE	L	Chip enable signal
8	C/D	H/L	H: Instruction code L: Data
9	RST	L	Reset signal
10	FS	—	Font select signal
11	DB0	H/L	Data bit 0
12	DB1	H/L	Data bit 1
13	DB2	H/L	Data bit 2
14	DB3	H/L	Data bit 3
15	DB4	H/L	Data bit 4
16	DB5	H/L	Data bit 5
17	DB6	H/L	Data bit 6
18	DB7	H/L	Data bit 7
19	VEE	—	The same as Pin4, Connected internal
20	V <sub>0</sub>	—	Built-in DC/DC converter, Output negative voltage