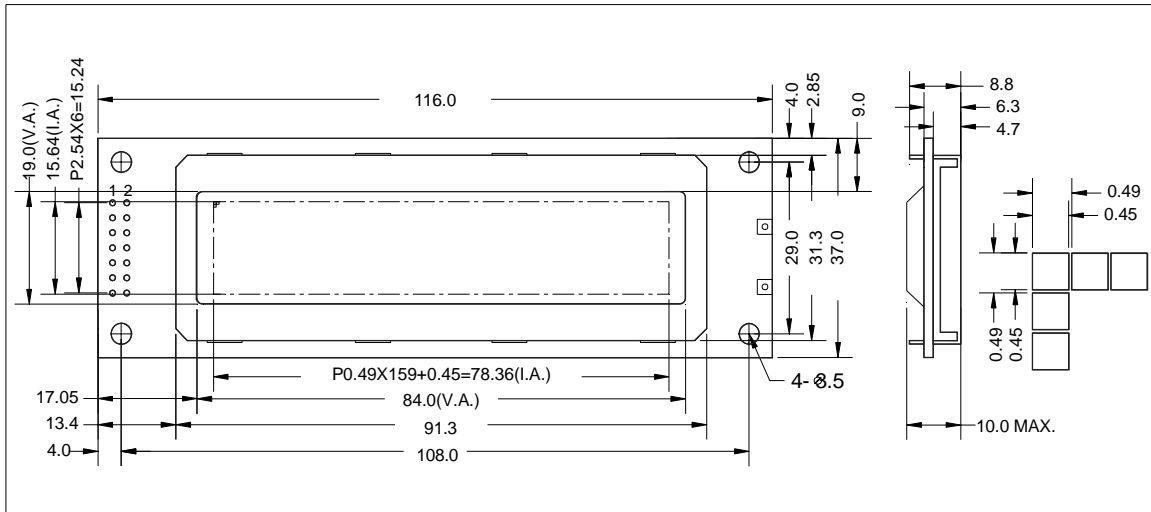


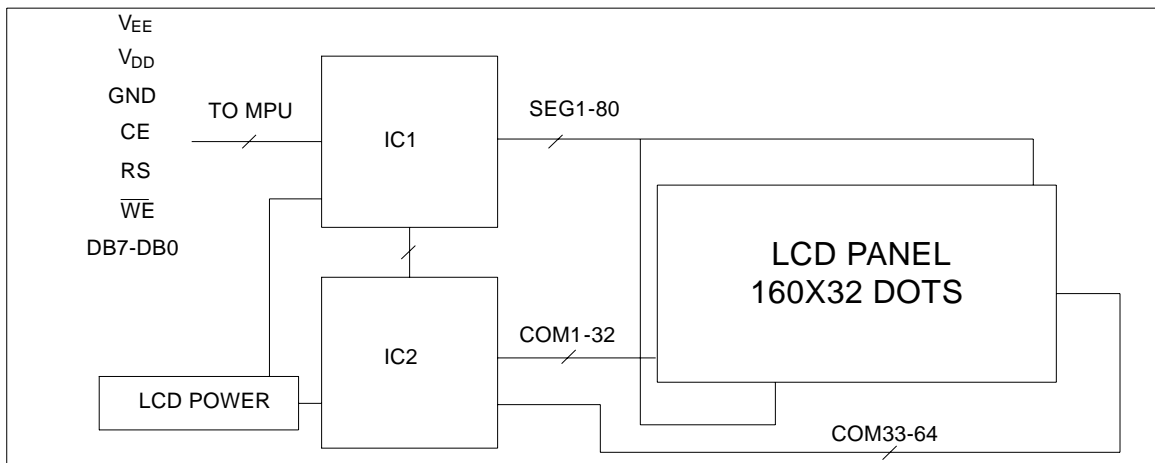
### 1.0 Features

- \* 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



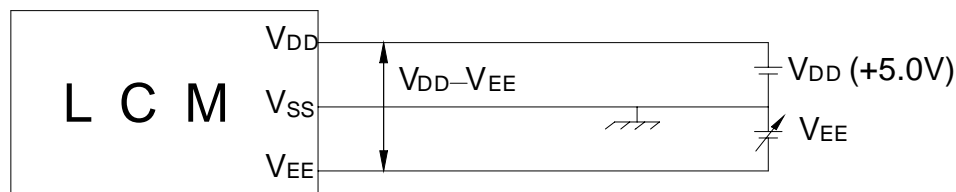
### 4.0 Maximum Rating

Item	Symbol	Test Condition	Standard Value		Unit
			Min.	Max.	
Supply Voltage for Logic	$V_{DD}-V_{SS}$	$T_a=25\text{ }^\circ\text{C}$	0	6.7	V
Supply Voltage for LCD	$V_{DD}-V_{EE}$		—	—	V
Input Voltage	$V_i$		0	$V_{DD}$	V
Operating Temperature	$T_{opr}$	—	0	+50	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	—	-10	+60	$^\circ\text{C}$

## 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	—	13.0	—	
Frame Frequency	f FLM	Vdd=5.0V	65	70	75	Hz
Current Consumption	Idd	Vdd=5.0V, Vdd-V0=13.0 V/R=160Kohm	—	—	7.5	mA
LCD Driving Voltage(Recommended)	Vdd-V0	Ta=25 °C; $\phi, \theta = 0^\circ$	—	13.0	—	V
Response Time(Rising)	Tr	Ta=25 °C; $\phi, \theta = 0^\circ$	—	250	300	ms
Response Time(Decay)	Td		—	300	350	ms
Viewing Angle	$\phi 2-\phi 1$	$K \geq 2$	0	—	45	DEG.
Contrast Ratio	K	$\phi = 0^\circ, \theta = 0^\circ$	2.0	5.0	—	—

## 6.0 Power Supply for LCM



$V_{DD} - V_{EE}$ : LCD Driving Voltage

## 7.0 I/O Connection

Pin No	Symbol	Level	Description
1	DB7	H/L	Data bit 7
2	DB6	H/L	Data bit 6
3	DB5	H/L	Data bit 5
4	DB4	H/L	Data bit 4
5	DB3	H/L	Data bit 3
6	DB2	H/L	Data bit 2
7	DB1	H/L	Data bit 1
8	DB0	H/L	Data bit 0
9	CE	H,H/L	Chip enable signal
10	/WR	H/L	H: Read L: Write
11	RS	H/L	H: Data L: Instruction code
12	V <sub>EE</sub>	—	Power supply for LCD
13	V <sub>DD</sub>	5.0V	Power supply for logic and LCD
14	V <sub>SS</sub>	0V	Ground