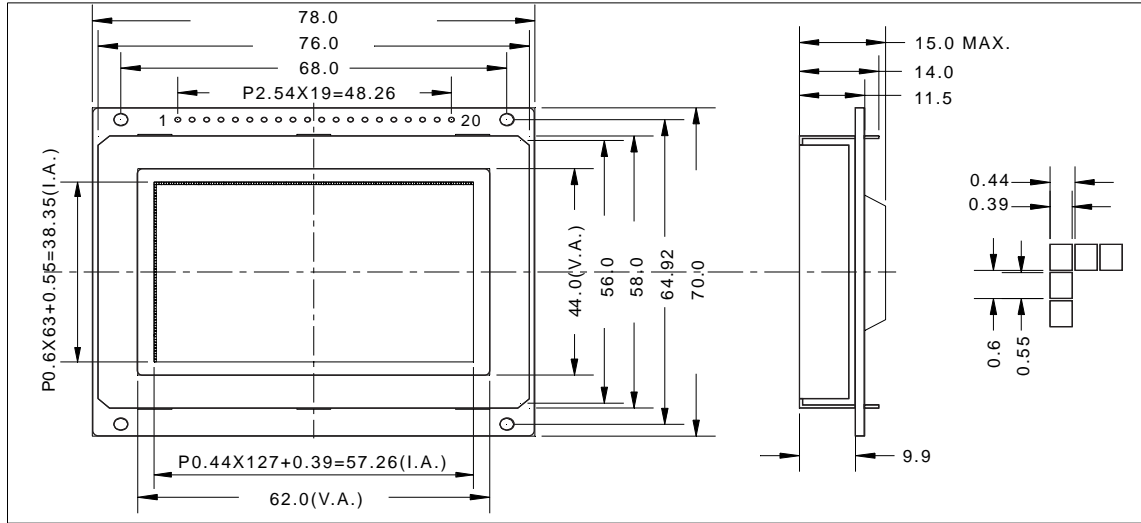


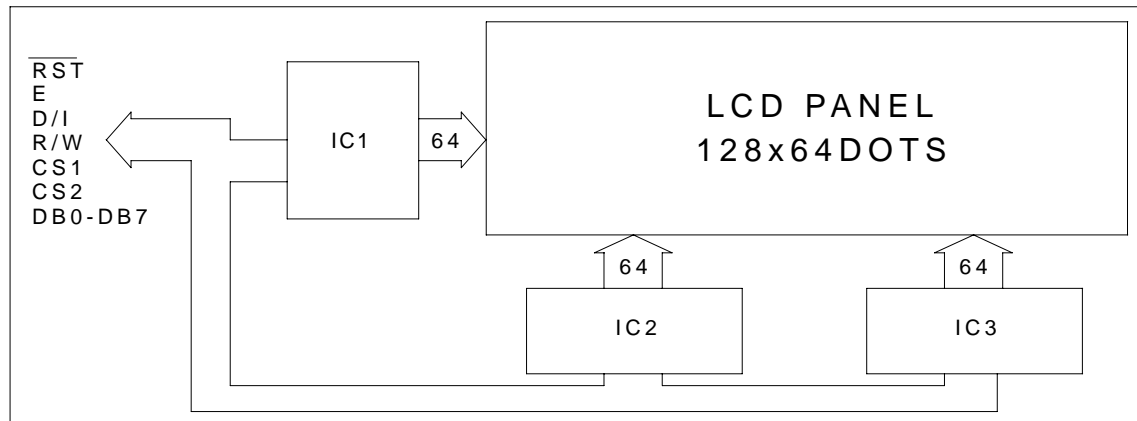
1.0 Features

- * 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



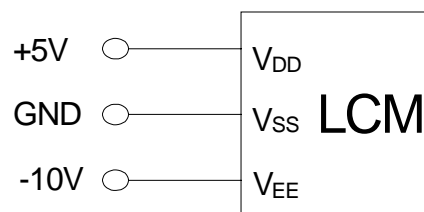
4.0 Maximum Rating

Item	Symbol	Test Condition	Standard Value		Unit
			Min.	Max.	
Supply Voltage for Logic	$V_{DD}-V_{SS}$	$T_a=25^\circ C$	-0.3	7.0	V
Supply Voltage for LCD	$V_{DD}-V_{EE}$		0	20	V
Input Voltage	V_I		-0.3	$V_{DD} + 0.3$	V
Operating Temperature	T_{opr}	—	0	+50	$^\circ C$
Storage Temperature	T_{stg}	—	-20	+60	$^\circ C$

5.0 Electro-Optical Characteristics

Item	Symbol	Conditions	Standard Value			Unit
			Min.	Typ.	Max.	
Power Supply for Logic	Logic	Vdd	4.5	5.0	5.5	V
	LCD Drive	Vdd-Vee	—	15	17	
Frame Frequency	f FLM	Vdd=5.0V	70	75	80	Hz
Current Consumption	Idd	Vdd=5.0V, Vdd-V0=15.0 f FLM=75Hz	—	1.8	3.6	mA
LCD Driving Voltage(Recommended)	Vdd-V0	Ta=25℃; $\phi, \theta = 0^\circ$	—	15	—	V
Response Time(Rising)	Tr	Ta=25℃; $\phi, \theta = 0^\circ$	—	150	200	ms
Response Time(Decay)	Td		—	200	250	ms
Viewing Angle	$\phi 2-\phi 1$	$K \geq 2$	-30	—	30	DEG.
Contrast Ratio	K	$\phi = 0^\circ, \theta = 0^\circ$	2.0	5.0	—	—

6.0 Power Supply for LCM



7.0 I/O Connection

Pin No	Symbol	Level	Description
1	CS1	H	Chip select signal 1
2	CS2	H	Chip select signal 2
3	Vss	0V	Ground
4	VDD	5.0V	Power supply for logic and LCD
5	VEE	—	Power supply for LCD
6	RS	H/L	H: Data L: Instruction code
7	R/W	H/L	H: Read L: Write
8	E	H,H/L	Chip enable signal
9-16	DB0-DB7	H/L	Data bit 0- Data bit 7
17	/RST	H/L	Controller reset at low level
18	Vout	-10V	POWER SUPPLY FOR LCD DRIVING (-10V)
19	VLED+	+5V	POWER SUPPLY FOR LED BACKLIGHT(+5V)
20	VLED-	0V	POWER SUPPLY FOR LED BACKLIGHT