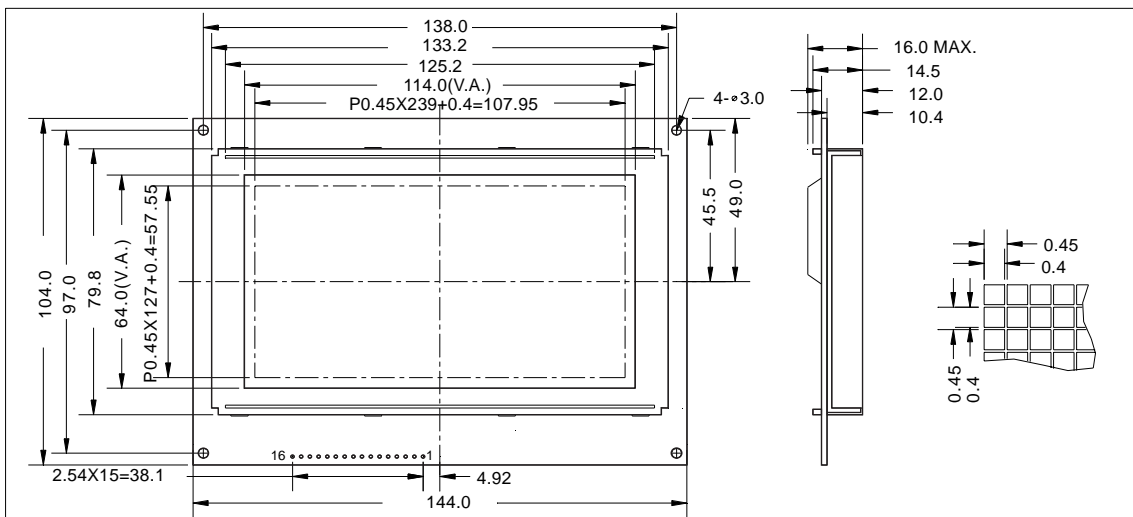


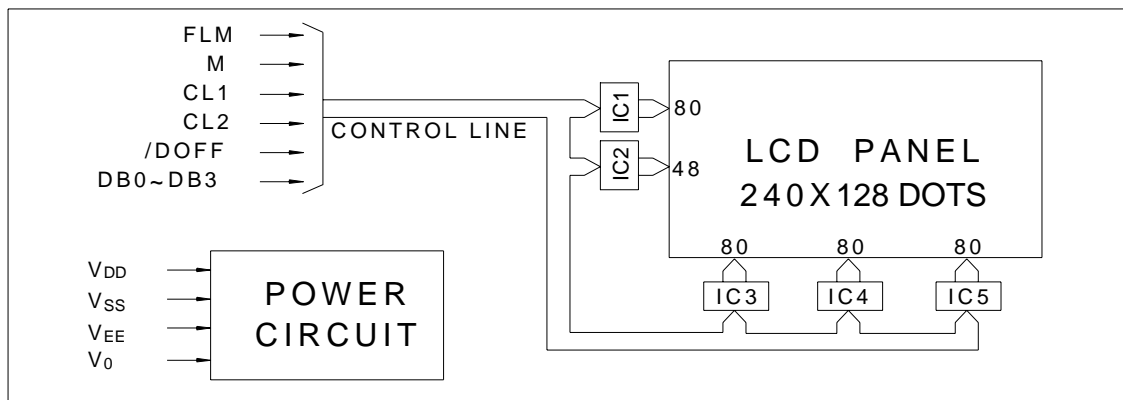
### 1.0 Features

- \* Display Mode: Reflective/Transflective/Transmissive and Positive Type STN
- \* Input Data: 4-bit parallel data interfaced from a controller
- \* Assembly: SMT
- \* Backlight: Optional

### 2.0 External Dimensions



### 3.0 Block Diagram



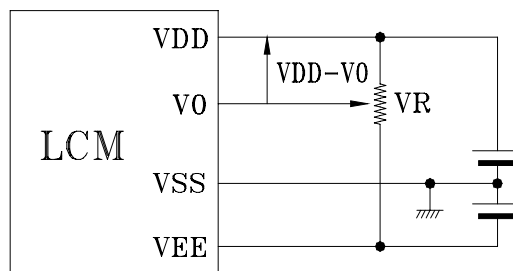
### 4.0 Maximum Rating

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	6.0	V
Supply Voltage for LCD	$V_{DD}-V_{EE}$		0	26	V
Input Voltage	$V_i$		0	$V_{dd}$	V
Operating Temperature	$T_{opr}$	—	0	50	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	—	-20	70	$^\circ\text{C}$

## 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		8.0	—	26.0	
Frame Frequency		f FLM	Vdd=5.0V	70	75	80	Hz
Current Consumption		Idd	Vdd=5.0V, Vdd-V0=25.0 f FLM=75Hz	—	—	4.0	mA
LCD Driving Voltage(Recommended)		Vdd-V0	Ta=25 °C; $\phi, \theta = 0^\circ$	19.5	20.0	20.5	V
Response Time(Rising)		Tr	Ta=25 °C; $\phi, \theta = 0^\circ$	—	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	Function
1	FRAME	---	First line marker (Frame signal for display synchronization)
2	LOAD	---	Data latch pulse signal
3	CP	—	Data shift pulse signal
4	M	—	Alternated signal for liquid crystal driver output
5	V0	---	LCD contrast regulated terminal
6	VDD	5.0V	Power supply voltage (Positive)
7	VSS	0V	Ground
8	VEE	---	Power supply voltage (Negative)
9	DB0	H/L	Data Bus
10	DB1	H/L	Data Bus
11	DB2	H/L	Data Bus
12	DB3	H/L	Data Bus
13	/DOFF	---	Display off control signal
14	A	---	Power supply for backlight (+)
15	K	---	Power supply for backlight (-)
16	NC	---	No connection