

CAT# LCD-119

Mechanical Characteristics 640x480

Item	Specification	Unit
Package dimensions	186(W)×121(H)×Max. 6.5(D)	mm
Structure	640(W)×480(H)	dot
Dot size	0.17(W)×0.17(H)	mm
Dot pitch	0.19(W)×0.19(H)	mm
Active area	121.58(W)×91.18(H)	mm
Effective viewing area	128(W)×97.5(H)	mm
Weight	Approx. 178	g

Electrical Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Remark
Power supply for logic	$V_{DD}-V_{SS}$	0	6.0	V	
Power supply for LCD driver	$V_{EX}-V_{SS}$	20	42	V	
Input signal voltage	V_I	V_{SS}	V_{DD}	V	

Electrical Characteristics

$T_a=25^{\circ}\text{C}$

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply for Logic	$V_{DD}-V_{SS}$		4.75	—	5.25	V
Power supply for LCD drive	V_O-V_{EX}	Note 1, 2	26.0	33.0	38.0	V
Input signal voltage	V_{IH}	"H" level	$0.8V_{DD}$	—	V_{DD}	V
	V_{IL}	"L" level	V_{SS}	—	$0.2V_{DD}$	V
Supply current	I_{DD}	Note 3	—	1.0	10	mA
	I_{EX}		—	9.0	20	mA

Note 1) The viewing angle θ at which the optimum contrast is obtained can be set by adjusting V_O-V_{EX} . Refer to Fig.1 for the definition of θ .

Note 2) Max. and Min. values are specified as the Max. and Min. voltage within the condition of operational temperature range($5-40^{\circ}\text{C}$). Typ. values are specified as the typical voltage at 25°C .

Note 3) $V_{DD}=5\text{V}$, $V_O-V_{EX}=\text{Typ. voltage}$, FLN frequency=73Hz. $D_0-D_1=\text{Low}$.

Environmental Conditions

Item	Storage Temp.		Operating Temp.		Remark
	Min.	Max.	Min.	Max.	
Ambient temperature	-10°C	50°C	0°C	40°C	Note 1
Humidity	Note 2		Note 2		No condensation
Vibration	—	2.0G	—	—	10 - 55 Hz. X/Y/Z Except for resonant frequency
Shock	—	50G	—	—	XYZ 11 ms

Note 1) Care should be taken so that the LCD unit may not be subjected to the temperature out of this specification.

Note 2) $T_a \leq 40^{\circ}\text{C}$: 85% RH Max. $T_a > 40^{\circ}\text{C}$: Absolute humidity shall be less than 85% RH.

■ PIN CONNECTIONS

No.	Symbol	Function
1	FLM	The FLM signal indicates the beginning of each display cycle.
2	M	Control signal for a.c. driving.
3	$\overline{\text{DISP OFF}}$	Display on off H ... Display on. L ... Display off
4	CL1	The CL1 latches the serial data in the shift registers.
5	VSS	Ground
6	CL2	Clock signal for shifting the serial data.
7	VSS	Ground
8	D0	Display data H ... light on. L ...
9	D1	Display data H ... light on. L ... light off
10	D2	Display data H ... light on. L ... light off
11	D3	Display data H ... light on. L ... light off
12	VDD	Power supply for logic circuit. (+5.0V)
13	VSS	Ground
14	VEE	Power supply for IC driving. ($\approx +38.0V$)
15	V0	Operating voltage for IC driving.