

LCG-12A01, LCD Graphic Module 12 x 1

■ FEATURES

- ◆ BUILT-IN CONTROLLER (HD66730 OR EQUIVALENT)
- ◆ +5 V POWER SUPPLY
- ◆ 1/16 DUTY CYCLE
- ◆ 8-BIT PARALLEL INTERFACE
- ◆ 4.2 V LED FORWARD VOLTAGE

■ MECHANICAL DATA

ITEM	DIMENSIONS	UNIT
Module Size (W x H x T)	84.0 x 36.0 x 8.8(12.7L ED)	mm
Viewing Area (W x H)	65.0 x 16.0	mm
Active Area (W x H)	62.79 x 7.64	mm
Dot Size (W x H)	0.40 x 0.60	mm
Dot Pitch (W x H)	0.43 x 0.64	mm

■ INTERFACE PIN CONNECTIONS

NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	0V	Power Supply Ground
2	V _{DD}	5V	Power Supply Voltage
3	V _O	-	Contrast Adj.
4	RS	H/L	Register Select
5	R/W	H	Read/Write
6	E	H	Enable Signal
7~14	DB0~DB7	H/L	Data Bus Line
15	A	4.2V	LED Power (+)
16	K	0V	LED Power (-)

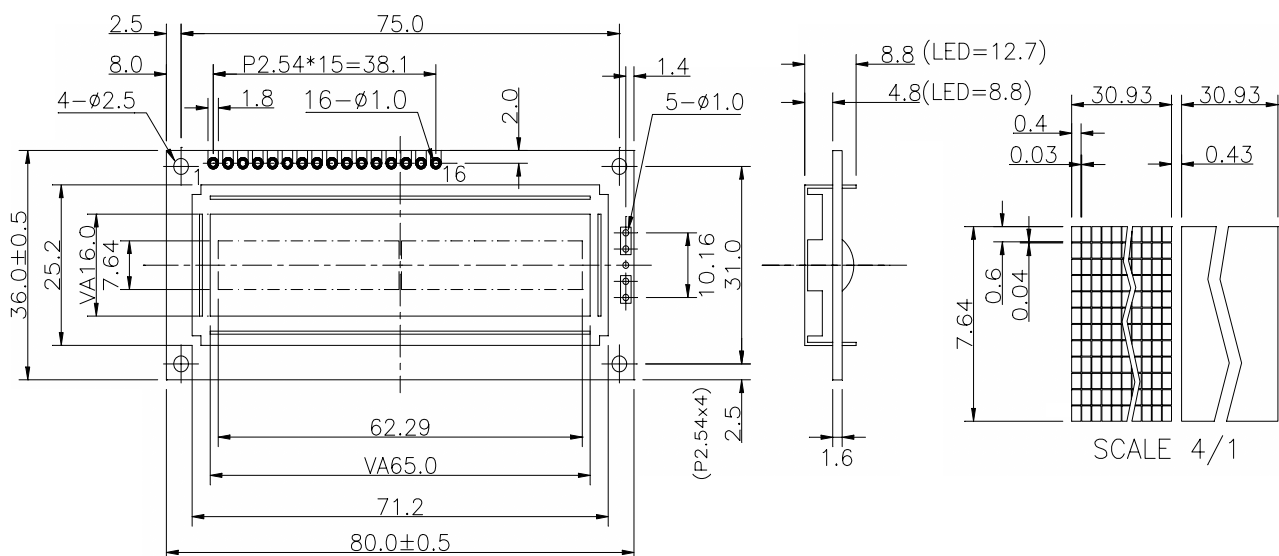
■ ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V _{DD} -V _{SS}	0	-	7	V
Supply Voltage For LCD Drive	V _{DD} -V _O	0	-	12	V
Input Voltage	V _I	V _{SS}	-	V _{DD}	V

■ ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V _{DD} -V _{SS}	-	4.5	5	5.5	V
Supply Voltage For LCD	V _{DD} -V _O	V _{DD} =5V Ta=25°C	4.4	4.8	5.2	V
Supply Current	I _{DD}	V _{DD} =5V	-	2.5	4.5	mA
Input Voltage	"HIGH" Level	V _{IH}	-	2.2	-	V _{DD} V
	"LOW" Level	V _{IL}	-	-	-	0.6 V
Output Voltage	"HIGH" Level	V _{OH}	-	2.4	-	V
	"LOW" Level	V _{OL}	-	-	-	0.4 V

■ EXTERNAL DIMENSIONS



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TIMING CHARACTERISTICS

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT.
E Cycle Time		t_{CYCE}	1000	-	-	ns
Enable Pulse Width	"High Level"	P_{WEH}	450	-	-	ns
Enable Rise/Fall Time		t_{ER}, t_{EF}	-	-	25	ns
Address Set-up Time	RS,R/W to E	t_{AS}	60	-	-	ns
Address Hold Time		t_{AH}	20	-	-	ns
Data Sep-up Time		t_{DSW}	140	-	-	ns
Data delay Time		t_{DDR}	-	-	360	ns
Data Hold Time	Write	t_H	30	-	-	ns
Data Hold Time	Read	t_{DHR}	5	-	-	ns

FIG.1 WRITE OPERATION

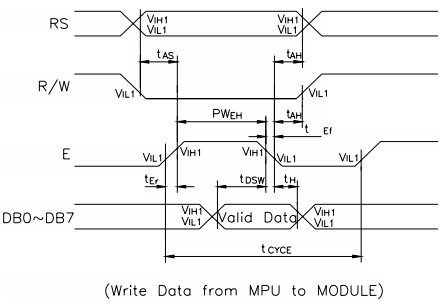
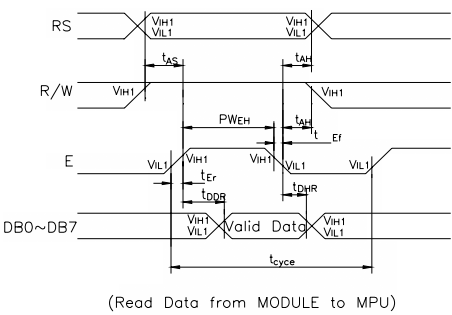


FIG.2 READ OPERATION



BLOCK DIAGRAM

