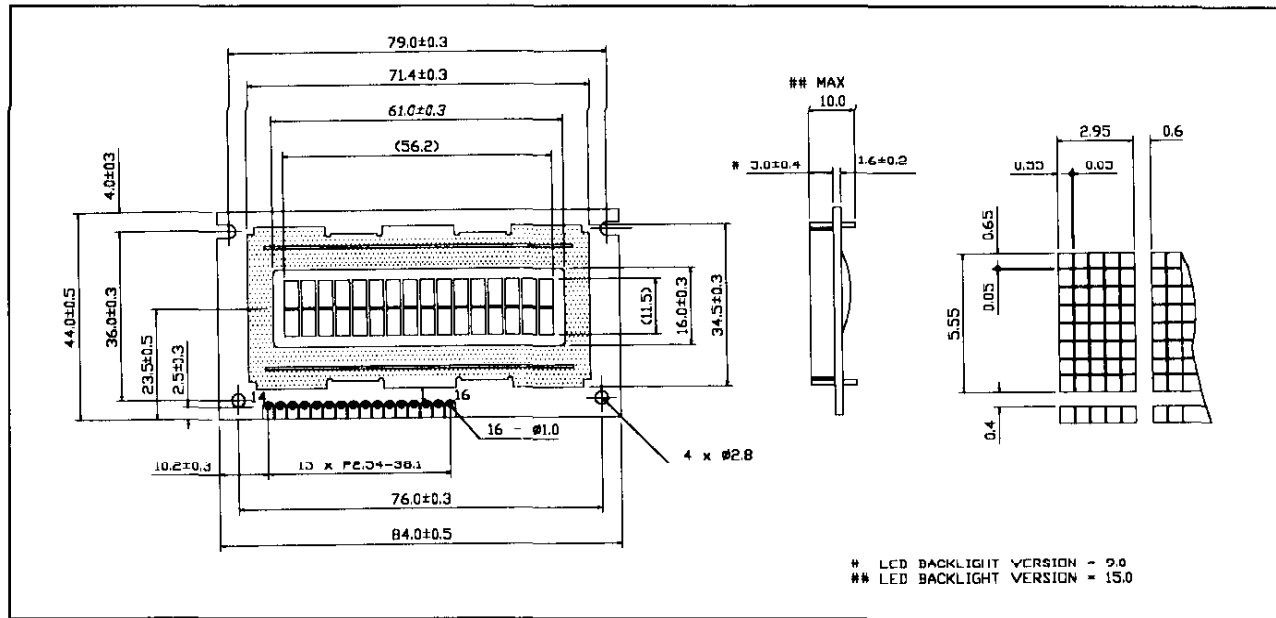


AA16201

* EXTERNAL DIMENSIONS AND DISPLAY PATTERNS



MECHANICAL DATA (Nominal dimensions)

Module size	84W x 44 H x 10T (max.)mm
Effective display area	61.0W x 16.0H mm
Character size (5 x 8 dots)	2.95W x 5.55H mm
Character pitch	3.55 mm
Dot size	0.55W x 0.65H mm
Weight	about 40g (Approx.)

ABSOLUTE MAXIMUM RATINGS MIN. MAX.

Power supply for logic ($V_{DD} - V_{SS}$)	-0.3	7.0 V
Power supply for LCD drive ($V_{DD} - V_o$)	0	13.5 V
Input voltage (V_i)	0	V_{DD} V
Operating temperature (T_a)	0	+50°C
Storage temperature (T_{stg})	-20	+70°C

ELECTRICAL CHARACTERISTICS

$T_a = 25^\circ\text{C}$, $V_{DD} = 5.0V \pm 0.25V$

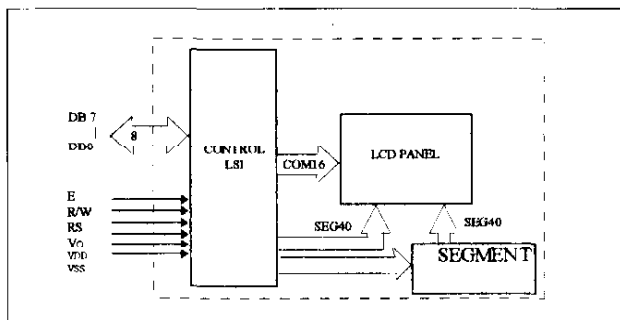
Input "high" voltage (V_{ih})	2.2V min.
Input "low" voltage (V_{il})	0.6V max.
Output "high" voltage (V_{oh}) ($-I_{oh} = 0.2\text{mA}$)	2.4V min.
Output "low" voltage (V_{ol}) ($I_{ol} = 1.6\text{mA}$)	0.4V max.
Power supply current (I_{dd}) ($V_{DD} = 5.0V$)	1.0mA typ. 2.0mA max.

Drive method

Power supply LCD drive ($V_{DD} - V_o$)

$T_a = 0^\circ\text{C}$	4.6V typ.
$T_a = 25^\circ\text{C}$	4.4V typ.
$T_a = 50^\circ\text{C}$	4.2V typ.

* BLOCK DIAGRAM



* PIN CONNECTIONS

1	V_{SS}	0V
2	V_{DD}	+5V
3	V_o	LCD DRIVING VOLTAGE
4	RS	H : DATA INPUT L : INSTRUCTION INPUT
5	R/W	H : DATA READ L : DATA WRITE
6	E	ENABLE SIGNAL
7	DB0	DATA BUS LINE
8	DB1	NOTES : In the controller the data can be sent in either 4-bit 2-operation or 8-bit 1-operation so that it can interface to both 4 and 8 bit MPU'S
9	DB2	
10	DB3	
11	DB4	
12	DB5	
13	DB6	
14	DB7	
15	K(-)	BACKLIGHT VERSION
16	A(+)	

- (1) When interface data is 4 bits is long, data is transferred using only 4 buses of DB4~DB7 and DB0~DB3 are not used. Data transfer between the control LSI and the MPU completes when 4 bit data is transferred twice. Data of the higher order 4 bits (contents of DB4~DB7 when interface data is 8 bits long) is transferred first and then lower order 4 bits (contents of DB0~DB3 when interface data is 8 bits long).
- (2) When interface data is 8 bits long, data is transferred using 8 data buses of DB0~DB7.

* BACKLIGHT CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

LED					
Forward Voltage	V_f	$I_f = 120\text{mA}$	4.1	4.6	V
Reverse Current	I_r	$V_r = 8V$		0.18	mA
Luminous Intensity	I_v	$I_f = 120\text{mA}$	100		mcd
Peak Emission Wave Length	λ_p	$I_f = 120\text{mA}$	565		nm
Spectral Line Half Width		$I_f = 120\text{mA}$	40		nm

EL			Typ	Max	
Voltage	V_{el}		100		Vrms
Frequency	f_{el}		400		Hz
Current	I_{el}		12.3	15.7	mA