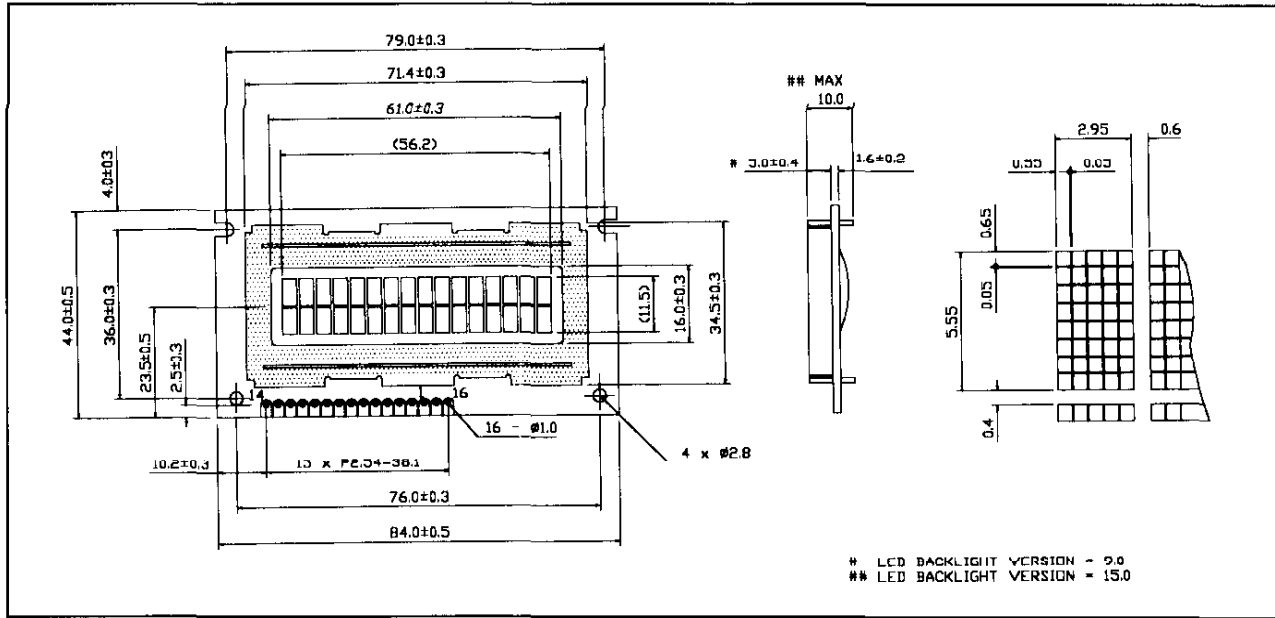


# AA16201

## \* 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

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

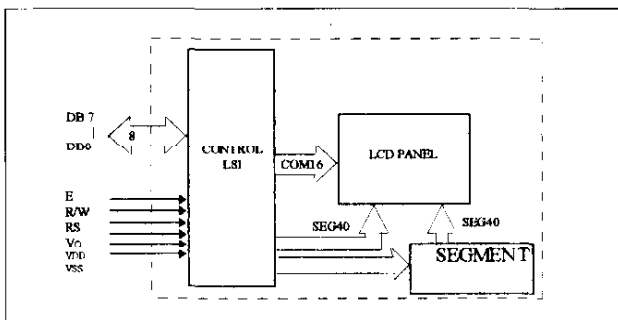
Input "high" voltage ( $V_{ih}$ )	2.2V min.
Input "low" voltage ( $V_{il}$ )	0.6V max.
Output "high" voltage ( $V_{oh}$ ) ( $I_{oh} = 0.2\text{mA}$ )	2.4V min.
Output "low" voltage ( $V_{ol}$ ) ( $I_{ol} = 1.6\text{mA}$ )	0.4V max.
Power supply current ( $I_{dd}$ ) ( $V_{DD} = 5.0V$ )	1.0mA typ. 2.0mA 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		$I_f = 120\text{mA}$	4.1	4.6	V
Forward Voltage	$V_f$				
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	$\lambda_p$	$I_f = 120\text{mA}$	565		nm
Spectral Line Half Width	$\lambda_{1/2}$	$I_f = 120\text{mA}$	40		nm

EI		Typ	Max	Vrms
Voltage	$V_{el}$	100		
Frequency	$F_{el}$	400		
Current	$I_{el}$	12.3	15.7	