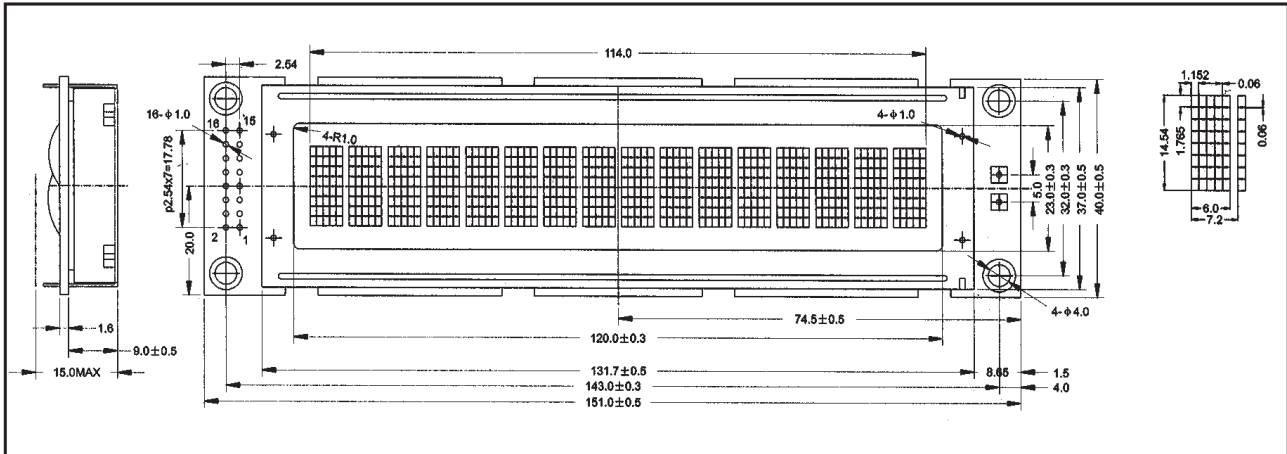


## STANDARD CHARACTER MODULES

### YMS 161-04

16 CHAR x 1 LINE, 1/8 DUTY, 1/4 BIAS

#### EXTERNAL DIMENSION AND DISPLAY PATTERN



#### MECHANICAL DATA

ITEM	SPECIFICATION	UNIT
Module Size (W x H x T)	151.0 x 40.0 x 15.0	mm
Viewing Area (W x H)	120.0 x 23.0	mm
Character Font (W x H)	5.0 x 7.0 with cursor	dots
Character Size (W x H)	6.0 x 14.54	mm
Dot Size (W x H)	1.152 x 1.765	mm

#### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Supply Voltage Logic	$V_{DD} - V_{SS}$	-0.3	7.0	V
Supply Voltage Drive	$V_{DD} - V_{EE}$	-0.3	13.5	V
Input Voltage	$V_{IN}$	-0.3	$V_{DD} + 0.3$	V
Operating Temperature		See page 8		
Storage Temperature		See page 8		

#### PIN CONFIGURATION

PIN	SYMBOL	SIGNAL DESCRIPTION
1	$V_{SS}$	GND (0 V)
2	$V_{DD}$	Logic Supply Voltage (+5.0V)
3	$V_{EE}$	LCD Driver Voltage Input
4	RS	DATA / Instruction Register Select
5	R/W	Read / Write Select
6	E	Enable Signal
7 to 14	DB <sub>0</sub> to DB <sub>7</sub>	Data Bus Line
15	A, K	LED Backlight
16		

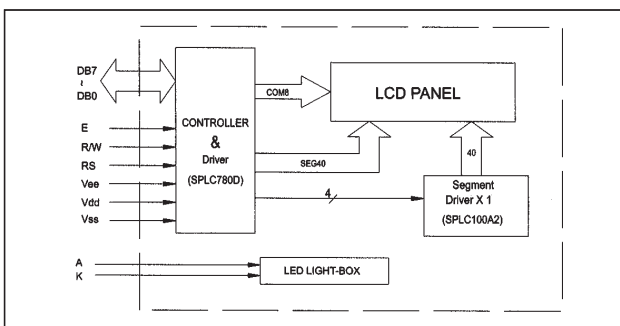
#### ELECTRICAL CHARACTERISTICS, $T_a = 25^\circ\text{C}$

ITEM	SYMBOL	CONDITION	SPEC. VALUE			UNIT
			MIN.	TYP.	MAX.	
Supply Voltage (Logic)	$V_{DD} - V_{SS}$		4.5	5.0	5.5	V
Supply Current (Logic)	$I_{DD}$	$V_{DD} = 5V$		1.13		mA
Input Voltage	HIGH	$V_{IH}$	$0.7 V_{DD}$		$V_{DD}$	V
	LOW	$V_{IL}$	-0.3		0.05	V
Output Voltage	HIGH	$V_{OH}$	$V_{OH} = 1.2mA$	$0.8 V_{DD}$		V
	LOW	$V_{OL}$	$V_{OL} = 1.2mA$		$0.2 V_{DD}$	V
LCD Operating Voltage	$V_{DD} - V_{EE}$	$V_{DD} = 5V$ $T_a = +25^\circ\text{C}$	3.0	5.6	9.0	V
Supply Current LCD Drive	$I_{EE}$			1.0		mA

Note (1): Value is high reliability type.

Note (2): Electro-Optical Characteristics: See page 5.

#### BLOCK DIAGRAM



#### BACKLIGHTING CHARACTERISTICS, $T_a = 25^\circ\text{C}$ , LED

ITEM	SYMBOL	CONDITION	SPEC. VALUE			UNIT
			MIN.	TYP.	MAX.	
Supply Voltage	$V_{LED}$	$I_F = 300mA$	3.8	4.1	4.2	V
Power Consumption	$P_{LED}$			1230		mW
Luminous	$I_v$					cd/m <sup>2</sup>