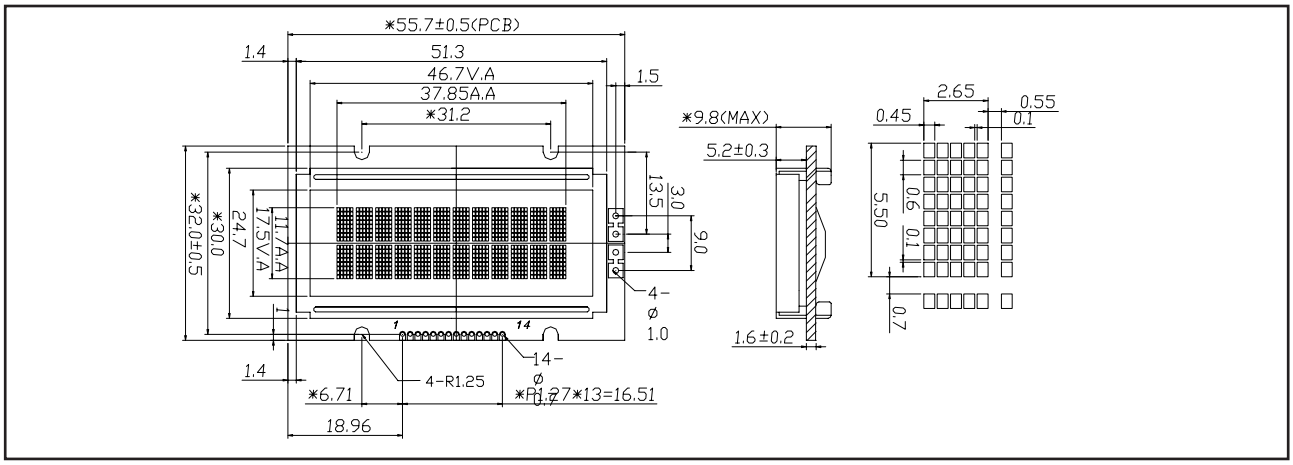
STANDARD CHARACTER MODULES

YMS 122-01

12 CHAR x 2 LINE, 1/16 DUTY, 1/5 BIAS

EXTERNAL DIMENSION AND DISPLAY PATTERN



MECHANICAL DATA

ITEM	SPECIFICATION	UNIT
Module Size (W x H x T)	55.7 x 32.0 x 9.8	mm
Viewing Area (W x H)	46.7 x 17.5	mm
Character Size (W x H)	2.65 x 5.55	mm
Character Pitch (W x H)	3.2 x 6.2	mm
Dot Size (W x H)	0.45 x 0.6	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}	V_{DD} -10	V_{DD} +0.3	V
Input Voltage	V_{IN}	-0.3	V_{DD} +0.3	V
Operating Temperature	See page 8			
Storage Temperature				

PIN CONFIGURATION

PIN	SYMBOL	SIGNAL DESCRIPTION
1	V_{SS}	GND (0 V)
2	V_{DD}	Logic Supply Voltage (+5.0V)
3	V_L	LCD Driver Voltage Input
4	RS	DATA / Instruction Register Select
5	R/W	Read / Write Select
6	E	Enable Signal
7 to 14	DB_0 to DB_7	Data Bus Line

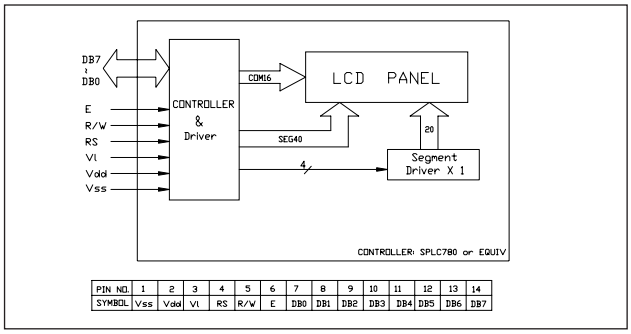
ELECTRICAL CHARACTERISTICS, Ta = 23°C ±3°C

ITEM		SYMBOL	CONDITION	SPEC. VALUE			UNIT
				MIN.	TYP.	MAX.	
Supply Voltage (Logic)		V_{DD} - V_{SS}			5.0		V
LCD Operating Voltage		V_{DD} - V_0	V_{DD} =5V Ta=+25°C	4.3	4.5	4.7	V
Response Time		T_{ON} T_{OFF}			94 230		ms
Contrast		CR		2.0			
Viewing Angle	12H	θ1	CR ≥ 2.0		50		
	6H	θ2			69		
	3H	θ3			55		Deg.
	9H	θ4			55		

Note (1): Value is high reliability type.

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

BLOCK DIAGRAM



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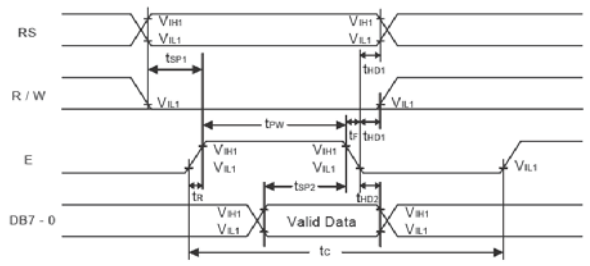
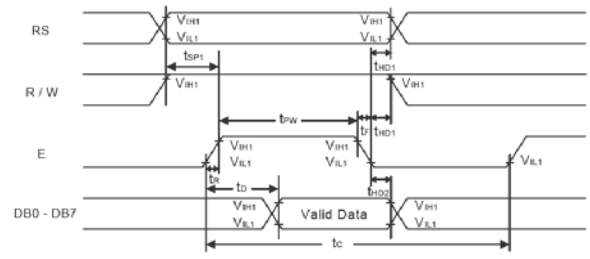
INTERFACE TIMING CHARACTERISTICS

Write Mode Timing Diagram (Writing Data from MPU to SPLC780D1)



Write Operation (Writing Data from MPU to SPLC780D1)					
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	MAX.	UNIT
E Cycle Time	t_C	Pin E	400		ns
E Pulse Width	t_W	Pin E	150		ns
E Rise / Fall Time	t_R, t_F	Pin E		25	ns
Address Setup Time	t_{SP1}	Pins: RS, R/W, E	30		ns
Address Hold Time	t_{HD1}	Pins: RS, R/W, E	10		ns
Data Output Delay Time	t_D	Pins: DB_0-DB_7	40		ns
Data Hold Time	t_{HD2}	Pins: DB_0-DB_7	10		ns

Read Mode Timing Digrm (Reading Data from SPLC780D1 to MPU)



Read Operation (Writing Data from SPLC780D1 to MPU)					
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	MAX.	UNIT
E Cycle Time	t_C	Pin E	400		ns
E Pulse Width	t_W	Pin E	150		ns
E Rise / Fall Time	t_R, t_F	Pin E		25	ns
Address Setup Time	t_{SP1}	Pins: RS, R/W, E	30		ns
Address Hold Time	t_{HD1}	Pins: RS, R/W, E	10		ns
Data Output Delay Time	t_D	Pins: DB_0-DB_7		100	ns
Data Hold Time	t_{HD2}	Pins: DB_0-DB_7	5		ns