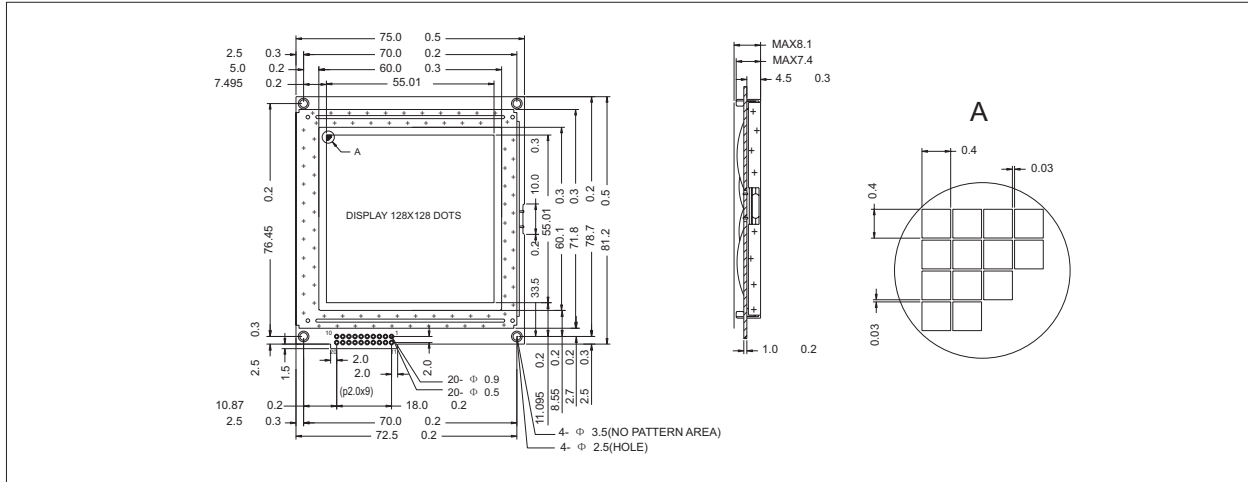


STANDARD GRAPHIC MODULES

YMS128128-01

128 x 128DOTS
1/128DUTY, 1/12BIAS

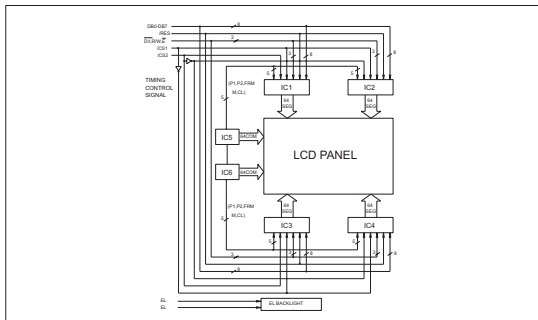
1 EXTERNAL DIMENSION AND DISPLAY PATTERN



2 MECHANICAL DATA

ITEM	SPECIFICATION	UNIT
Module Size(WXHT)	75.0 x 81.2 x 8.1	mm
Viewing Area(WXH)	60.0 x 60.1	mm
Number of Dots(WXH)	128 x 128	dots
Dot Pitch(WXH)	0.43 x 0.43	mm
Dot Size(WXH)	0.4 x 0.4	mm

3 BLOCK DIAGRAM



4 PIN CONFIGURATION

PIN	SYMBOL	LEVEL	SIGNAL DESCRIPTION
1	V _{SS}	0V	Ground
2	V _{DD}	+5V	Supply Voltage for Logic And LCD
3	V _{EE}	-	Operating Voltage for LCD (Variable)
4	RS	H/L	H:Data, L:Instruction Code
5	R/W	H/L	H:Read(Module-MPU), L:Write(MPU-Module)
6	E	H,H-L	Chip Enable Signal
7	DB0	H/L	Data Bit 0
8	DB1	H/L	Data Bit 1
9	DB2	H/L	Data Bit 2
10	DB3	H/L	Data Bit 3
11	DB4	H/L	Data Bit 4
12	DB5	H/L	Data Bit 5
13	DB6	H/L	Data Bit 6
14	DB7	H/L	Data Bit 7
15	CS1	H/L	Chip Select Signal for IC 1
16	CS2	H/L	Chip Select Signal for IC 2
17	/RES	H,H-L	Reset Signal
18	V _{out}	-	Power Supply Voltage for LCD
19	EL		EL Power
20	EL		

5 ABSOLUTE MAXIMUM RATINGS(Ta=25 °C)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Supply Voltage Logic	V _{DD} (V _{DD} -V _{SS})	-0.3	7.0	V
Supply Voltage Driver	V _{DD} -V _{EE}	-0.3	30.0	V
Input Voltage	V _{IN}	-0.3	V _{DD} +0.3	V

Operating Temp.	See page 6
Storage Temp.	

6 ELECTRICAL CHARACTERISTICS(Ta=25 °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	-	3.0	4.5	mA
Input Voltage	"HIGH"		0.7 V _{DD}	-	V _{DD}	V
	"LOW"		0	-	0.3 V _{DD}	V
Output Voltage	"HIGH"	I _{OH} =-0.205mA	2.4	-	-	V
	"LOW"	I _{OL} =1.6mA	-	-	0.4	V
LCD Operating Voltage	V _{DD} -V _{EE}	V _{DD} =5V	-	17.8	-	V
Supply Current LCD Drive	I _{EE}	Ta=25 °C	-	9.8	-	mA

Note(1): () Value is high Reliability type.

Note(2): Electro-Optical Characteristics: See page 4 and 5.

7 BACKLIGHT CHARACTERISTICS(Ta=25 °C)

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Applied Voltage	V _{EL}		-	100	150	V
Applied Frequency	F _{EL}		-	400	-	Hz
Current	I _{EL}	V _a =100V _{rms}	-	5.27	7.47	mA
Power Consumption	P _{EL}	F _a =400 Hz	-	527	747	mW
Luminous			45	55	-	cd/m ²

8 INTERFACE TIMING CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
E Cycle Time	t _{cycle}	1000	-	ms
E High Level Width	t _{EH}	450	-	ms
E Low Level Width	t _{EL}	450	-	ms
E Rise Time	t _r	25	-	ms
E Fall Time	t _f	25	-	ms
Address Setup Time	t _{AS}	140	-	ms
Address Hold Time	t _{AH}	70	-	ms
Data Setup Time	t _{DS}	200	-	ms
Data Delay Time	t _{DD}	350	-	ms
Data Delay Time(Write)	t _{DDW}	30	-	ms
Data Hold Time(Read)	t _{DDR}	25	-	ms

