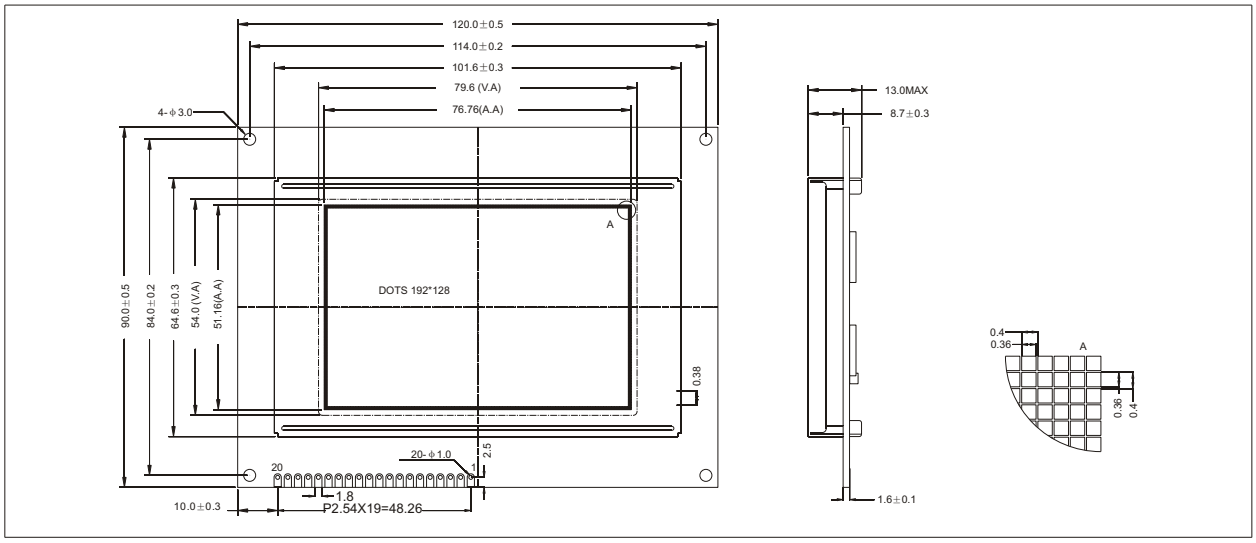
STANDARD GRAPHIC MODULES

OLG192128AY01

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

1 EXTERNAL DIMENSION AND DISPLAY PATTERN



2 MECHANICAL DATA

ITEM	SPECIFICATION	UNIT
Module Size(W*H*T)	98.0×86.0×13.0	mm
Viewing Area(W*H)	77.5×54.0	mm
Number of Dots	192×128	mm
Dot Pitch (W*H)	0.4×0.4	mm
Dot Size (W*H)	0.36×0.36	mm

3

PIN No.	SYMBOL	FUNCTION
1,2	DB3, DB2	Data Bit3, Data Bit2
3	FLM	First Line Marker
4	M	AC Signal For LCD Driver Output
5	CL1	Data Latch Clock
6	CL2	Data Shift Clock
7,8	DB1, DB0	Data Bit1, Data Bit0
9	V_{DD}	Logical High Input Port
10	V_{SS}	GND(0v)
11	V_0	LCD Drive Output Voltage Level
12	FGND	Frame Ground
13	EL1	ELBacklight
14	EL2	ELBacklight

4 ABSOLUTE MAXIMUM RATINGS

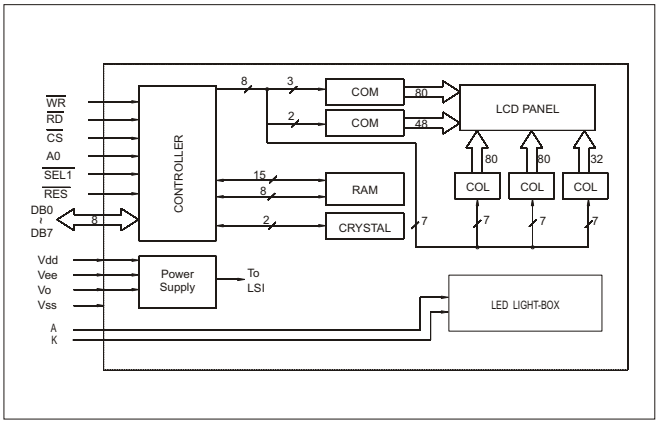
PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage Logic	V_{DD}-V_{SS}	-0.3	7.0	V
Supply Voltage Driver	V_{DD}-V_{EE}	0	30.0	V
Intut Voltage	V_{IN}	-0.3	V_{DD}+0.3	V

Operating Temp Storage Temp	See page 9

5 ELECTRICAL CHARACTERISTICS(Ta=25 ℃)

ITEM		SYMBOL	CONDITION	SPEC.VALUE			UNIT
				MIN.	TYP.	MAX.	
Supply Voltage (Logic)		V_{DD}-V_{SS}		2.7	5.0	5.5	V
Supply Current (Logic)		I_{DD}	V_{DD}=5V	–	1.2	1.6	mA
Input Voltage	HIGH	V_{IH}		0.8V_{DD}	–	V_{DD}	V
	LOW	V_{IL}			–	0.2V_{DD}	V
Output Voltage	HIGH	V_{OH}		V_{DD}-0.4	–		V
	LOW	V_{OL}		–	–	0.4	V
LCD Operating Voltage		V_{DD}-V_{EE}	V_{DD}=5V Ta=25 ℃	6	17.6	28	V
Supply Voltage LCD Drive		I_{EE}			1.0	1.1	mA

6 BLOCK DIAGRAM



7 BACKLIGHTING CHARACTERISTICS(Ta=25 ℃)

EL

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIX
Supply Voltage	V_{LED}			110(AC)		V
Power Consumption	P_{LED}					mW
Luminous						cd/m²

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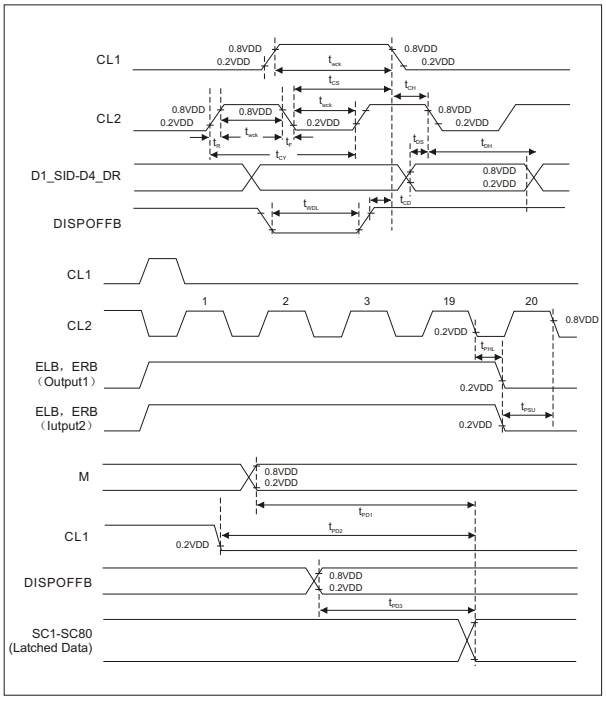
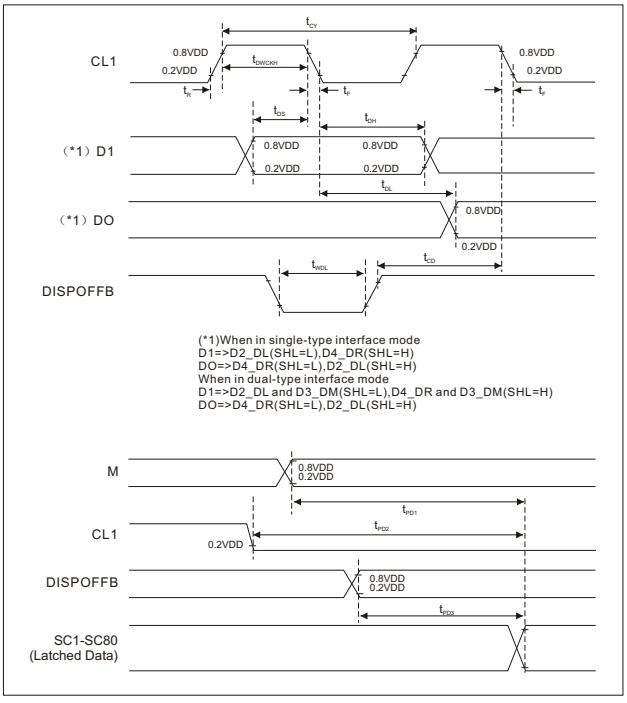
YMS192128-01

192x128DOTS
1/128DUTY, 1/12BIAS

8 SEGMENT DRIVER APPLICATION TIMING



9 COMMON DRIVER APPLICATION TIMING



10 AC CHARACTERISTICS

(1)Segment Driver Application

(Vss=0V, Ta=-30~+85℃)

Characteristic	Symbol	Test Condition	(1)V_{DD}=5V±10%			(2)V_{DD}=3V±10%			Unit
			Min.	Typ..	Max.	Min.	Typ..	Max.	
Clock cycle time	t_{CY}	Duty=50%	125	-	-	250	-	-	ns
Clock pulse width	t_{WCK}	-	45	-	-	95	-	-	
Clock rise/fall time	$t_{R/F}$	-	-	-	-	-	-	30	
Data set-up time	t_{DS}	-	30	-	-	65	-	-	
Data hold time	t_{DH}	-	30	-	-	65	-	-	
Clock set-up time	t_{CS}	-	80	-	-	120	-	-	
Clock hold time	t_{CH}	-	80	-	-	120	-	-	
Propagation delay time	t_{PHL}	ELB Output	-	-	60	-	-	125	
		ERB Output			60			125	
ELB ERB set-up time	t_{PSU}	ELB Input	30	-	-	65	-	-	
		ERB Input	30			65			
DISPOFFB low pulse width	t_{WDL}	-	1.2	-	-	1.2	-	-	μs
DISPOFFB clear time	t_{CD}	-	100	-	-	100	-		ns
M-OUT propagation delay time	t_{PD1}	C_L=15pF	-	-	1.0	-	-	1.2	μs
CLI-OUT propagation delay time	t_{PD2}		-	-	1.0	-	-	1.2	
DISPOFFB-OUTpropagation delay time	t_{PD3}		-	-	1.0	-	-	-	

(2)Common Driver Application

(Vss=0V, Ta=-30~+85℃)

Characteristic	Symbol	Test Condition	(1)V_{DD}=5V±10%			(2)V_{DD}=3V±10%			Unit
			Min.	Typ..	Max.	Min.	Typ..	Max.	
Clock cycle time	t_{CY}	Duty=50%	250	-	-	500	-	-	ns
Clock pulse width	t_{WCK}	-	45	-	-	95	-	-	
Clock rise/fall time	$t_{R/F}$	-	-	-	50	-	-	50	
Data set-up time	t_{DS}	-	30	-	-	65	-	-	
Data hold time	t_{DH}	-	30	-	-	65	-	-	
DISPOFFB low pulse width	t_{WDL}	-	1.2	-	-	1.2	-	-	μs
DISPOFFB clear time	t_{CD}	-	100	-	-	100	-	-	ns
Output delay time	t_{DL}	C_L=15pF	-	-	200	-	-	250	
M-OUT propagation delay time	t_{PD1}		-	-	1.0	-	-	1.2	μs
CLI-OUT propagation delay time	t_{PD2}		-	-	1.0	-	-	1.2	
DISPOFFB-OUTpropagation delay time	t_{PD3}		-	-	1.0	-	-	1.2	