EXAMINED BY : Jason Ma.	EMERGING DISPLAY	FILE NO . CAS-50238
		ISSUE : SEP.15,2000
APPROVED BY: David Chang	TECHNOLOGIES CORPORATION	TOTAL PAGE : 10
		VERSION : 1

CUSTOMER ACCEPTANCE SPECIFICATIONS

MODEL NO. :

EW16H00FEW

FOR MESSRS :

CUSTOMER'S APPROVAL

DATE :

BY :

ACDS 175-177 route de Genas - 69100 VILLEURBANNE - France
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EMERGING DISPLAY TECHNOLOGIES CORPORATION	MODEL NO. EW16H00FEW	VERSION 1
RECORDS OF REVISION	DOC . FIRST ISSUE SEP.15,2000	

DATE	REVISED PAGE NO.	SUMMARY

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1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

EU-002A

1.2 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

(1)	NUMBER OF DOTS	160W * 160H DOTS
(2)	MODULE SIZE	69.0W * 107.5H * 6D (max.) mm
(3)	EFFECTIVE AREA	63W * 63.3H mm
(4)	ACTIVE AREA	55.985W * 55.985H mm
(5)	DOT SIZE	0.335W * 0.335H mm
(8)	DOT PITCH	0.35W * 0.35H mm
(9)	LCD TYPE	FSTN,POSITIVE,BLACK/WHITE, TRANSFLECTIVE
(10)	DRIVING METHOD	1 / 160 DUTY MULTIPLEX DRIVE
(11)	VIEWING DIRECTION	6 O'CLOCK
(12)	BACK LIGHT	EL;COLOR : WHITE

3. ABSOLUTE MAXIMUM RATINGS

3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS. (AT Ta = 25 ℃)

PARAMETER		SYMBOL	MIN.	MAX.	UNIT	REMARK
POWER SUPPLY FOR LOGIC		VDD – VSS	0	7.0	V	
POWER SUPPLY FOR LCD DRIVE		VEE – VSS	0	+30	V	
INPUT VOLTAGE		VI	VSS	VDD	V	
STATIC ELECTRICITY		—	—	100	V	NOTE (1)
POWER SUPPLY FOR EL BACKLIGHT	VOLTAGE	VEL	—	120AC	Vrms	
	FREQUENCY	fEL	—	1K	HZ	

NOTE (1) : TEST METHOD AND CONDITIONS :
AFTER CHARGING UP 200 PF CAPACITOR BY STATED VOLTAGE, THE CAPACITOR IS CONNECTED WITH INTERFACE PINS OF THE MODULE.

3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS.

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	-20 °C	50 °C	-30 °C	60 °C	NOTE (2), (3)
HUMIDITY	—	85 % RH	—	85 % RH	WITHOUT CONDENSATION
VIBRATION	—	2.45 m/S^2 (0.25 G)	—	11.76 m/S^2 (1.2 G)	10 ~ 100HZ XYZ DIRECTIONS 1 Hr.EACH
SHOCK	—	29.4 m/S^2 (3 G)	—	490 m/S^2 (50 G)	10 mSECONDS XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE (2) : Ta AT -30°C : 48HR MAX.
60°C : 168HR MAX.
NOTE (3) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT TEMPERATURE THIS PHENOMENON IS REVERSIBLE.

4. ELECTRICAL CHARACTERISTICS

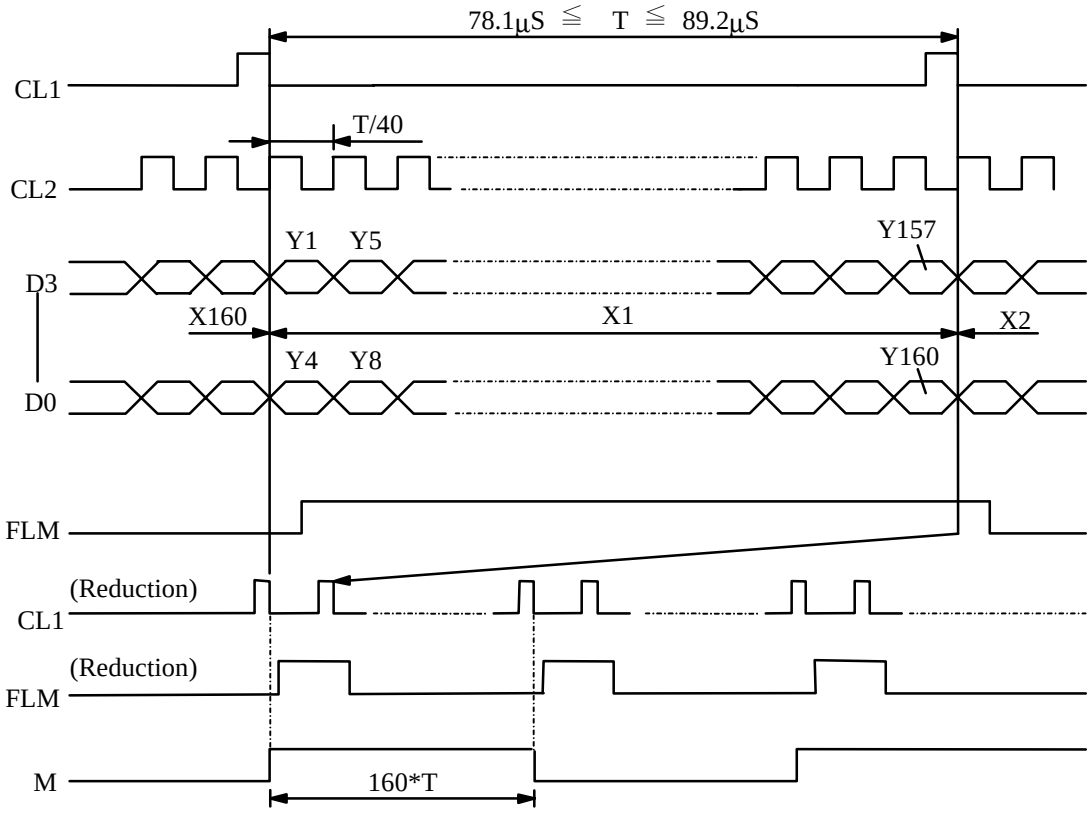
Ta = 25 °C

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR LOGIC	VDD–VSS	—	2.5	—	5.0	V
POWER SUPPLY VOLTAGE FOR LCD DRIVE	VEE–VSS	—	+15.0	—	+30	V
INPUT VOLTAGE NOTE (1)	VIH	H LEVEL	0.8VDD	—	—	V
	VIL	L LEVEL	—		0.2VDD	V
POWER SUPPLY CURRENT FOR LOGIC NOTE (2)	IDD	VDD-VSS =3.0V VEE-VSS=17.8V	—	(1.0)	—	mA
POWER SUPPLY CURRENT FOR LCD DRIVE NOTE (2)	IEE	VDD-VSS =3.0V VEE-VSS=17.8V	—	(3.0)	—	mA
RECOMMENDED LCD DRIVING VOLTAGE NOTE (3)	VEE–VSS ∅=10°,θ =0° DUTY=1/160	Ta = -20 °C	—	(19.8)	—	V
		Ta = 25 °C	—	(17.8)	—	V
		Ta = 50 °C	—	(15.8)	—	V
CLOCK OSCILLATION FREQUENCY	fFLM	—	70	75	80	HZ
POWER SUPPLY FOR EL BACKLIGHT	VEL	fEL=400HZ	—	50	—	Vrms
	IEL	VEL=50Vrms fEL=400HZ	—	7	—	mArms

NOTE (1) : APPLIED TO TERMINALS FLM , CL1, CL2, M, D0, D1, D2, D3.
NOTE (2) : THIS DISPLAY PATTERN IS ALL ON OR OFF.
NOTE (3) : RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT± 1 . 0 V BY EACH MODULE.

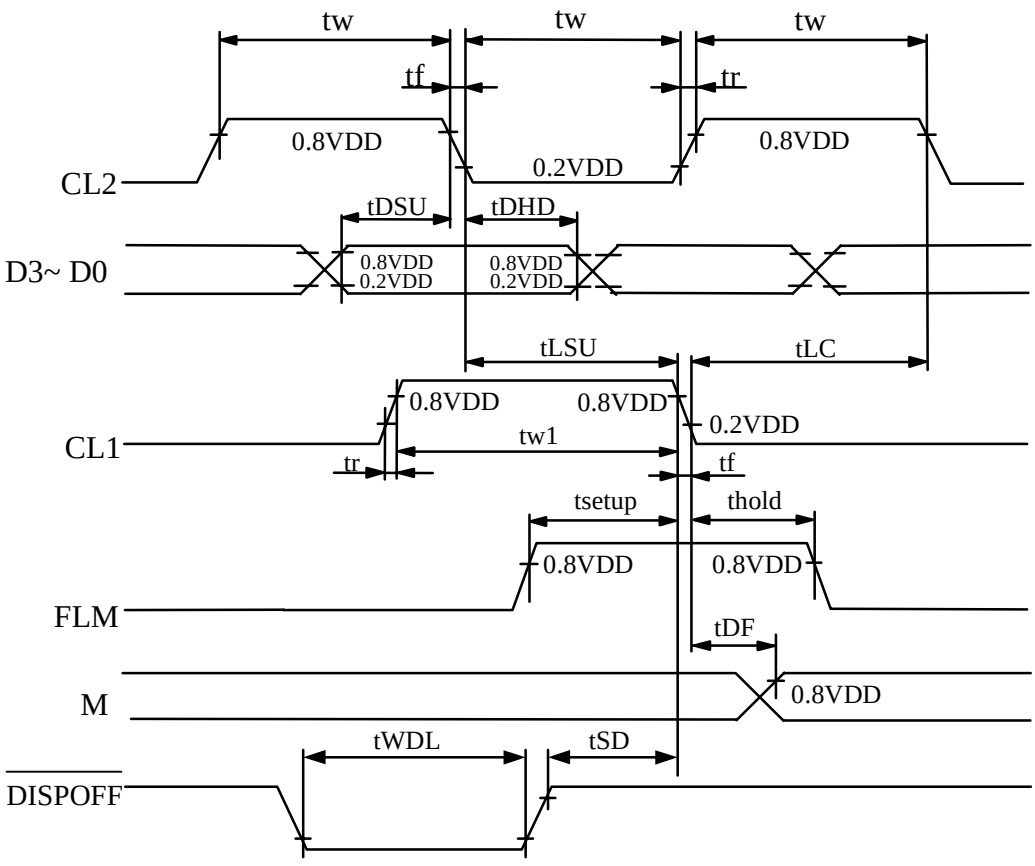
5. TIMING CHARACTERISTICS

5.1 INTERFACE TIMING



5.2 SWITCHING CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
CL1 PULSE WIDTH	tw1	23	—	—	ns
CL2 PULSE	tw	23	—	—	ns
RISE,FALL TIME	tr,tf	—	—	50	ns
DATA SETUP TIME	tDSU	10	—	—	ns
DATA HOLD TIME	tDHD	20	—	—	ns
CL1 SETUP TIME	tLSU	51	—	—	ns
CL1 TO CL2 TIME	tLC	51	—	—	ns
FLM SETUP TIME	tsetup	30	—	—	ns
FLM HOLD TIME	thold	50	—	—	ns
$\overline{\text{DISPOFF}}$ REMOVAL TIME	tSD	100	—	—	ns
$\overline{\text{DISPOFF}}$ LOW PULSE WIDTH	tWDL	1.2	—	—	µs



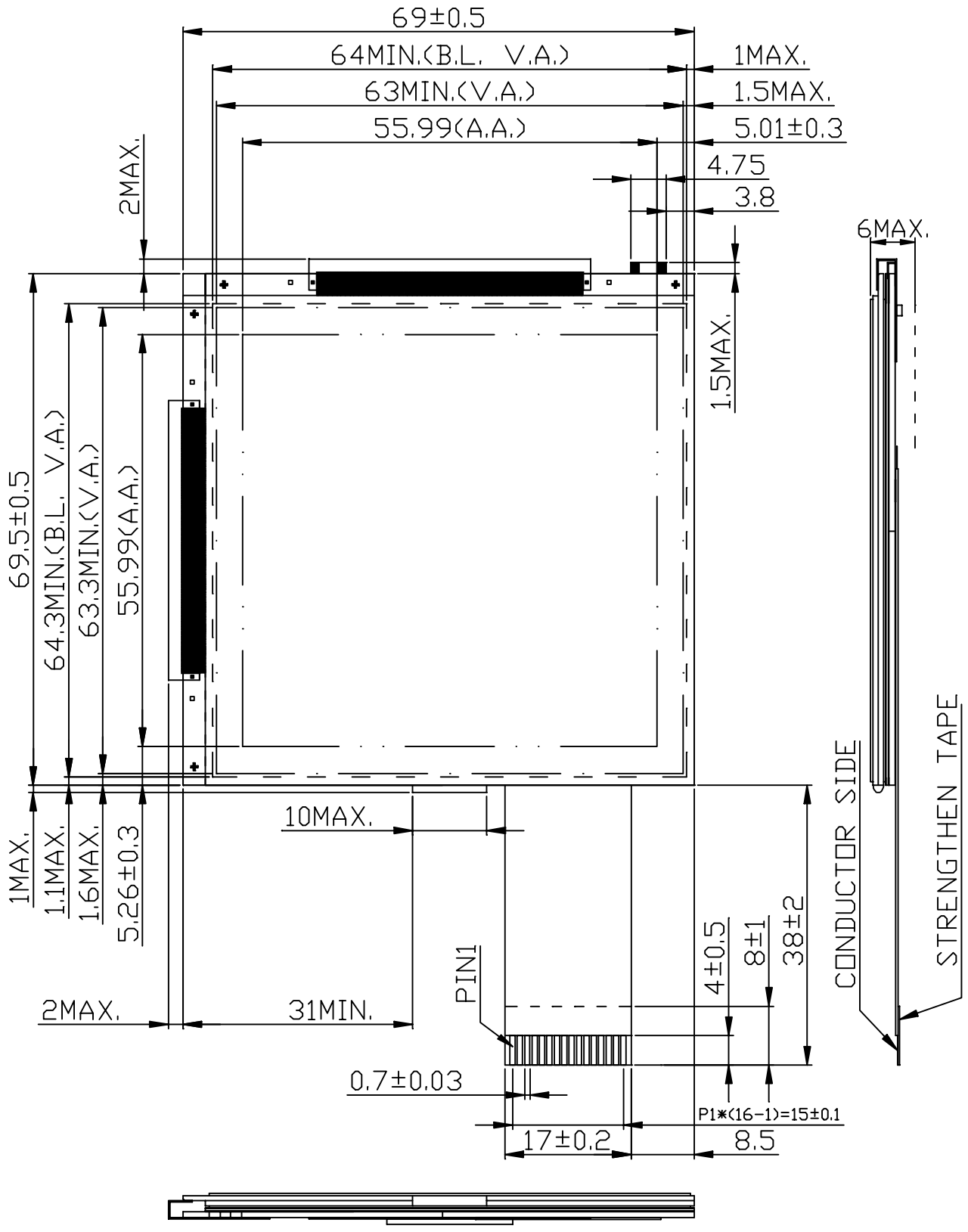
6. OPTICAL CHARACTERISTICS

Ta = 25 °C

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING AREA	∅2 - ∅1	K ≧ 2.0	50	—	—	deg.	1
CONTRAST	K	∅ = 10°	5	—	—	—	1
RESPONSE TIME	tr (rise)	∅ = 10° θ = 0°	—	(330)	—	msec	1
	tf (fall)	∅ = 10° θ = 0°	—	(330)	—	msec	1
THE BRIGHTNESS OF BACKLIGHT	B	∅ = 10° θ = 0°	—	5	—	cd/m^2	1

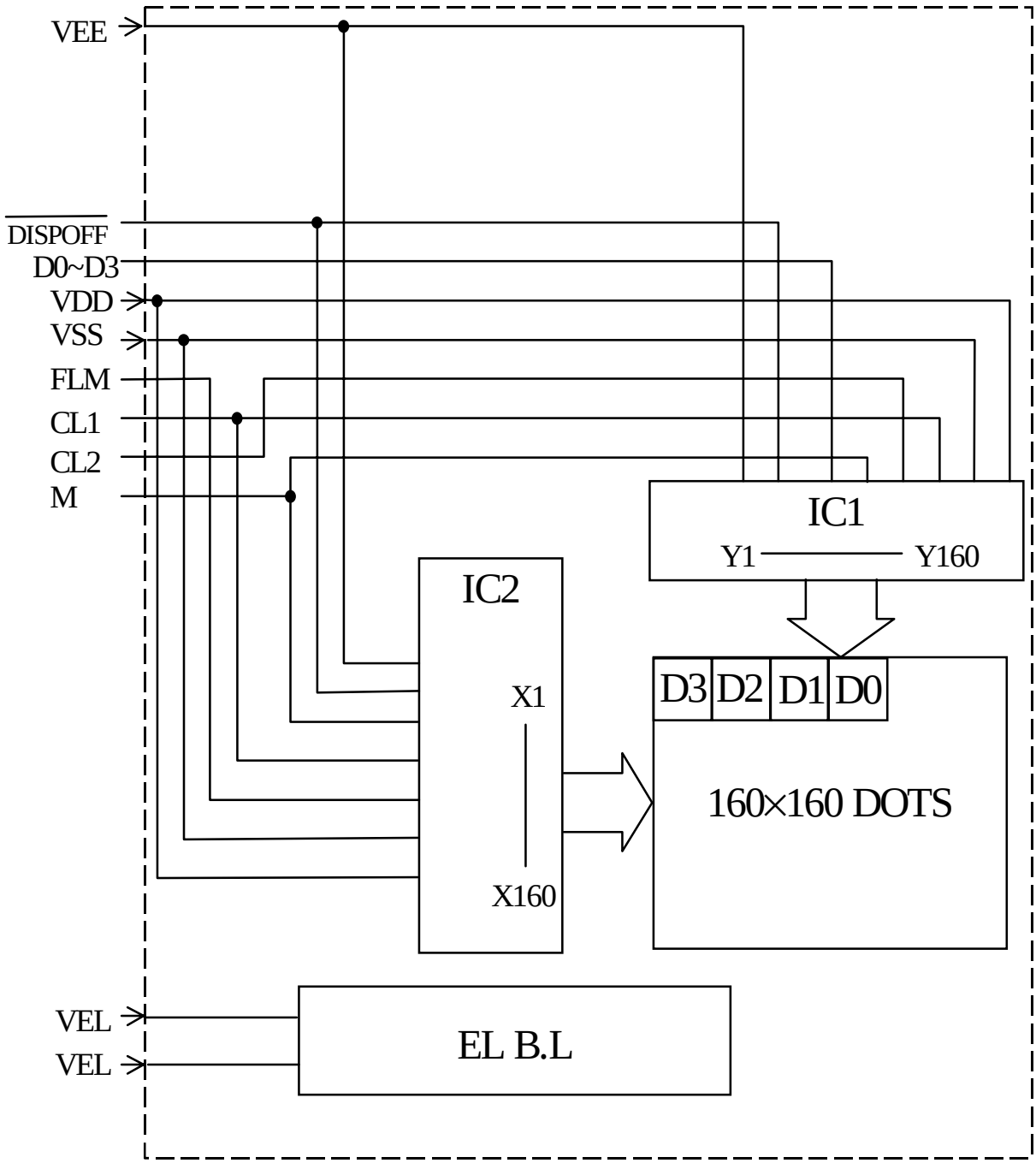
NOTE (1) : PLEASE REFER TO :
CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS. (EU - 002A)

7. OUTLINE DIMENSION

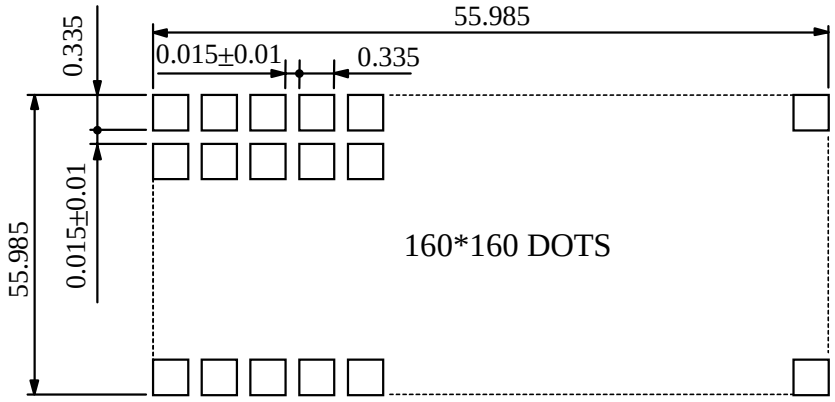


UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.3

8. BLOCK DIAGRAM



9. DETAIL DRAWING OF DOT MATRIX



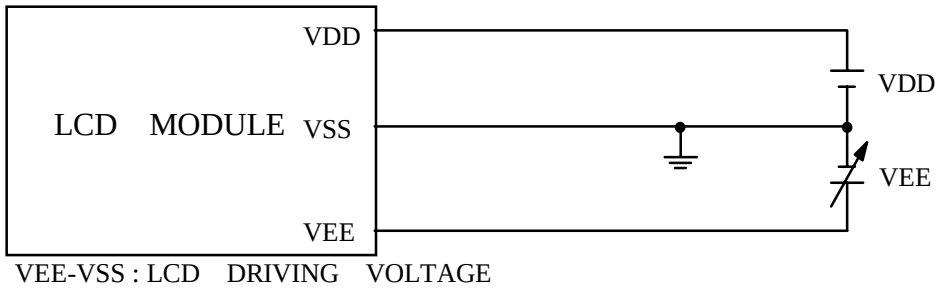
UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.1

10. INTERFACE SIGNALS

PIN NO.	SYMBOL	FUNCTION
1	VDD	POWER SUPPLY FOR LOGIC CIRCUIT.
2	VSS	GROUND.
3	VEE	POWER SUPPLY FOR LCD DRIVING.
4	FLM	THE FLM SIGNAL INDICATING THE BEGINNING OF EACH DISPLAY CYCLE.
5	M	CONTROL SIGNAL FOR AC DRIVING.
6	CL1	DISPLAY DATA LATCH.
7	CL2	DISPLAY DATA SHIFT.
8	D0	DISPLAY DATA
9	D1	DISPLAY DATA
10	D2	DISPLAY DATA
11	D3	DISPLAY DATA
12	$\overline{\text{DISPOFF}}$	CONTROL LCD ON/OFF, "L":DISPLAY OFF,"H":DISPLAY ON.
13	N.C	NO CONNECTION
14	VEL	POWER SUPPLY FOR EL BACKLIGHT
15	N.C	NO CONNECTION
16	VEL	POWER SUPPLY FOR EL BACKLIGHT

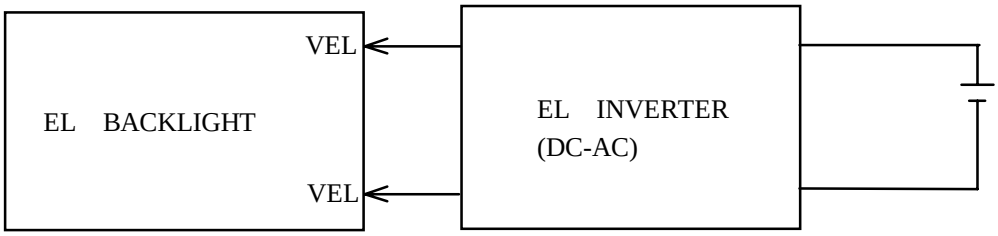
11. POWER SUPPLY

11.1 POWER SUPPLY FOR LCM



VEE-VSS : LCD DRIVING VOLTAGE

11.2 POWER SUPPLY FOR EL BACKLIGHT



11.3 POWER SEQUENCING DIAGRAM FOR VDD, $\overline{\text{DISPOFF}}$, VEE