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If you are looking for brand names, model numbers or other products that are not currently represented in this spec sheet, please, give me a call or send me an email with your requirements so we can further discuss your needs.

Thank you
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ALL SHORE INDUSTRIES, INC.

RoHS Compliant using Avant IC.

SPECIFICATION FOR
LIQUID CRYSTAL DISPLAY MODULE

MODULE # : ASI-N-1223ACS-GE-AWDR/W

(1) NUMBER OF DOTS ---------- 122 W * 32 H DOTS

(2) MODULE SIZE ---------- 68.0 W * 31.75 H * "C" T (max) mm

(3) EFFECTIVE AREA ---------- 57.2 W * 17.7 H mm

(4) ACTIVE AREA ---------- 52.42 W * 13.72 H mm

(5) DOT SIZE ---------- 0.39 W * 0.39 Hmm

(6) DOT PITCH ---------- 0.43 W * 0.43 H mm

All Shore Industries, Inc. One Edgewater Plaza, Staten Island, NY 10305

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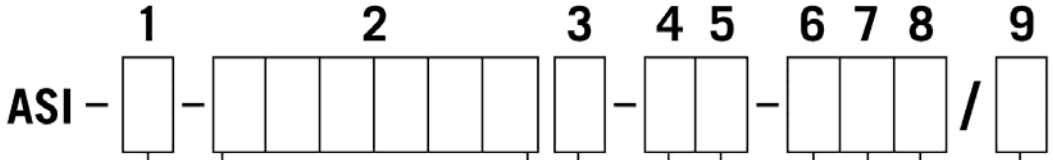
MODEL NO : ASI-N-1223ACS-GE-AWDR/W

LCD MODULE PART NUMBERING SYSTEM



#1 Module Type & Backlight

Graphic
D = Reflective
B = EL
C = CCFL
A = LED (VDD/VSS)
I = LED (+VLED/-VLED)
N = LED (A&K)

Character
E = Reflective
F = EL
G = LED (VDD/VSS)
H = LED (+VLED/-VLED)
M = LED (A&K)

Chip On Glass
J = Graphic Reflective
K = Character Reflective

#2 Series Number
min. 3 to max. 6 spaces

#3 Technology
S = STN
T = TN
F = FSTN

#4 Overall Thickness
A = 4 mm
B = 5 mm
C = 6 mm
D = 7 mm
E = 8 mm
F = 9 mm
G = 10 mm
H = 11 mm
I = 12 mm
J = 13 mm
K = 14 mm
L = 15 mm
M = 16 mm
N = 17 mm

#5 Bezel Thickness
A = 2.1 mm
B = 3.1 mm
C = 4.9 mm
D = 5.0 mm
E = 5.5 mm
F = 6.4 mm
G = 7.0 mm
H = 7.8 mm
I = 8.9 mm
J = 9.0 mm
K = 9.5 mm
L = 10 mm

#6 Background Color and View Direction
TN / STN: A = Gray @ 6 o'clock; B = Gray @ 12 o'clock
STN: C = Yellow @ 6 o'clock; D = Yellow @ 12 o'clock; K = Blue @ 6 o'clock; L = Blue @ 12 o'clock
FSTN: G = Black @ 6 o'clock; H = Black @ 12 o'clock; I = White @ 6 o'clock; J = White @ 12 o'clock
Transmissive only:
STN: E = Blue @ 6 o'clock; F = Blue @ 12 o'clock

#7 Backlight Color
W = White
Y = Yellow-Green
R = Red
B = Blue

#8 Operating Temp and Voltage
Standard
S = 0° to +50°C @ 5.0 Volts
T = 0° to +50°C @ 3.3 Volts
Extended
D = -20° to +70°C @ 5.0 Volts
E = -20° to +70°C @ 3.3 Volts

#9 Internal Code

NOTE: Some options may not be available in specific modules. Please contact your Sales Representative to check availability.

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1. GENERAL SPECIFICATIONS

1 . 1 GENERAL SPECIFICATIONS
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AS - 10-1000

1 . 2 APPLICATION NOTES FOR CONTROLLER / DRIVER : SED1520
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :
AS-SED1520D0A

1 . 3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2 . MECHANICAL SPECIFICATIONS

(1)	NUMBER OF DOTS	122 W * 32 H DOTS
(2)	MODULE SIZE	68.0 W * 31.75 H * "C" T (max) mm
(3)	EFFECTIVE AREA	57.2 W * 17.7 H mm
(4)	ACTIVE AREA	52.42 W * 13.72 H mm
(5)	DOT SIZE	0.39 W * 0.39 Hmm
(6)	DOT PITCH	0.43 W * 0.43 H mm

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3. ABSOLUTE MAXIMUM RATINGS

3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS (AT Ta = 25°C)

I T E M	*SYMBOL*	*MIN.*	*MAX.*	*UNIT*	*COMMENT*
POWER SUPPLY FOR LOGIC	V_{DD}-V_{SS}	0	6.0	V	------
INPUT VOLTAGE	V_I	V_{SS}	V_{DD}	V	------
STATIC ELECTRICITY	--------	------	100	V	NOTE (1)
POWER SUPPLY FOR LED	V_{DD}- K(-)	------	6.0	V	------

NOTE (1): ELECTRO-STATIC DISCHARGE RESISTANCE IS TESTED BY CHARGING A 200PF CAPACITOR AND DISCHARGING IT BY CONTACT WITH A INTERFACE CONNECTOR PIN.

3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS.

I T E M	*CONDITION*	*OPERATING*		*STORAGE*		*COMMENT*
		MIN.	*MAX.*	*MIN.*	*MAX.*	
AMBIENT TEMPERATURE	NORMAL	0℃	50℃	-20℃	70℃	------
	WIDE	-20℃	70℃			
HUMIDITY	------	NOTE (2)		NOTE (2)		NO CONDENSATION
VIBRATION NOTE (3)	------	------	0.5G	------	2G	10~300Hz XYZ DIRECTIONS 1 Hr EACH
SHOCK NOTE (3)	------	------	3G	------	50G	10 msec XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	------	NOT ACCEPTABLE		NOT ACCEPTABLE		-------

NOTE (2): Ta ≦ 50℃: 90% RH MAX.
Ta > 50℃: ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90% RH AT 50℃. (80%RH AT 60℃)

NOTE (3): 1G = 9.8 m/s^2

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4 . ELECTRICAL CHARACTERISTICS

I T E M	*SYMBOL*	*CONDITION*		*MIN.*	*TYP.*	*MAX.*	*UNIT*
POWER SUPPLY VOLTAGE FOR CIRCUIT	V_{DD}-V_{SS}	----------		4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (2)	V_{IH}	H LEVEL		2.0	------	V_{DD}	V
	V_{IL}	L LEVEL		0	------	0.8	
OUTPUT VOLTAGE NOTE (1)	V_{OH}	I_{OH} = -3.0 mA		2.4	------	------	V
	V_{OL}	I_{OL} = 3.0 mA		------	------	0.4	V
POWER SUPPLY CURRENT, NOTE (3)	I_{DD}	V_{DD}-V_{SS} = 5.0V		------	1.5	2.0	mA
RECOMMENDED LCD DRIVING VOLTAGE, NOTE (4)	V_{DD}-V_O	STN/ FSTN DUTY =1/32 Φ=10° NOTE(5)	Ta=-20°C	------	5.0	------	V
			Ta= 0°C	------	4.8	------	V
			Ta= 25°C	------	4.6	------	V
			Ta= 50°C	------	4.4	------	V
			Ta= 70°C	------	4.2	------	V
POWER SUPPLY CURRENT FOR LED	I_{LED}	V_{DD}-K(-)=5.0V		------	NOTE(3)	NOTE(3)	mA

NOTE (1): APPLIED TO TERMINALS DB0~DB7

NOTE (2): APPLIED TO TERMINALS E, A0, DB0~DB7

NOTE (3): THE DISPLAY PATTERN IS ALL "ON", OR ALL "OFF"

NOTE (4): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ± 0.5V EACH MODULE.NOTE

(5): $\theta = 0°$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180°$: VIEWING DIRECTION AT 12 O'CLOCK

(6): LED CURRENT FOR DIFFERENT LED BACKLIGHT TYPE

V_{DD} - K(-)	I_{LED}				LED COLOR
	MIN.	TYP.	MAX.	UNIT.	
5.0V	-----	30	40	mA	BLUE、WHITE、PURE-GREEN

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5 . OPTICAL CHARACTERISTICS

STN TYPE LCD $Ta = 25℃$ $V_{DD}-V_O = 4.6V$

I T E M	*SYMBOL*	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*NOTE*
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	3.0	4.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)

FSTN、STN BLUE TYPE LCD $Ta = 25℃$ $V_{DD}-V_O = 4.6V$

I T E M	*SYMBOL*	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*NOTE*
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	4.0	5.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)

Brightness for LED backlight

SYMBOL	*CONDITION*	*MIN.*	*TYP.*	*MAX.*	*UNIT*	*LED TYPE*	*NOTE*
B	Φ = 0° θ = 0°	5.0	----	----	cd/m^2	BLUE、WHITE、PURE-GREEN	NOTE(2) NOTE(3)

NOTE (1): $\theta = 0°$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180°$: VIEWING DIRECTION AT 12 O'CLOCK

NOTE (2): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

NOTE (3): UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM. DEFINITION OF OPTICAL CHARACTERISTICS.

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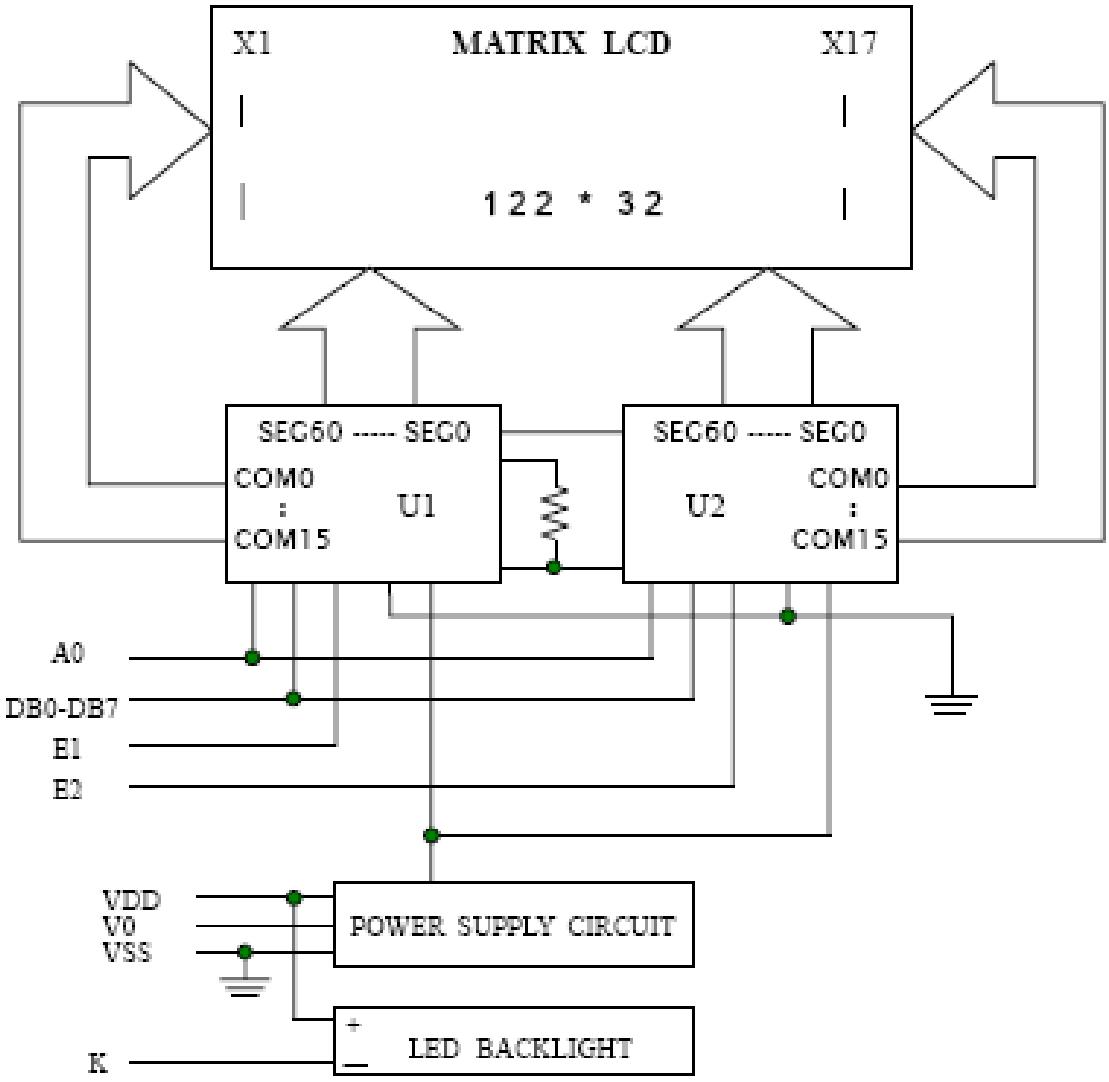
6. BLOCK DIAGRAM



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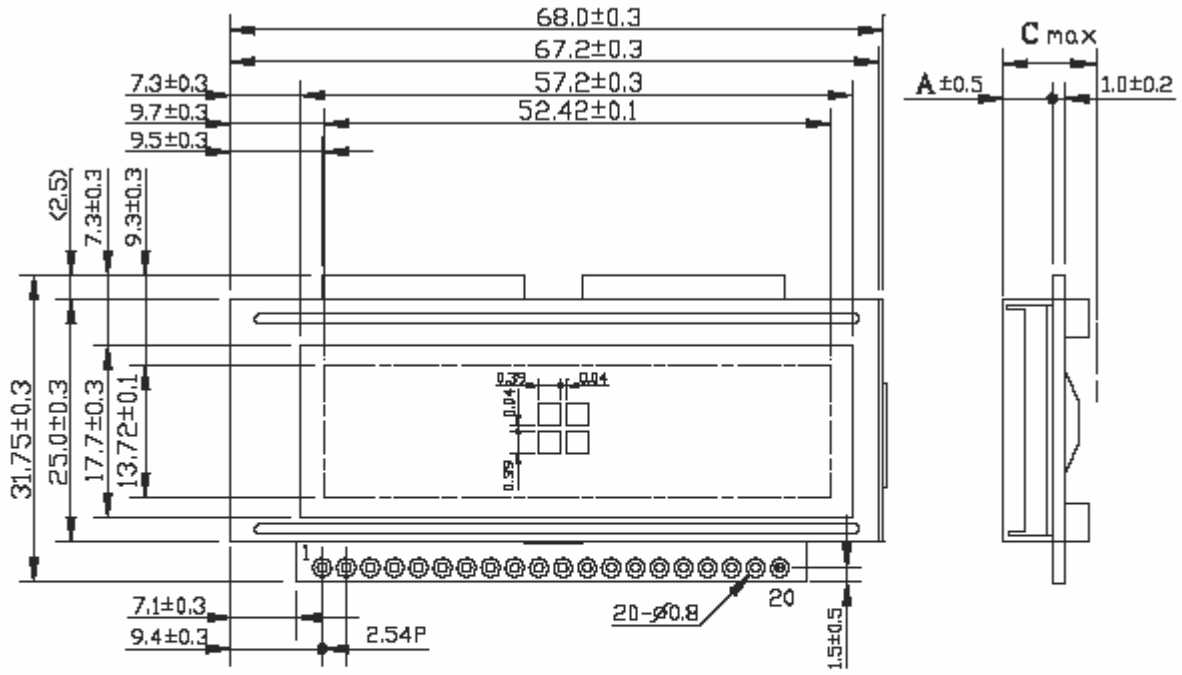
7 . OUTLINE DIMENSION



TYPE	A	C
LED B.L	5.1	10.0
NO B.L	4.1	8.0

NOTE :
1.UNIT : mm
2.SCALE : NTS

INTERFACE PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10
SYMBOL	VSS	VDD	V0	K	A0	E1	E2	DB0	DB1	NC
PIN NO.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
SYMBOL	NC	DB2	DB3	DB4	DB5	DB6	DB7	NC	NC	NC

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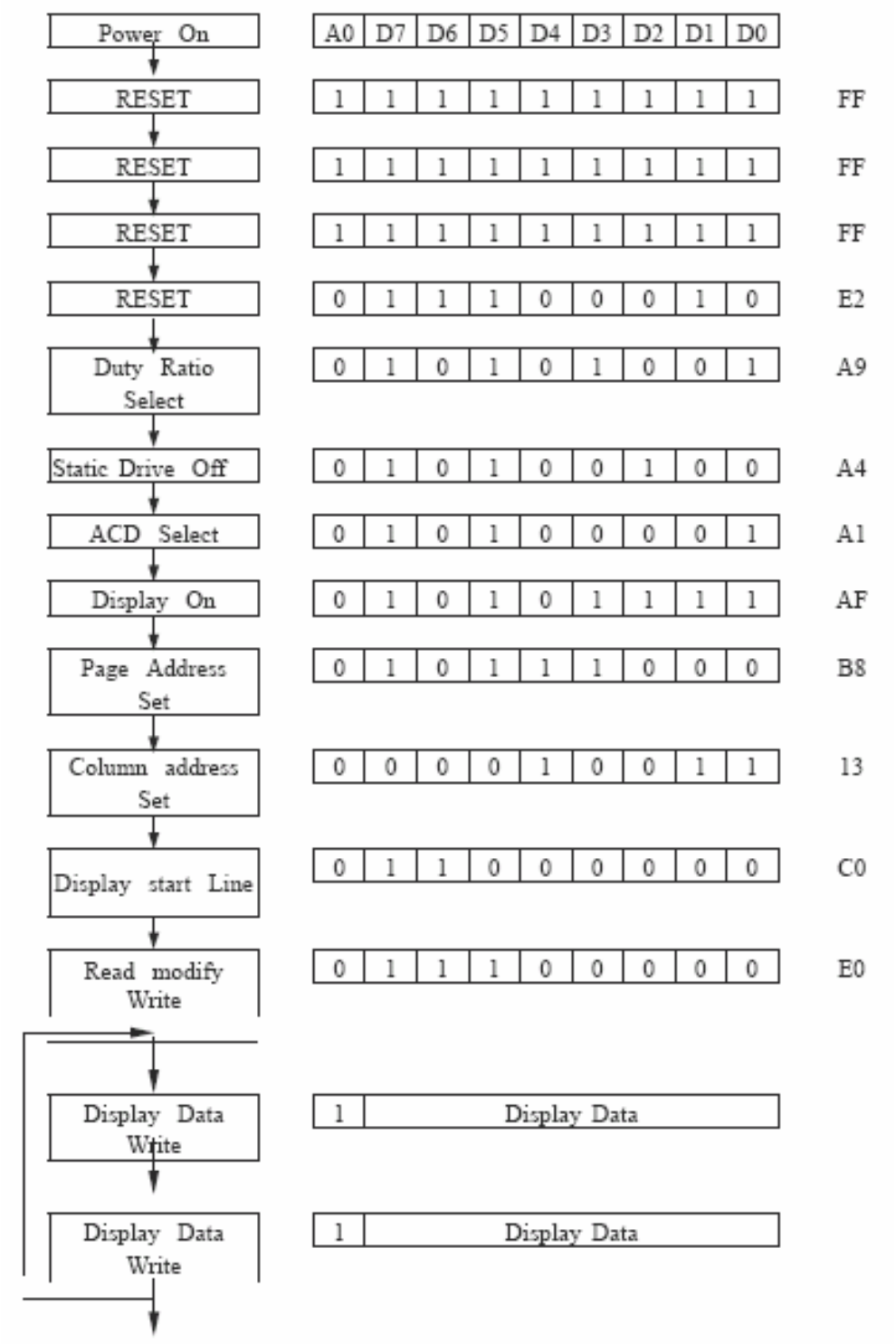
Initialization by instructions



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Display data RAM

Page Address D1,D2=	DATA	Display Pattern	Line Address
0, 0	D0	0 Page	00H
	D1		01
	D2		02
	D3		03
	D4		04
	D5		05
	D6		06
	D7		07
0, 1	D0	1 Page	08
	D1		09
	D2		0A
	D3		0B
	D4		0C
	D5		0D
	D6		0E
	D7		0F
1, 0	D0	2 Page	10
	D1		11
	D2		12
	D3		13
	D4		14
	D5		15
	D6		16
	D7		17
1, 1	D0	3 Page	18
	D1		19
	D2		1A
	D3		1B
	D4		1C
	D5		1D
	D6		1E
	D7		1F

Column Address	ADC											
		DO=0	3C	3B	3A	39	38	37	36	35	00	normal
		DO=1	13	14	15	16	17	18	19	1A	4F	
Segment Term.			60	59	58	57	56	55	54	53	0	

Fig.1. Correspondence with Display Data RAM and address

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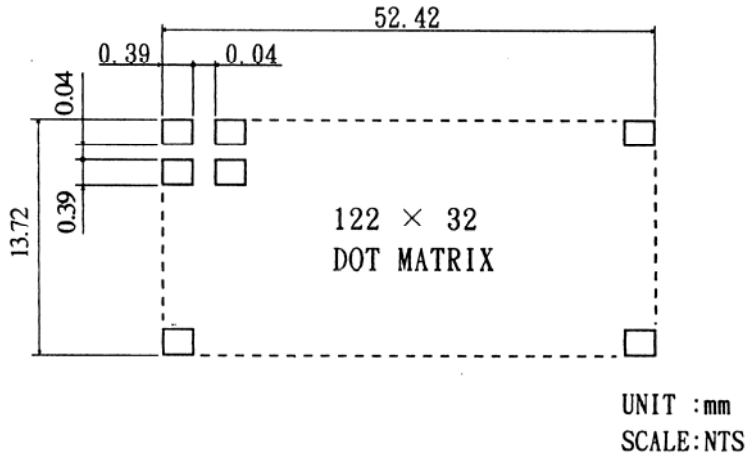
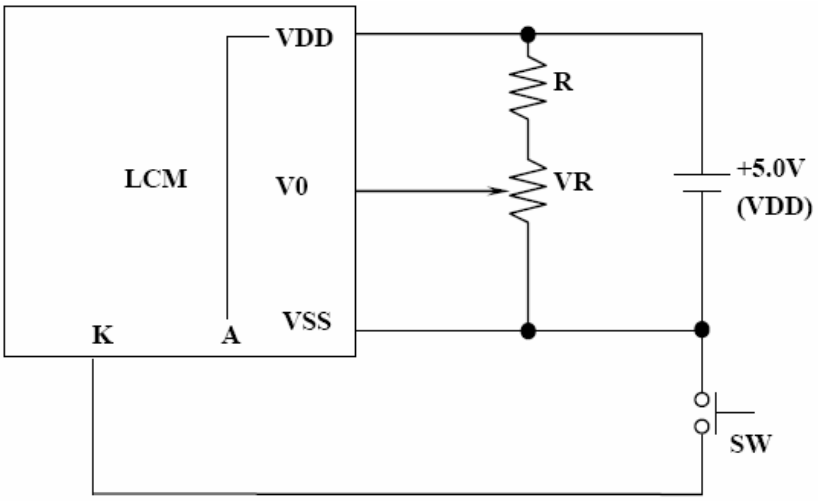
8 . DETAIL DRAWING OF DOT MATRIX



9. POWER SUPPLY

9 . 1 POWER SUPPLY FOR LCM



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LED B.L TYPE	*CONDITION*
A	RL≧20Ω,1/2W
B	RL≧45Ω,1/2W

The information presented in this datasheet has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Information contained herein is for selection purposes only, and is subject to change without notice. Please contact ASI for current datasheets prior to designing.