



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE # : ASI-G-402A-G-EWS/W

(1)	NUMBER OF CHARACTER	-----	40 CH X 2 LINES
(2)	MODULE SIZE	-----	182.0W X 33.5H X 10.0T (max.) mm
(3)	EFFECTIVE AREA	-----	154.0W X 15.3H mm
(4)	CHARACTER FONT	-----	5 X 7 DOTS + CURSOR
(5)	CHARACTER SIZE	-----	3.20W X 4.85H mm
(6)	CHARACTER PITCH	-----	3.70 mm
(7)	DOT SIZE	-----	0.60W X 0.65H mm
(8)	DOT PITCH	-----	0.65W X 0.70H mm
(9)	LCD TYPE	-----	STN BLUE TRANSMISSIVE
(10)	DRIVING METHOD	-----	1 / 16 DUTY MULTIPLEX DRIVE
(11)	VIEWING DIRECTION	-----	6 O 'CLOCK
(12)	BACK - LIGHT	-----	WHITE



MODEL NO : ASI-G-402A-G-EWS/W

RECORDS OF REVISION March 2000

DATE	REVISED DRAWING NO.	SUMMARY



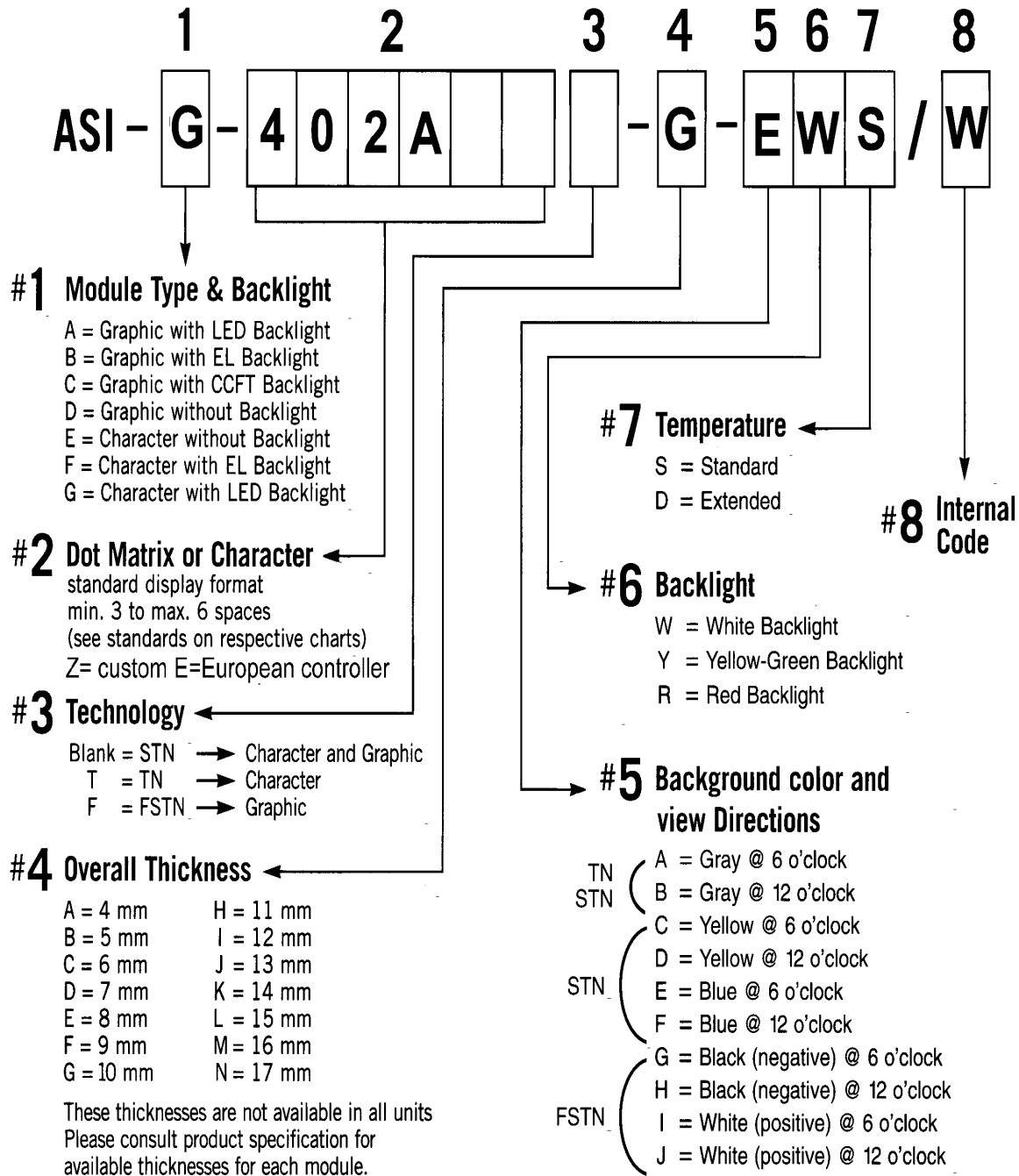
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LCD MODULE PART NUMBERING SYSTEM





MODEL NO : ASI-G-402A-G-EWS/W

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AS - 10 – 12780

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER : 12780

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

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(12)	BACK - LIGHT -----	WHITE



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3. ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	MIN .	MAX .	UNIT	COMMENT
POWER SUPPLY FOR LOGIC	VDD--VSS	0	6.0	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	————	—	100	V	NOTE (1)

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 .

I T E M	OPERATING		STORAGE		COMMENT
	MIN .	MAX .	MIN .	MAX .	
AMBIENT TEMPERATURE	0°C	50°C	-20 °C	70 °C	NOTE (2)
HUMIDITY	SEE NOTE 3		SEE NOTE 3		WITHOUT CONDENSATION
VIBRATION	--	4 . 9 m /s ² (0.5G)	--	1 9 . 6 m /s ² (2G)	10~300HZ XYZ DIRECTIONS 1 Hr. EACH
SHOCK	--	2 9 . 4 m /s ² (3G)	--	490.0 m /s ² (50G)	10 mSEC XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE(2) : Ta ≤ 50 ° C : 90% RH MAX.

Ta > 50 ° C : ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90%RH AT 50 ° C. (80% RH AT 60 ° C)

NOTE (4) : 1G = 9.8 m / S²

MODEL NO : ASI-G-402A-G-EWS/W**4. ELECTRICAL CHARACTERISTICS**

Ta = 25°C

VDD = 5.0 +/- 0.25 V

PARAMETER	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT
H LEVEL INPUT VOLTAGE	VIH	————	2 . 2	—	VDD	V
L LEVEL INPUT VOLTAGE	VIL	————	—	—	0 . 8	V
H LEVEL OUTPUT VOLTAGE	VOH	-IOH = 0.2 Ma	2 . 4	—	—	V
L LEVEL OUTPUT VOLTAGE	VOL	IOL = 1.2 mA	—	—	0 . 4	V
POWER SUPPLY CURRENT (LOGIC)	IDD	VDD = 5.0 V	—	2.0	3 . 0	mA
RECOMMENDED LCD DRIVING VOLTAGE NOTE (1)	VDD – VO DUTY = 1/16 $\phi = 10^\circ$	Ta = 0 °C	—	4.9	—	V
		Ta = 25 °C	—	4.5	—	V
		Ta = 50 °C	—	4.1	—	V
POWER SUPPLY CURRENT FOR LED	ILED	VDD = 5.0 V	—	30	40	mA

NOTE (1) RECOMMENDED LCD DRIVING VOLTAGE: MAY FLUCTUATE ABOUT $\pm 0.5v$ BY EACH MODULE.**5. OPTICAL CHARACTERISTICS .**

Ta = 25°C

VDD = 5.0 V

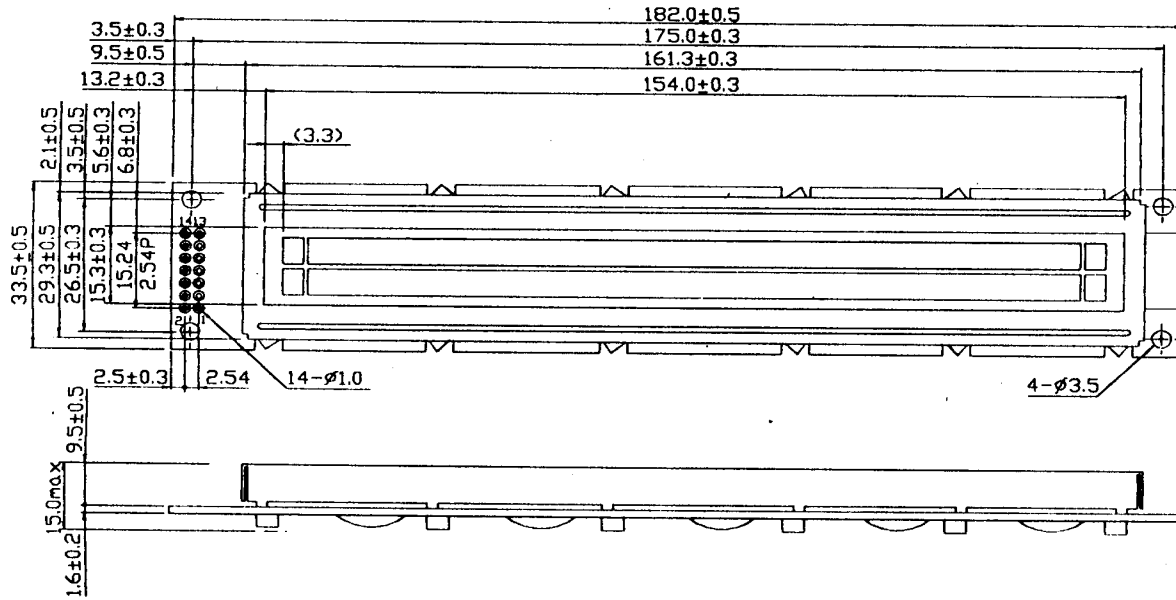
I T E M	SYMBOL	CONDITION	MIN .	TYP .	MAX .	UNIT	NOTE
VIEWING AREA	$\phi 2 - \phi 1$	K = 2.0	30	40	————	deg .	2
CONTRAST RATIO	K	$\phi = 10^\circ$ $\theta = 0^\circ$	4.0	5.0	————	————	2
RESPONSE TIME	tr (rise)	$\phi = 10^\circ$ $\theta = 0^\circ$	————	200	350	Ms	2
RESPONSE TIME	tf (fall)	$\phi = 10^\circ$ $\theta = 0^\circ$	————	300	400	Ms	2
THE BRIGHTNESS OF BACKLIGHTING SOURCE	B	$\phi = 0^\circ$ $\theta = 0^\circ$	5.0	————	————	cd/m ²	2,3

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

NOTE (3) UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM

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6. OUTLINE DIMENSION



INTERFACE PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7
SYMBOL	VSS	VDD	VO	RS	R/ \bar{W}	E	DB0
PIN NO.	8	9	10	11	12	13	14
SYMBOL	DB1	DB2	DB3	DB4	DB5	DB6	DB7

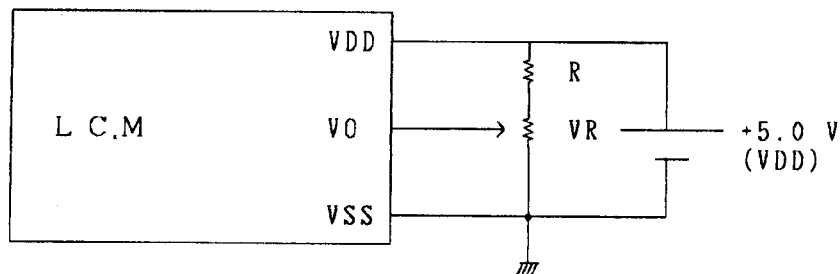
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9 DATA DISPLAY ADDRESS CHART

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LINE1	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
LINE2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
LINE1	90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
LINE2	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF
	33	34	35	36	37	38	39	40								
LINE1	A0	A1	A2	A3	A4	A5	A6	A7								
LINE2	E0	E1	E2	E3	E4	E5	E6	E7								

10. POWER SUPPLY

10.1 POWER SUPPLY FOR LCM AND LED BACKLIGHT



VDD - VO : LCD DRIVING VOLTAGE

VR : 10K Ω ~ 20K Ω

RECOMMEND RESISTOR R : VDD - VO \geq 1.5V