

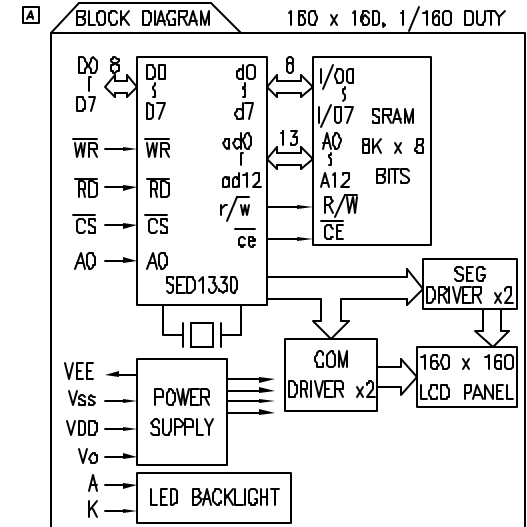
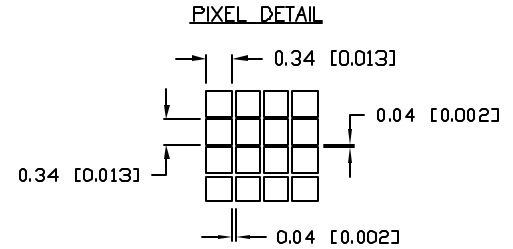
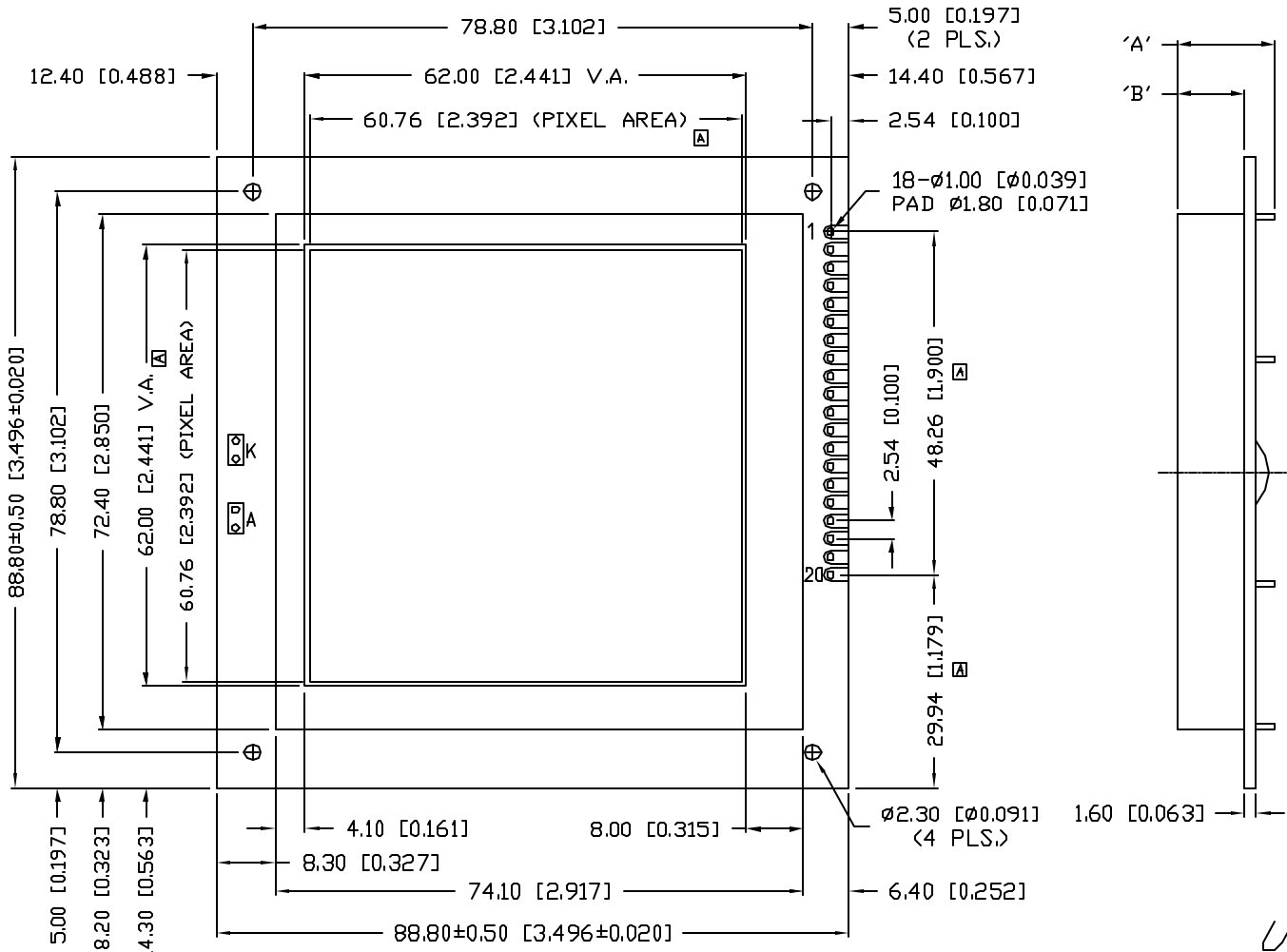
UNCONTROLLED DOCUMENT

PART NUMBER		REV.
LCM-X160160GXX		A

LCM-X	GXX	DESCRIPTION	
STANDARD	S	SR	STN, REFLECTIVE
HIGH TEMP.	H	SF	STN, TRANSFLECTIVE(W/ BACKLIGHT)

TYPE	DIM.	A	B
WITH BACKLIGHT		13.8	9.4
NO BACKLIGHT		9.7	4.8

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10738. & #10BRDR.	5.21.01



CAUTION: STATIC SENSITIVE DEVICE
 FOLLOW PROPER E.S.D. HANDLING PROCEDURES
 WHEN WORKING WITH THIS PART.

UNCONTROLLED DOCUMENT

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.038), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.= +DECIMAL PRECISION MAX.= +0.00 -DECIMAL PRECISION

REV.	PART NUMBER
A	LCM-X160160GXX
160 x 160 DOT MATRIX GRAPHIC MODULE, 1/160 DUTY, STN WITH NEGATIVE CHARGE PUMP.	

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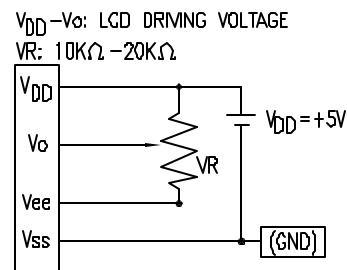
RELIABILITY NOTE
 OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.

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PART NUMBER		REV.
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A PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	0V	GND
2	V _{DD}	5V	SUPPLY VOLTAGE FOR LOGIC
3	V _O	-	CONTRAST VOLTAGE FOR LCD DRIVE(VARIABLE)
4	R _D	L	READ SIGNAL
5	W _R	L	WRITE SIGNAL
6	S _S	L	CHIP SELECT
7	AD	H/L	DATA TYPE SELECT
8~15	DB0~DB7	H/L	DATA BUS
16	RES	L	RESET SIGNAL (NOTE 1)
17	VEE	-	POWER SUPPLY VOLTAGE FOR LCD
18	A	4.2V	ANODE LED BACKLIGHT
19	K	-	CATHODE LED BACKLIGHT
20	(N/C)	-	NO CONNECTION



NOTES:

- RES IS A SCHMITT TRIGGER INPUT. THE PULSEWIDTH ON RES MUST BE AT LEAST 200μs. PULSES OF MORE THAN A FEW SECONDS WILL CAUSE DC VOLTAGES TO BE APPLIED TO THE LCD PANEL.

ELECTRICAL CHARACTERISTICS

V_{DD}=4.75V to 5.25V, T_A=25°C

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	-	4.75	5.0	5.25	V	
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _{EE}	-	-	18.2	-	V	
SUPPLY CURRENT FOR LOGIC	I _{DD}	-	-	-	20	mA	
INPUT VOLTAGE	HIGH	V _{IH}	0.2	-	V _{DD}	V	
	LOW	V _{IL}	0	-	0.8	V	
OUTPUT VOLTAGE	HIGH	V _{OH}	I _{OH} =-3.0mA	2.4	-	V	
	LOW	V _{OL}	I _{OL} =3.0mA	-	-	0.4	V
*LED BACKLIGHT	VOLTAGE	V _f	I _f =560mA	-	4.2	4.5	V
	CURRENT	I _f	-	-	560	-	mA
	POWER CONSUMPTION	P _D	-	-	2.8	-	W
	LUMINOUS	L	I _f =560mA	60	-	-	cd/m ²
	COLOR	-	-	-	570	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

ABSOLUTE MAXIMUM RATINGS


ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	0	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _{EE}	-	17.2@40°C	19.2@0°C	V
INPUT VOLTAGE	V _I	T _a =25°C	V _{SS}	V _{DD}	V
OPERATING TEMPERATURE	T _{opr}	LCM-S	0	50	°C
		LCM-H	-20	70	°C
STORAGE TEMPERATURE	T _{stg}	LCM-S	-20	70	°C
		LCM-H	-30	85	°C

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