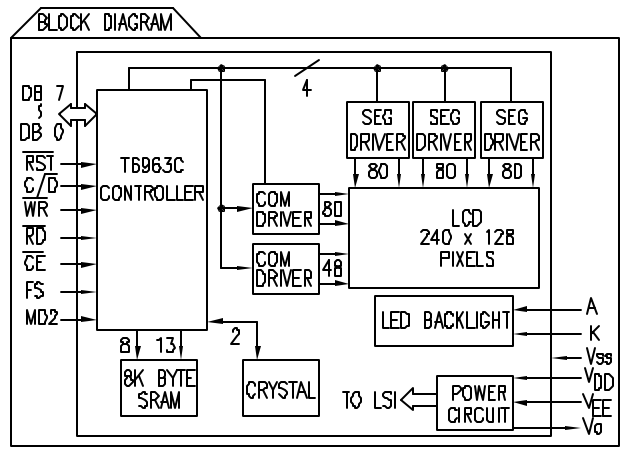
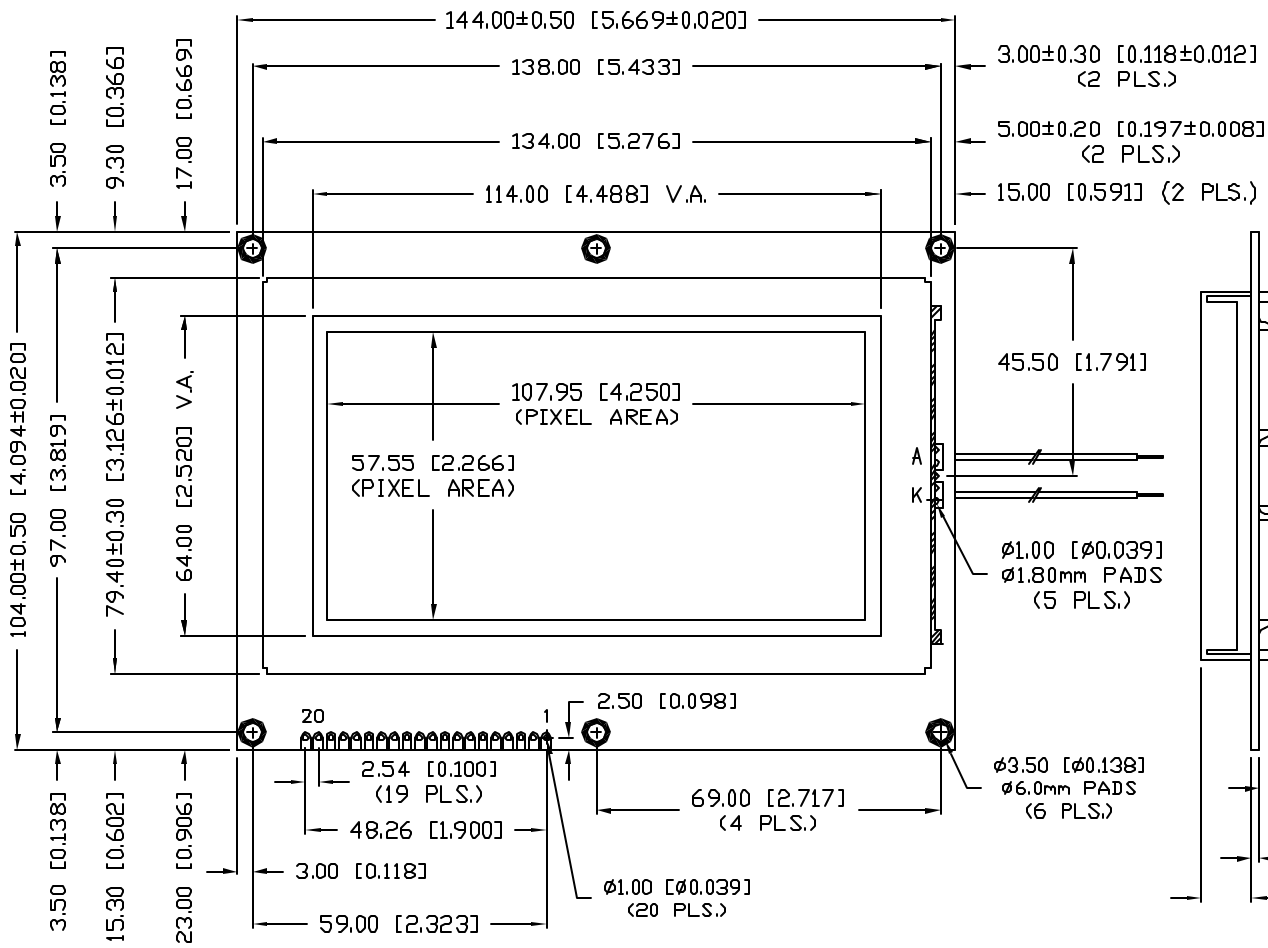
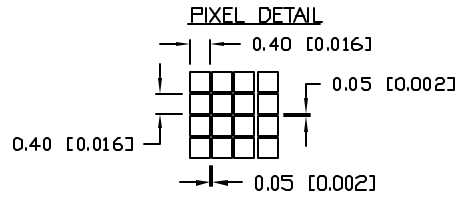


UNCONTROLLED DOCUMENT

PART NUMBER		REV.
LCM-H240128GSN-1WC		A
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #11148.	4.20.07



NOTES:

1. RED WIRE: ANODE, 150mm, 24AWG, 5mm STRIPPED END.
2. BLACK WIRE: GND, 150mm, 24AWG, 5mm STRIPPED END.

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

\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±0.127 (±0.006). 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-H240128GSN-1WC

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240 x 128 DOT MATRIX GRAPHIC MODULE, STN BLUE, NEGATIVE IMAGE, TRANSMISIVE, WHITE LED BACKLIGHT, HIGH OPERATING TEMP, 1/128 DUTY, 12:00 VIEW.

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.

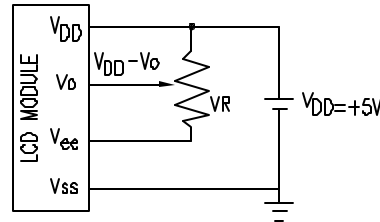
DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE: 1.17.06
JC			PAGE: 1 OF 2
			SCALE: N/A

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	SEE APGE #1	

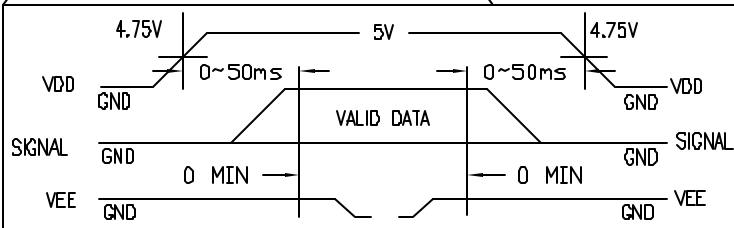
ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	$V_{DD}-V_{SS}$	0	6.5	V
POWER SUPPLY FOR LCD DRIVING	$V_{DD}-V_{EE}$	0	22.0	V
INPUT VOLTAGE	$V_I$	$V_{SS}$	$V_{DD}$	V
STATIC ELECTRICITY			100	V

$V_{DD}-V_o$ : LCD DRIVING VOLTAGE  
VR: 10K $\Omega$  - 20K $\Omega$



TIMING OF POWER SUPPLY AND INTERFACE SIGNAL



PIN CONFIGURATION

PIN #	SYMBOL	LEVEL	FUNCTION
1	$V_{SS}$	-	GROUND (0V)
2	$V_{DD}$	-	POWER SUPPLY FOR LOGIC CIRCUIT
3	$V_o$	-	OPERATING VOLTAGE FOR LCD DRIVING
4	C/D	H/L	$\overline{WR}$ ="L", C/D="H": COMMAND WRITE, "L": DATA WRITE $\overline{RD}$ ="L", C/D="H": STATUS READ, "L": DATA READ
5	$\overline{RD}$	L	DATA READ
6	$\overline{WR}$	L	DATA WRITE
7~14	DB0~DB7	H/L	DATA BUS LINE
15	$\overline{CE}$	L	CHIP ENABLE
16	RST	L	RESET
17	$V_{EE}$	-	POWER SUPPLY FOR LCD DRIVING
18	MD2	H/L	COLUMNS SELECT: "H": 32 COLUMNS, "L": 40 COLUMNS
19	FS	H/L	FONT SELECT: "H": 6*8 PIXEL/FONT, "L": 8*8 PIXEL/FONT
20	N.C.	-	
	A	-	POWER SUPPLY FOR LED BACKLIGHT (ANODE)
	K	-	POWER SUPPLY FOR LED BACKLIGHT (CATHODE)

OPTO-ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	STANDARD VALUE			UNIT		
		MIN.	TYP.	MAX.			
POWER SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	+4.75	+5.0	+5.25	V		
NEGATIVE POWER SUPPLY VOLTAGE FOR LCD DRIVE	$V_{EE}-V_{SS}$	-15.5	-16.0	-16.5	V		
INPUT VOLTAGE: NOTE (1)	H LEVEL	$V_{IH}$	2.2	-	V		
	L LEVEL	$V_{IL}$	0	-	0.8	V	
OUTPUT VOLTAGE: NOTE (2)	H LEVEL	$V_{OH}$	2.4	-	$V_{DD}$	V	
	L LEVEL	$V_{OL}$	0	-	0.4	V	
POWER SUPPLY CURRENT FOR LOGIC: NOTE (4)	$I_{DD}$	-	12.0	-	mA		
POWER SUPPLY CURRENT FOR LCD DRIVE: NOTE (4)	$I_{EE}$	-	5.0	-	mA		
RECOMMENDED LCD DRIVING VOLTAGE: (NOTE 3)	$T_a=0^\circ C$	$V_{DD}-V_o$	-	+19.4	-	V	
	$T_a=25^\circ C$	$\Phi=10^\circ C$	-	+18.5	-	V	
	$T_a=50^\circ C$	$e=0^\circ C$	-	+16.2	-	V	
CLOCK OSCILLATION FREQUENCY	$f_{osc}$	-	5	-	MHZ		
*LED BACKLIGHT	VOLTAGE	$I_f=160mA$	$V_f$	-	3.4	3.6	V
	CURRENT	-	$I_f$	-	160	-	mA
	POWER CONSUMPTION	-	PD	-	720	-	mW
	BACKLIGHT SURFACE	$I_f=160mA$	L	160	200	-	cd/m <sup>2</sup>
	COLOR (X=0.31,Y=0.32)	-	-	-	550	-	nm

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

NOTE (1): APPLIED TO TERMINALS: FS, CE,  $\overline{WR}$ ,  $\overline{RD}$ , C/D, DB0~DB7,  $\overline{RES}$ , MD2.

NOTE (2): APPLIED TO TERMINALS: DB0~DB7.

NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT  $\pm 1.0V$  BY EACH MODULE.

NOTE (4):  $V_{DD}-V_{SS}=5.0V$ ,  $V_{DD}-V_o=20.6V$ .

\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X= $\pm 1$  ( $\pm 0.039$ ), XX= $\pm 0.5$  ( $\pm 0.020$ ), XXX= $\pm 0.25$  ( $\pm 0.010$ ), XXXX= $\pm 0.127$  ( $\pm 0.005$ ). LEAD SIZE= $\pm 0.05$  ( $\pm 0.002$ ), LEAD LENGTH= $\pm 0.75$  ( $\pm 0.030$ ), MIN.= +DECIMAL PRECISION -0.00, MAX.= +0.00 -DECIMAL PRECISION

REV. A	PART NUMBER LCM-H240128GSN-1W
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240 x 128 DOT MATRIX GRAPHIC MODULE, STN BLUE, NEGATIVE IMAGE, TRANSMISIVE, WHITE LED BACKLIGHT, HIGH OPERATING TEMP, 1/128 DUTY, 12:00 VIEW.

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