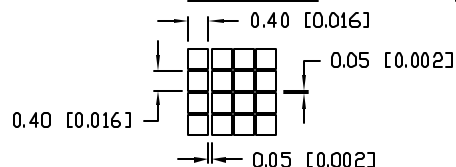
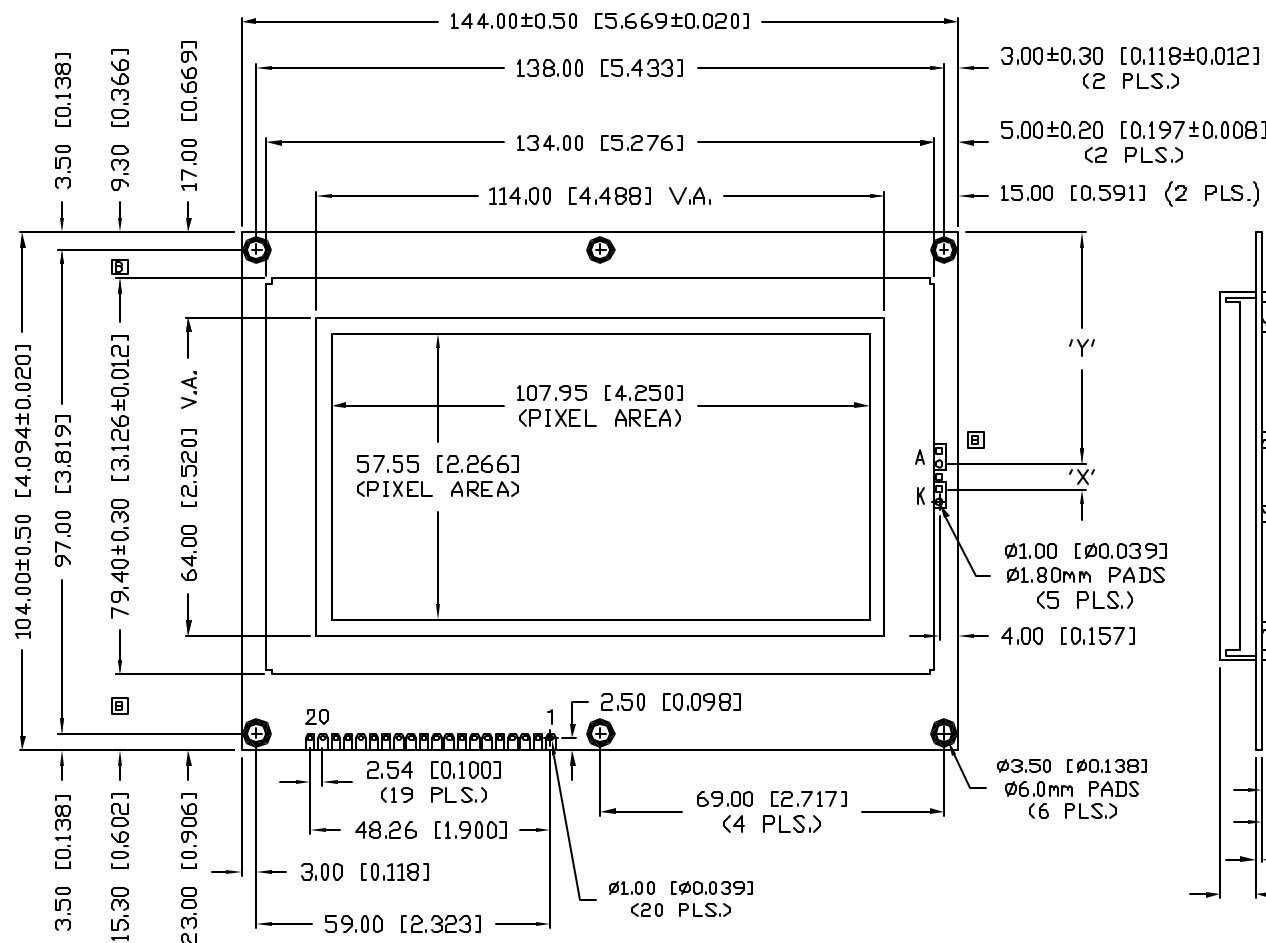


P/N PREFIX/SUFFIX TABLE		
LCM-X	GXX	DESCRIPTION
STANDARD	S	SR STN, REFLECTIVE
	SF	STN, TRANSFLECTIVE W/LED BACKLIGHT
HIGH TEMP.	H	WF-C FSTN, TRANSFLECTIVE W/CCFL BACKLIGHT
	WF-L	FSTN, TRANSFLECTIVE W/WHITE EL BACKLIGHT

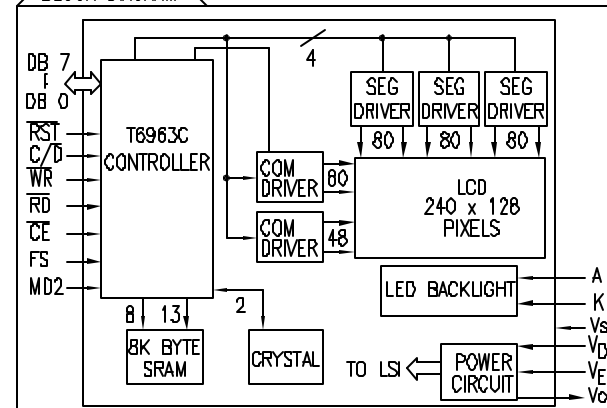
PIXEL DETAIL FACTORY PART#

PART NUMBER
LCM-X240128GXX(-X)REV.
C

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #10BRDR. & REDRAWN.	9.10.98
B	E.C.N. #10516.	5.10.99
C	E.C.N. #10BRDR. & #10969.	3.14.03



BLOCK DIAGRAM



TYPE	DIM.	A	B*	B**	X	Y
REFLECTIVE OR EL	5.2	3.5	8.4	15.24	41.38	
LED	10	3.5	8.4	5.08	46.46	
CCFL	10	3.5	8.4	-	-	

B*: WITHOUT NV+TC.

B**: WITH NV+TC.

NV-NEGATIVE VOLTAGE SUPPLY

TC-TEMPERATURE COMPENSATION

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 (±0.005), LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030), MIN=+DECIMAL PRECISION -0.00, MAX=+0.00 -DECIMAL PRECISION

REV.

C

PART NUMBER

LCM-X240128GXX(-X)

240 x 128 DOT MATRIX GRAPHIC MODULE,
1/128 DUTY.

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RELIABILITY NOTE

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DATE: 7.7.98

PAGE: 1 OF 2

SCALE: N/A

LCM-X240128GXX(-X)

C

FACTORY PART#

REV. E.C.N. NUMBER AND REVISION COMMENTS

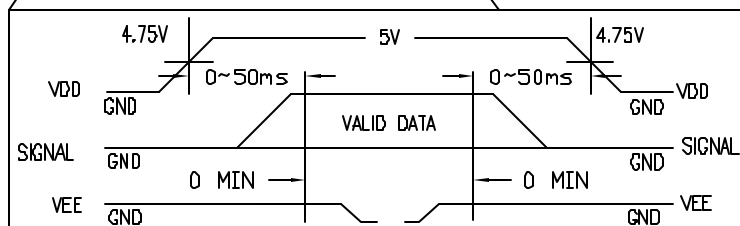
DATE

SEE PAGE 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

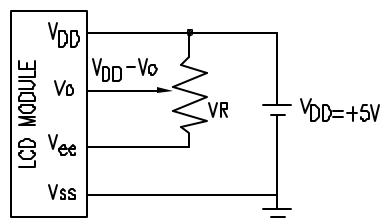
TIMING OF POWER SUPPLY AND INTERFACE SIGNAL



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	$C/\bar{D}$	H/L	$\overline{WR}$ ="L", $C/\bar{D}$ ="H": COMMAND WRITE, "L": DATA WRITE $\overline{RD}$ ="L", $C/\bar{D}$ ="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	$\overline{RST}$	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)

② $V_{DD}-V_O$: LCD DRIVING VOLTAGE
 V_R : 10K Ω ~20K Ω



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)		$T_a=0^{\circ}\text{C}$	$V_{DD}-V_o$	-	+19.4	-	V
		$T_a=25^{\circ}\text{C}$	$\Phi=10^{\circ}\text{C}$	-	+18.5	-	V
		$T_a=50^{\circ}\text{C}$	$\theta=0^{\circ}\text{C}$	-	+16.2	-	V
CLOCK OSCILLATION FREQUENCY			f_{osc}	-	5	-	MHZ
*LED BACKLIGHT	VOLTAGE	$I_f=900\text{mA}$	V_f	-	4.2	4.6	V
	CURRENT	-	I_f	-	900	-	mA
	POWER CONSUMPTION	-	PD	-	3.8	-	W
	LUMINOUS	$I_f=900\text{mA}$	L	60	-	-	cd/m ²
	COLOR	-	-	-	574	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

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

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

NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE

ABOUT $\pm 1.0\text{V}$ BY EACH MODULE.NOTE (4): $V_{DD}-V_{SS}=5.0\text{V}$, $V_{DD}-V_O=20.6\text{V}$.

UNCONTROLLED DOCUMENT

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REV.

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240 x 128 DOT MATRIX GRAPHIC MODULE,

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