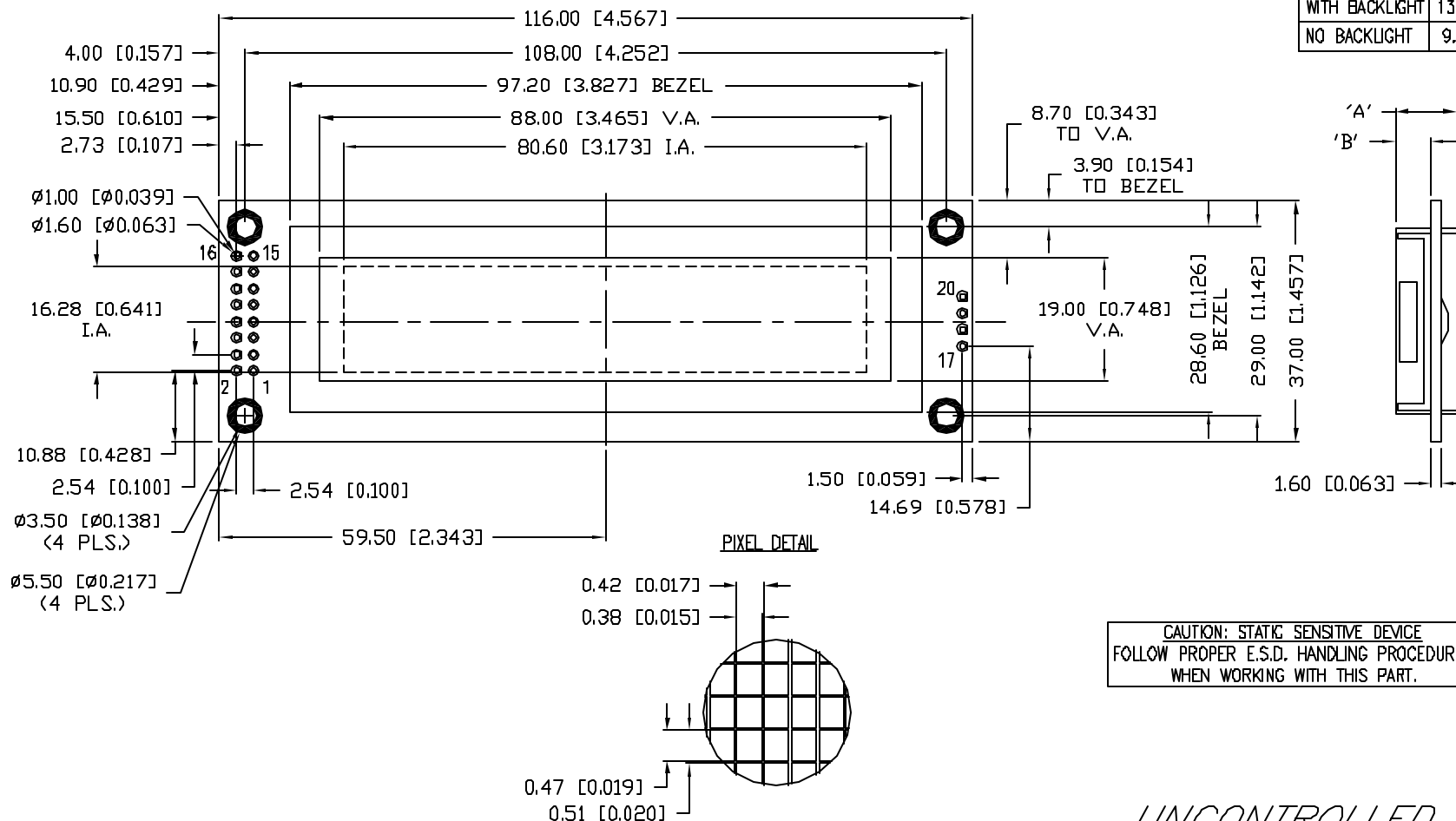


P/N PREFIX/SUFFIX TABLE		
LCM-X	DX	DESCRIPTION
STANDARD	SR	STN, REFLECTIVE
	SF	STN, TRANSFLECTIVE(W/ BACKLIGHT)
HIGH TEMP.	TR	TN, REFLECTIVE
	TF	TN, TRANSFLECTIVE(W/ BACKLIGHT)

TYPE	DIM.	A	B
WITH BACKLIGHT	13.4	9.4	
NO BACKLIGHT	9.5	5.4	



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.

PART NUMBER

LCM-X19232GXX

192 x 32 GRAPHIC LCD MODULE, 1/32 DUTY,
CONTROLLER: SED1520x3.

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RELIABILITY NOTE

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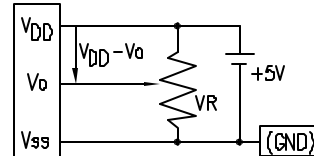
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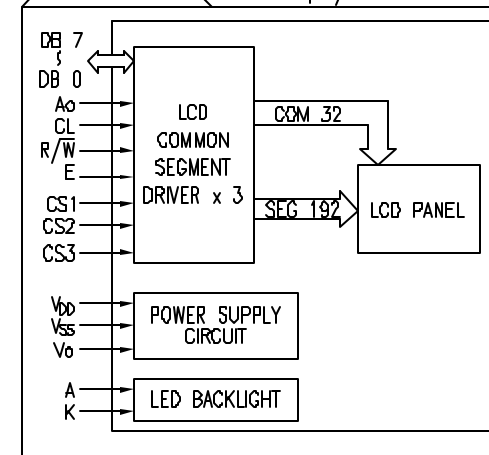
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PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	—	POWER SUPPLY GND (0V) 5V FOR LCD DRIVE
2	V _{DD}	—	
3	V ₀	—	
4	A0	H/L	REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT
5	R/W	H/L	H: DATA READ (MODULE→MPU) L: DATA WRITE (MODULE←MPU)
6	E	H,H→L	ENABLE
7~14	DB0~DB7	H/L	DATA BUS—SOFTWARE SELECTABLE 4 OR 8 BIT MODE.
15	A	—	ANODE
16	K	—	CATHODE
17	CS1	H	CHIP SELECT SIGNAL FOR IC1
18	CS2	H	CHIP SELECT SIGNAL FOR IC2
19	CS3	H	CHIP SELECT SIGNAL FOR IC3
20	CL	H/L	CLOCK INPUT (2KHz)

V_{DD}-V₀: LCD DRIVING VOLTAGE
VR: 10KΩ-20KΩ



BLOCK DIAGRAM 192 x 32, 1/32 DUTY



ELECTRICAL CHARACTERISTICS		V _{DD} =4.7V to 5.3V, T _A =25°C				
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	—	MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V ₀	V _{DD} =5V	4.4	4.8	5.2	V
SUPPLY CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	—	3.0	4.5	mA
INPUT VOLTAGE	HIGH	V _{IH}	—	2.2	—	V
	LOW	V _{IL}	—	0	—	V
OUTPUT VOLTAGE	HIGH	V _{OH}	—	2.4	—	V
	LOW	V _{OL}	—	—	0.4	V
*LED BACKLIGHT	VOLTAGE	V _f	—	4.2	4.5	V
	CURRENT	I _f	—	TBA	—	mA
	POWER CONSUMPTION	P _D	—	TBA	—	mW
	LUMINOUS	L	—	70	—	cd/m ²
	COLOR	—	—	—	—	nm

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	0	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V ₀	—	0	12.0	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

*ONLY APPLIES TO MODULES WITH BACKLIGHT

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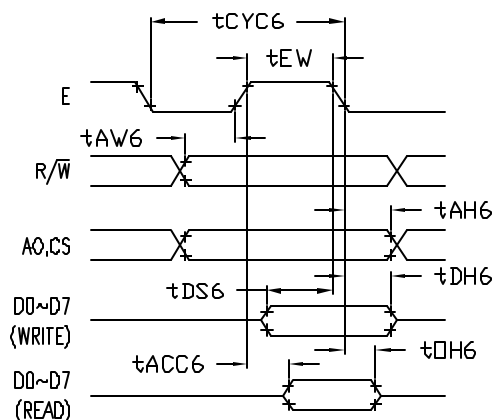
DATE: 7.10.03

PAGE: 2 OF 3

SCALE: N/A

TIMING CHARACTERISTICS

PARAMETER	SYMBOL	MIN	MAX	UNIT
SYSTEM CYCLE TIME	t _{CYC6}	1000	—	ns
ADDRESS SETUP TIME	t _{AW6}	20	—	ns
ADDRESS HOLD TIME	t _{AH6}	10	—	ns
DATA SETUP TIME	t _{DS6}	80	—	ns
DATA HOLD TIME	t _{DH6}	10	—	ns
OUTPUT DISABLE TIME	t _{OH6}	10	60	ns
ACCESS TIME	t _{ACC6}	—	90	ns
ENABLE PULSE WIDTH	(READ)	100	—	ns
	(WRITE)	80	—	ns



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