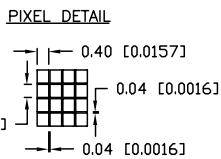
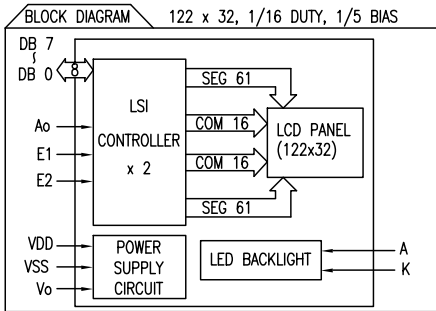


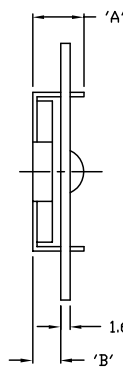
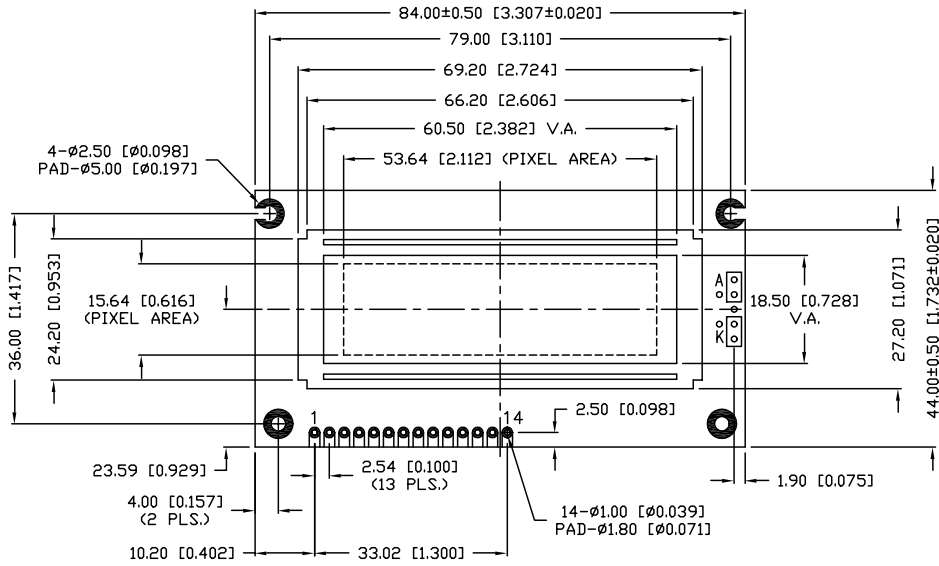
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PART NUMBER		REV.
LCM-X12232GXX/D		
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE



P/N PREFIX/SUFFIX TABLE		
LCM-X	DXX	DESCRIPTION
STANDARD	S	SR STN, REFLECTIVE
HIGH TEMP.	H	SF STN, TRANSFLECTIVE(W/ BACKLIGHT)

TYPE	DIM.	A	B
WITH BACKLIGHT	12.7	8.7	
NO BACKLIGHT	8.8	4.8	



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

UNCONTROLLED DOCUMENT
*UNLESS OTHERWISE SPECIFIED TOLERANCE IS ±0.25mm (±0.010")

REV.	PART NUMBER
	LCM-X12232GXX/D
122 x 32 DOT MATRIX GRAPHIC MODULE, 1/16 DUTY, 1/5 BIAS.	

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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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			SCALE: N/A

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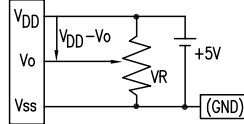
PART NUMBER
LCM-X12232GXX/D

REV.

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

PIN CONFIGURATION			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	-	POWER SUPPLY GND (0V) 5V FOR LCD DRIVE
2	V _{DD}	-	
3	V _O	-	
4	A ₀	H/L	REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT
5	E1	H,H->L	CHIP SELECT SIGNAL FOR IC1
6	E2	H,H->L	CHIP SELECT SIGNAL FOR IC2
7~14	DB0~DB7	H/L	DATA BUS
A	-	-	ANODE LED BACKLIGHT
K	-	-	CATHODE LED BACKLIGHT

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



READ/WRITE TIMING FOR 68 PORT MPU

PARAMETER	SIGNAL	SYMBOL	MIN	MAX	UNIT	
ADDRESS HOLD TIME	CS	t _{AH6}	10	-	ns	
ADDRESS SETUP TIME	R/W	t _{AS6}	20	-	ns	
SYSTEM CYCLE TIME	A ₀	t _{CYC6}	1000	-	ns	
DATA SETUP TIME	D ₀ ~D ₇	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)	E	t _{EW}	100	-	ns
	(WRITE)		80	-	ns	

ELECTRICAL CHARACTERISTICS

V_{DD}=4.5V to 5.5V, T_A=25°C

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	-	-	5.0	-	V	
SUPPLY CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	-	-	3.0	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} =-3mA	2.4	-	V	
	LOW	V _{OL}	I _{OL} =3mA	-	-	0.4 V	
*LED BACKLIGHT	VOLTAGE	V _f	-	-	4.2	4.6 V	
	CURRENT	I _f	-	-	170	330 mA	
	POWER CONSUMPTION	PD	-	-	710	- mW	
	LUMINOUS	L	I _f =170mA	70	-	-	cd/m ²
	COLOR	-	-	-	-	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

**APPLIED TO TERMINALS DB0~DB7

***APPLIED TO TERMINALS E, A₀, DB0~DB7

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	4.75	5.25	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _O	-	4.8@50°C	5.2@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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REV. PART NUMBER
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