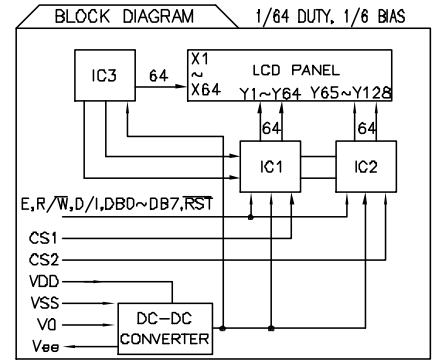
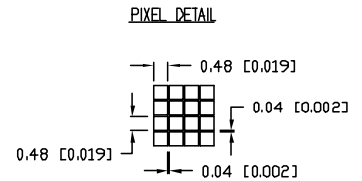
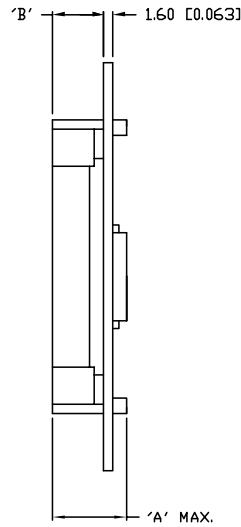
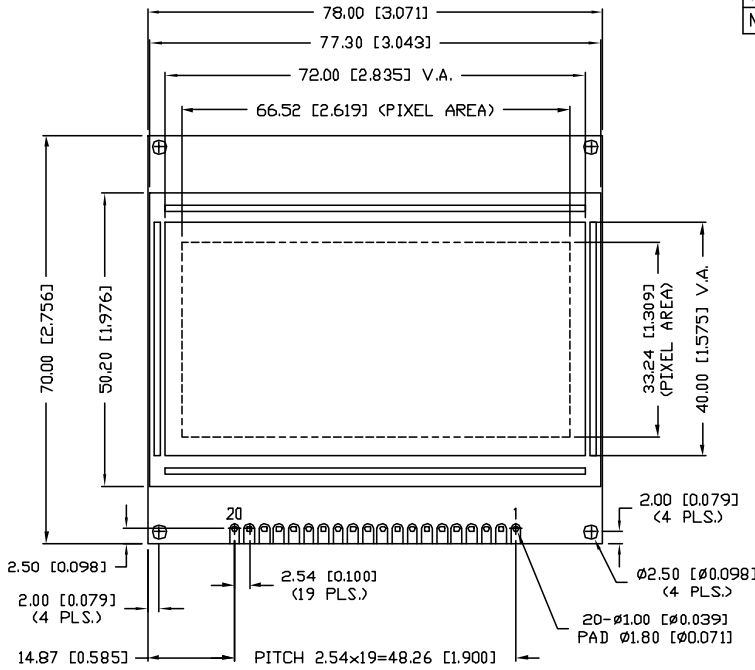


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PART NUMBER		REV.
LCM-X12864GXX/C		
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE

P/N PREFIX/SUFFIX TABLE		
LCM-X	DX	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

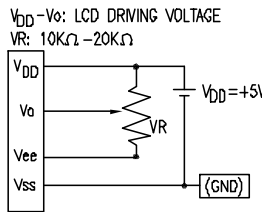
*UNLESS OTHERWISE SPECIFIED TOLERANCE IS ±0.25mm (±0.010")

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128 x 64 DOT MATRIX GRAPHIC MODULE, 1/64 DUTY, 1/6 BIAS, WITH NEGATIVE CHARGE PUMP.	DRAWN BY: SA/BC	CHECKED BY:	APPROVED BY: DATE: 9-1-98 PAGE: 1 OF 2 SCALE: N/A

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PART NUMBER		REV.
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PIN CONFIGURATION				
PIN NO.	SYMBOL	LEVEL	FUNCTION	
1	V _{SS}	-	POWER SUPPLY GND (0V)	
2	V _{DD}	-		5V
3	V _a	-		FOR LCD DRIVE
4	D/I	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	
15	CS1	H/L	CHIP SELECTION SIGNAL FOR IC1	
16	CS2	H/L	CHIP SELECTION SIGNAL FOR IC2	
17	RST	-	RESET SIGNAL (ACTIVE "LOW")	
18	V _{ee}	-	OUTPUT VOLTAGE FOR LCD DRIVING	
19	A	-	ANODE LED BACKLIGHT	
20	K	-	CATHODE LED BACKLIGHT	



READ/WRITE TIMING FOR MPU INTERFACE				
PARAMETER	SYMBOL	MIN	MAX	UNIT
ADDRESS HOLD TIME	t _{AH}	10	-	ns
ADDRESS SETUP TIME	t _{AS}	140	-	ns
E CYCLE TIME	t _{CYC}	1000	-	ns
E HIGH LEVEL WIDTH	t _{WEH}	450	-	ns
E LOW LEVEL WIDTH	t _{WEL}	450	-	ns
DATA SETUP TIME	t _{DSW}	200	-	ns
DATA HOLD TIME (READ)	t _{DHR}	20	-	ns
DATA DELAY TIME	t _{DDR}	-	320	ns
DATA HOLD TIME (WRITE)	t _{DHW}	10	-	ns
E RISE TIME	t _r	-	25	ns
E FALL TIME	t _f	-	25	ns

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 CURRENT FOR LOGIC	I _{DD}	V _{DD} =5V	-	8.0	-	mA	
INPUT VOLTAGE	HIGH	V _{IH}	-	0.7*V _{DD}	-	V _{DD}	
	LOW	V _{IL}	-	0	-	0.3*V _{DD}	
*LED BACKLIGHT	VOLTAGE	V _f	I _f =300mA	-	4.2	4.5	V
	CURRENT	I _f	-	-	300	-	mA
	POWER CONSUMPTION	P _D	-	-	1260	-	mW
	LUMINOUS	L	I _f =300mA	60	90	-	cd/m ²
	COLOR	-	-	-	-	-	nm

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	-	7.0	V
SUPPLY VOLTAGE FOR LCD DRIVE	V _{DD} -V _a	-	10.8@40°C	12.4@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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