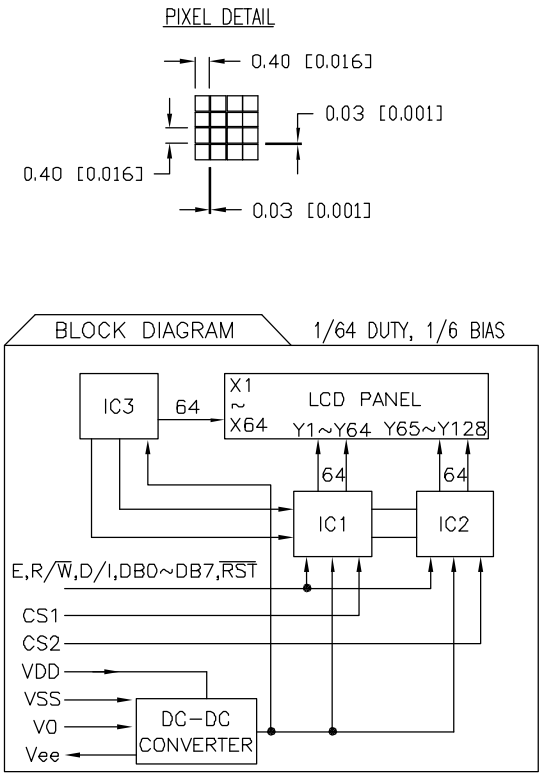
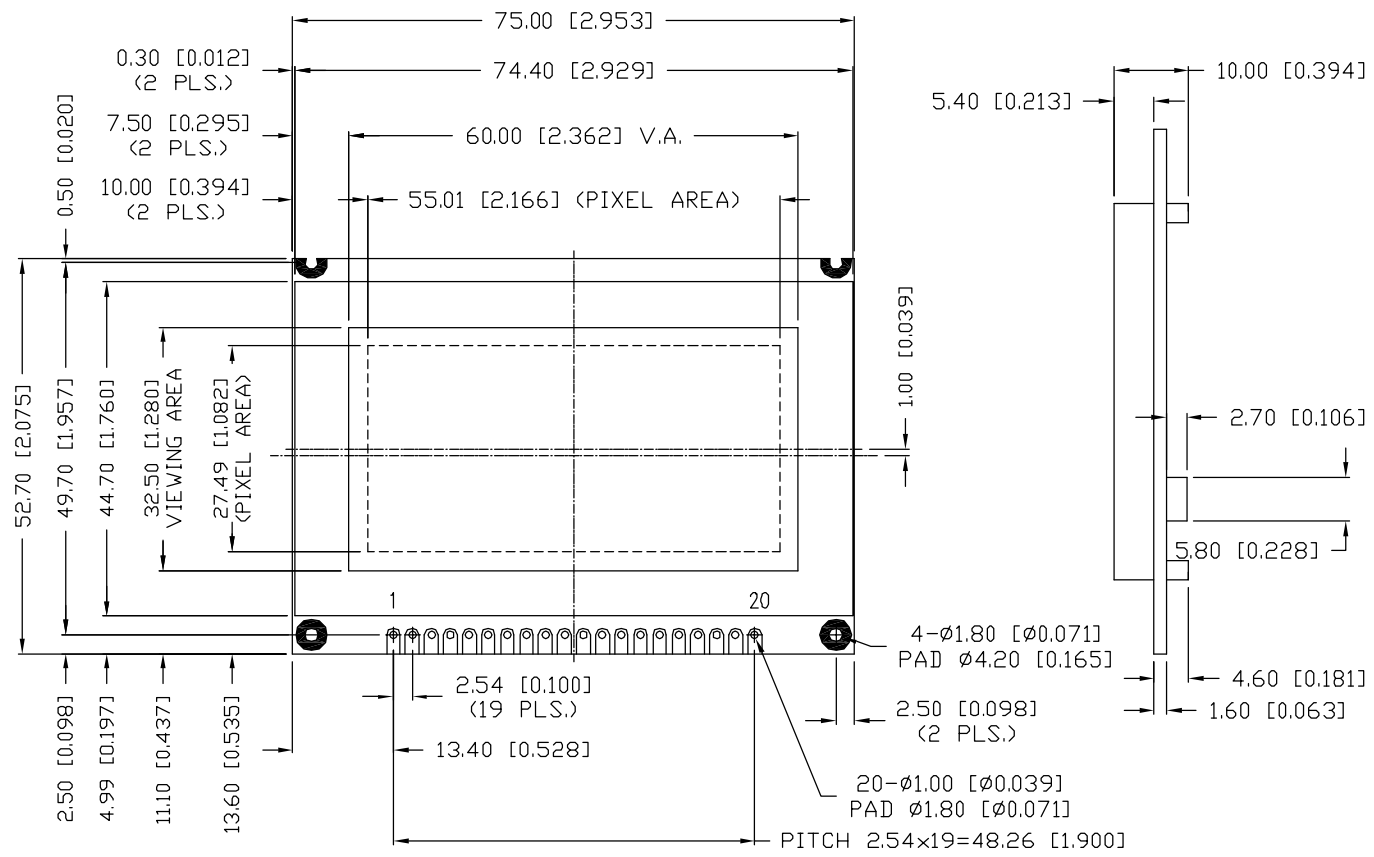


UNCONTROLLED DOCUMENT

PART NUMBER		REV.
LCM-H12864GSF/H-Y		B
REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #11017.	7.17.03
B	E.C.N. #11148.	4.20.07

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), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.= +DECIMAL PRECISION MAX.= +0.00 -DECIMAL PRECISION

UNCONTROLLED DOCUMENT

REV.	PART NUMBER
B	LCM-H12864GSF/H-Y
128 x 64 DOT MATRIX GRAPHIC MODULE, 1/64 DUTY, 1/6 BIAS, WITH NEGATIVE CHARGE PUMP, EXTENDED TEMP., STN, YELLOW BACKGROUND.	

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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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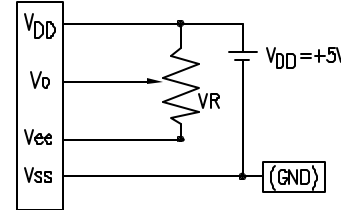
DRAWN BY: JC	CHECKED BY:	APPROVED BY:	DATE: 2.4.99
			PAGE: 1 OF 2
			SCALE: N/A

PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	V _{DD}	-	POWER SUPPLY
2	V _{SS}	-	
3	V ₀	-	
4-11	DB0~DB7	H/L	DATA BUS
12	CS1	H/L	CHIP SELECTION SIGNAL FOR IC1
13	CS2	H/L	CHIP SELECTION SIGNAL FOR IC2
14	RST	-	RESET SIGNAL (ACTIVE "LOW")
15	R/W	H/L	DATA READ/WRITE H:READ L:WRITE
16	D/I	H/L	REGISTER SELECT SIGNAL H:DATA L:INSTRUCTION
17	E	H->L	ENABLE
18	V _{ee}	-	OUTPUT VOLTAGE FOR LCD DRIVING
19	A	-	ANODE LED BACKLIGHT
20	K	-	CATHODE LED BACKLIGHT

V_{DD}-V₀: LCD DRIVING VOLTAGE

VR: 10KΩ-20KΩ



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}	V	
	LOW	V _{IL}	0	-	0.3*V _{DD}	V	
*EDGE LIT LED BACKLIGHT	VOLTAGE	V _f	I _f =60mA	-	4.2	4.5	V
	CURRENT	I _f	-	-	60	-	mA
	POWER CONSUMPTION	P _D	-	-	252	-	mW
	LUMINOUS	L	I _f =60mA	-	2	-	cd/m ²
	COLOR	-	-	-	-	-	nm

*ONLY APPLIES TO MODULES WITH BACKLIGHT

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 ₀	-	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}	-	-20	70	°C
STORAGE TEMPERATURE	T _{stg}	-	-30	85	°C

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128 x 64 DOT MATRIX GRAPHIC MODULE, 1/64 DUTY,
1/6 BIAS, WITH NEGATIVE CHARGE PUMP,
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DRAWN BY:

JC

CHECKED BY:

APPROVED BY:

DATE: 2.4.99

PAGE: 2 OF 2

SCALE: N/A

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