



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

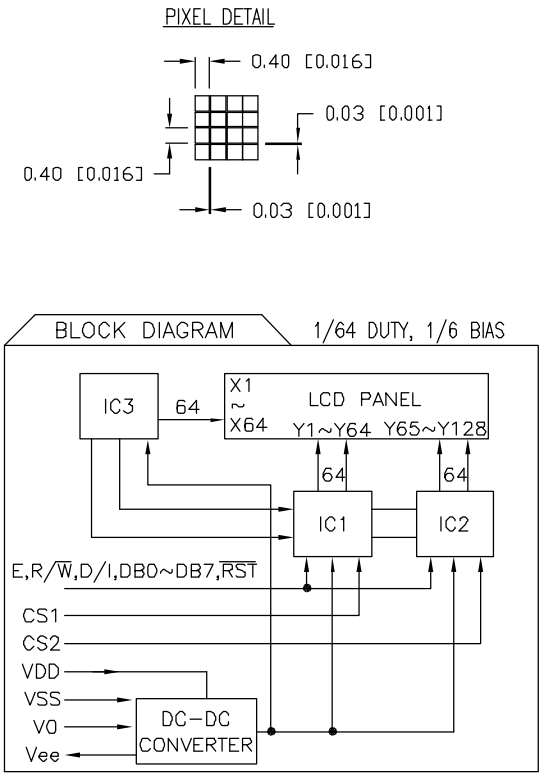
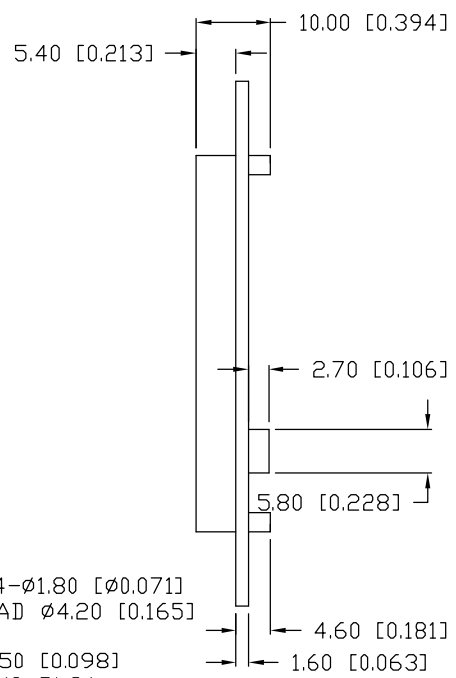
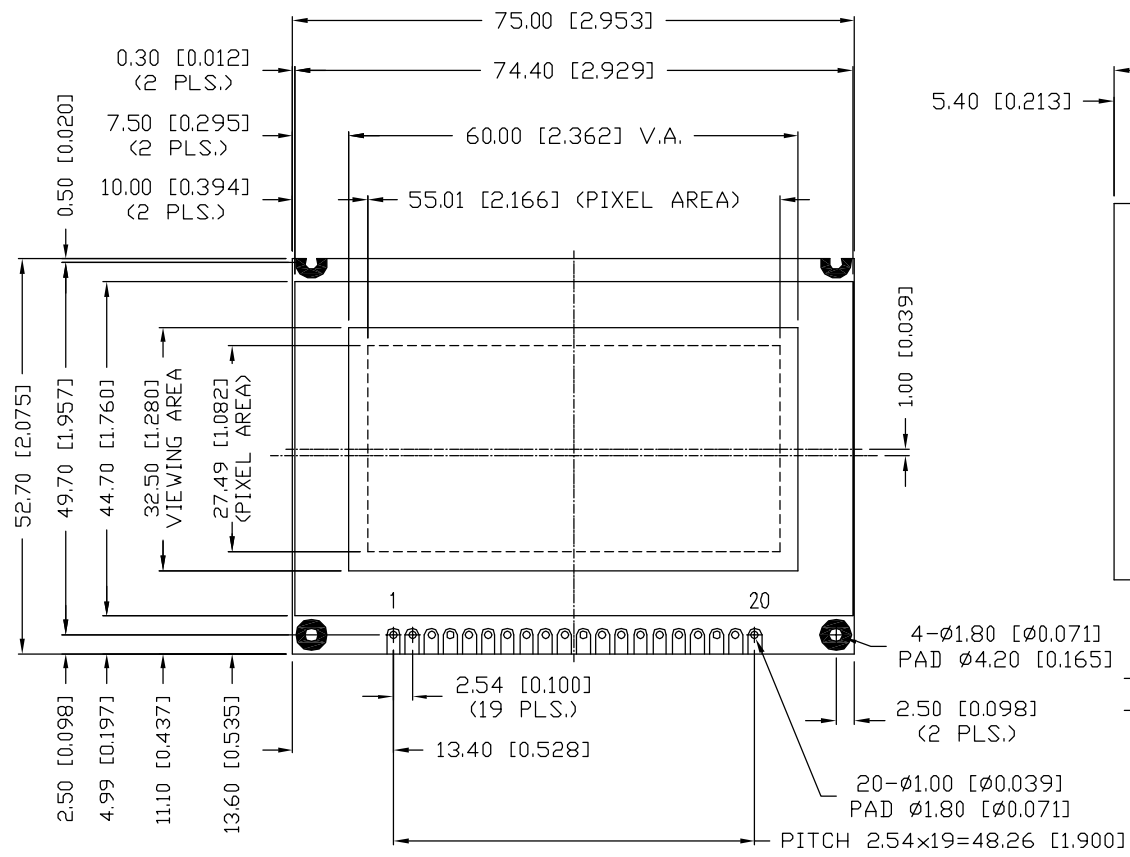
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



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.



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*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

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.

290 E. HELEN ROAD
PALATINE, IL 60067-6976
PHONE: +1.847.359.2790
US WEB: www.lumex.com
TW WEB: www.lumex.com.tw

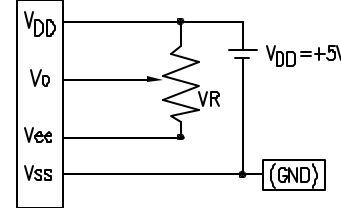
DRAWN BY: JC	CHECKED BY:	APPROVED BY:	DATE: 2.4.99
			PAGE: 1 OF 2
			SCALE: N/A

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	PD	-	-	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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DRAWN BY:

JC

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