

UNCONTROLLED DOCUMENT

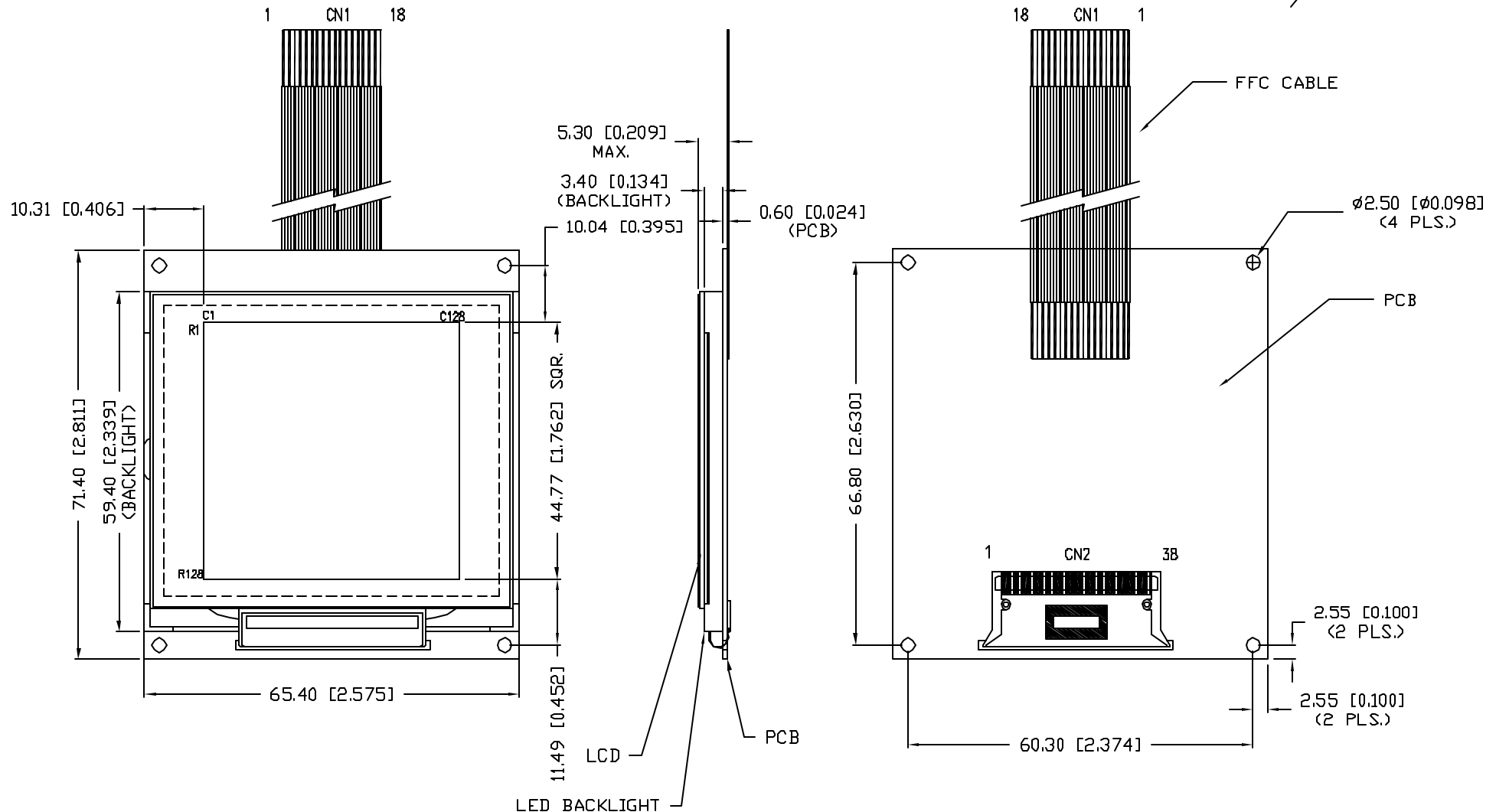
PART NUMBER

LCM-S128128TBWF/AB

REV.

P4

PRELIMINARY IN P/N DIR



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*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 {±0.030}, 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 MAX=-DECIMAL PRECISION

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PART NUMBER

LCM-S128128TBWF/AB

128 x 128 GRAPHIC LCD MODULE, TAB, FSTN, TRANSFLECTIVE,
VLCD = 12.5V, 1/12 BIAS, PARALLEL INTERFACE,
1/128 DUTY, 6:00 VIEW, 0°C TO +50°C OPERATING TEMP.

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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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DATE: 8.11.04

PAGE: 1 OF 5

SCALE: N/A

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SC:1

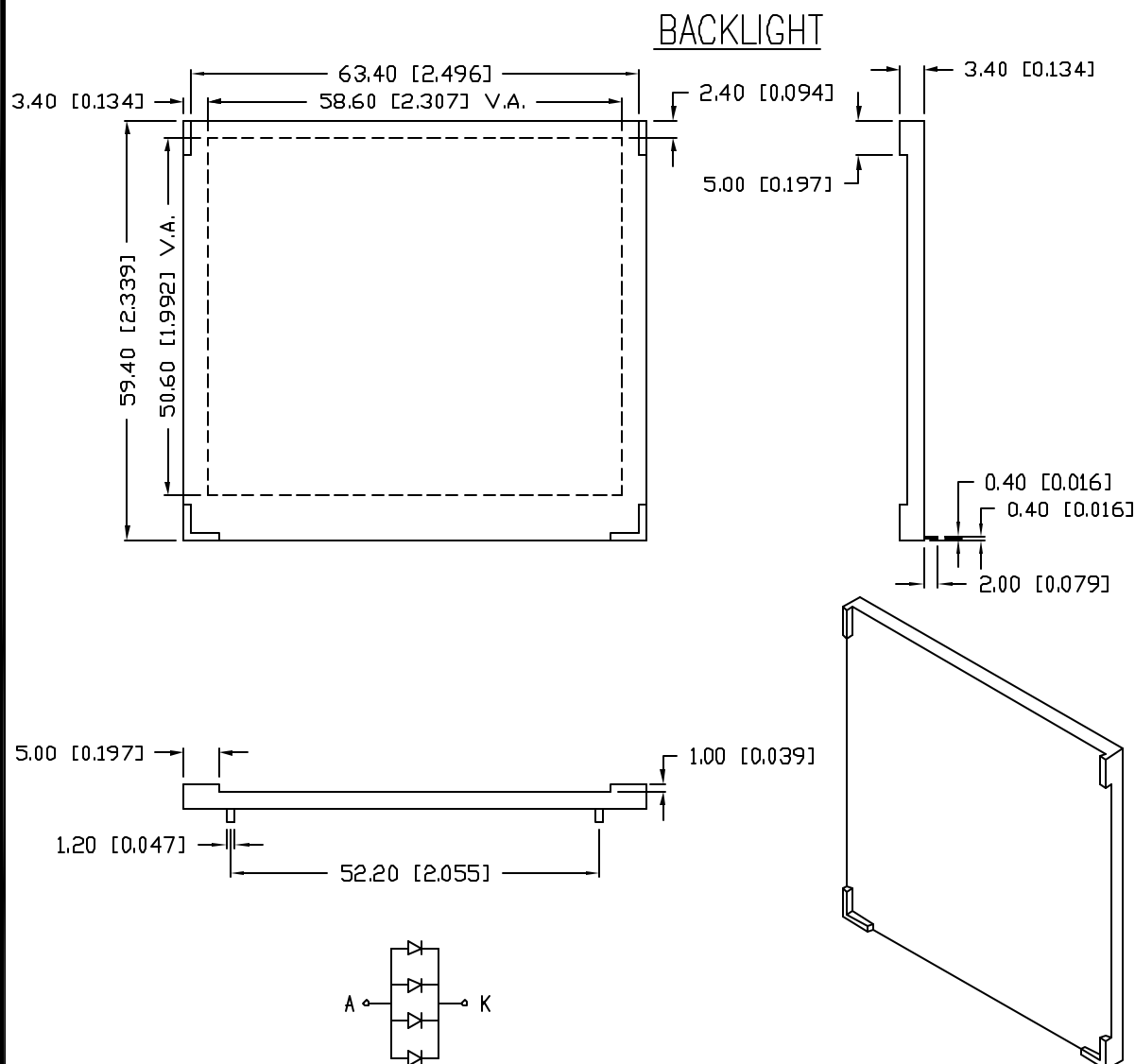
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ELECTRO-OPTICAL CHARACTERISTICS $T_A=25^\circ\text{C}$ PER MODULE					$I_f=80\text{ mA}$
PARAMETER	MIN	TYP	MAX	UNITS	TEST COND
PEAK WAVELENGTH		470		nm	
FORWARD VOLTAGE		3.5	4.0	V_f	
REVERSE VOLTAGE	5			V_r	$I_r=100\mu\text{A}$
LUMINOUS INTENSITY		15		cd/m^2	$I_f=80\text{ mA}$
EMITTED COLOR:	BLUE				
REFLECTOR FINISH:	CLEAR WHITE				

LIMITS OF SAFE OPERATION AT 25°C PER MODULE

PARAMETER	MAX	UNITS
STEADY CURRENT	100	mA
POWER DISSIPATION	0.35	W
DERATE FROM 25°C , PER DIE	-1.2	mW/ $^\circ\text{C}$
OPERATING, STORAGE TEMP.	-40 TO +85	$^\circ\text{C}$
SOLDERING TEMP.	+260	$^\circ\text{C}$
2.0mm FROM BODY	3 SEC. MAX	

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PIN CONFIGURATION (CN2)

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	NC	—	NO SIGNAL
2	PS0	H/L	PARALLEL/SERIAL DATA INPUT SELECT INPUT
3	PS1	H/L	MICROPROCESSOR INTERFACE SELECT INPUT PIN PSD=H, PS1=H: 6800-SERIES PARALLEL MPU INTERFACE PSD=H, PS1=L: 8080-SERIES PARALLEL MPU INTERFACE PSD=L, PS1=H: 4-PIN-SPI MPU INTERFACE PSD=L, PS1=L: 3-PIN-SPI MPU INTERFACE
4	CSB	H/L	CHIP SELECT INPUT (DATA/INSTRUCTION I/D IS ENABLED WHEN CSB IS L)
5	RESETB	H/L	RESET INPUT PIN (WHEN RESETB IS L, INITIALIZATION IS EXECUTED)
6	RS	H/L	REGISTER SELECT INPUT PINS RS-H: D0-7 ARE DISPLAY DATA; RS=L, D0-7 ARE CONTROL DATA
7	RW-WR	H/L	READ/WRITE EXECUTION CONTROL PIN
8	E-RD	H/L	READ/WRITE EXECUTION CONTROL PIN
9	DB0	H/L	DATA BIT 0
10	DB1	H/L	DATA BIT 1
11	DB2	H/L	DATA BIT 2
12	DB3	H/L	DATA BIT 3
13	DB4	H/L	DATA BIT 4
14	DB5	H/L	DATA BIT 5
15	DB6	H/L	DATA BIT 6
16	DB7	H/L	DATA BIT 7
17	VDD	H/L	POWER SUPPLY
18	VCI	OV	VOLTAGE CONVERTOR INPUT VOLTAGE PIN
19	VSS	—	GROUND
20	VOUT	—	VOLTAGE CONVERTOR INPUT/OUTPUT PIN
21	C5+	—	CAPACITOR 5 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
22	C3+	—	CAPACITOR 3 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
23	C1+	—	CAPACITOR 1 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
24	C1+	—	CAPACITOR 1 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
25	C2+	—	CAPACITOR 2 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
26	C2+	—	CAPACITOR 2 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
27	C4+	—	CAPACITOR 4 POSITIVE CONNECTION PIN FOR VOLTAGE CONVERTOR
28	REF	H/L	SELECTS THE EXTERNAL VREF VOLTAGE VIA THE VEXT PIN REF=H: USING THE INTERNAL VREF, REF=L: USING THE EXTERNAL VREF
29	VEXT	H/L	EXTERNALLY INPUT REFERENCE VOLTAGE FOR THE INTERNAL VOLTAGE REGULATOR, IT IS VALID ONLY WHEN REF IS L, WHEN USING INTERNAL VOLTAGE REGULATOR, CONNECT TO VDD, VSS OR OPEN THIS PIN
30	INTRS	H/L	INTERNAL RESISTOR SELECT PIN
31	V4	—	BIAS VOLTAGE
32	V3	—	BIAS VOLTAGE
33	V2	—	BIAS VOLTAGE
34	V1	—	BIAS VOLTAGE
35	V0	—	T.B.A
36	VR	—	V0 VOLTAGE ADJUSTMENT PIN
37	OSC1	—	WHEN USING INTERNAL CLOCK OSCILLATOR, CONNECT A RESISTOR BETWEEN OSC1 AND VDD
38	NC	—	NO SIGNAL

ELECTRICAL CHARACTERISTICS

VDD=3.0 ± 0.25V Ta=25°C

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SUPPLY VOLTAGE (LOGIC)	V _{DD}	V _{DD} - V _{SS}	2.85	3.0	3.15	V
SUPPLY VOLTAGE (LCD DRIVE)	V _O	—	4.0	—	15.0	V
INPUT VOLTAGE	HIGH	V _{IH}	V _{DD} = 3.0V	0.8*V _{DD}	—	V _{DD} V
	LOW	V _{IL}	V _{DD} = 3.0V	V _{SS}	—	0.2*V _{DD} V
SUPPLY CURRENT	I _{DD}	V _{DD} - V _{SS}	—	—	300	μA

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE RANGE	V _{DD} - V _{SS}	Ta=25°C	-0.3	7.0	V
LCD DRIVING VOLTAGE	V _O	Ta=25°C	—	17.0	V
OPERATING TEMPERATURE	T _{opr}	—	0	50	°C
STORAGE TEMPERATURE	T _{stg}	—	-20	70	°C

NOTES:

- FOR TIMING DIAGRAM AND INTERFACE OPTIONS, PLEASE REFER TO S6B0741 FOR DETAILS.

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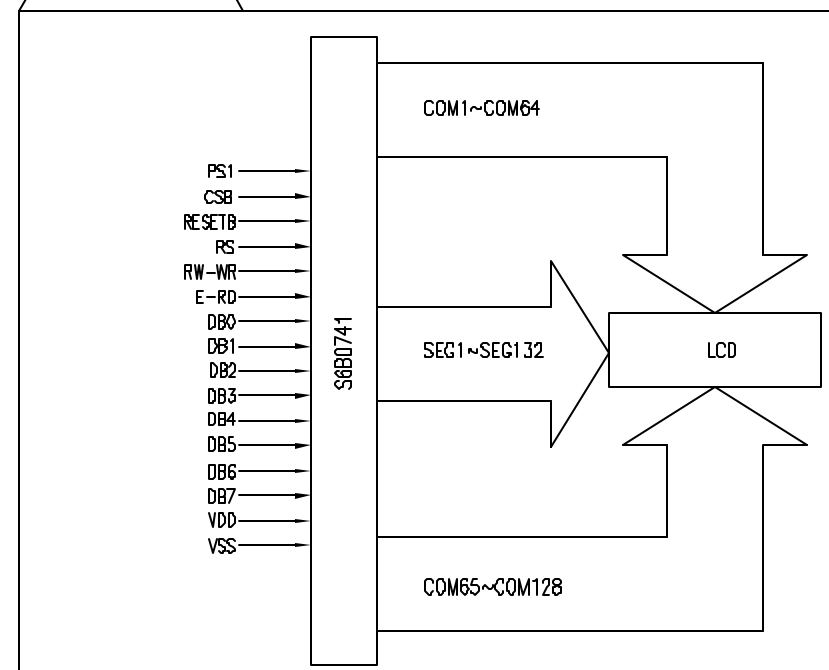
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PIN CONFIGURATION (CMT)

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	PS1	H/L	MICROPROCESSOR INTERFACE SELECT INPUT PIN PS0=H, PS1=H: 6800-SERIES PARALLEL MPU INTERFACE PS0=H, PS1=L: 8080-SERIES PARALLEL MPU INTERFACE
2	CSB	H/L	CHIP SELECT INPUT (DATA/INSTRUCTION I/O IS ENABLED WHEN CSB IS L)
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11	DB4	H/L	DATA BIT 4
12	DB5	H/L	DATA BIT 5
13	DB6	H/L	DATA BIT 6
14	DB7	H/L	DATA BIT 7
15	VDD	H/L	POWER SUPPLY
16	VSS	-	GROUND
17	A	-	ANODE LED BACKLIGHT
18	K	-	CATHODE LED BACKLIGHT

BLOCK DIAGRAM



NOTE: FOR DETAIL TIMING CHARTS, TIMING DIAGRAMS, SERIAL/PARALLEL INTERFACE OPTIONS AND LCD CONNECTION METHODS, PLEASE REFER TO THE IC SPECS.

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