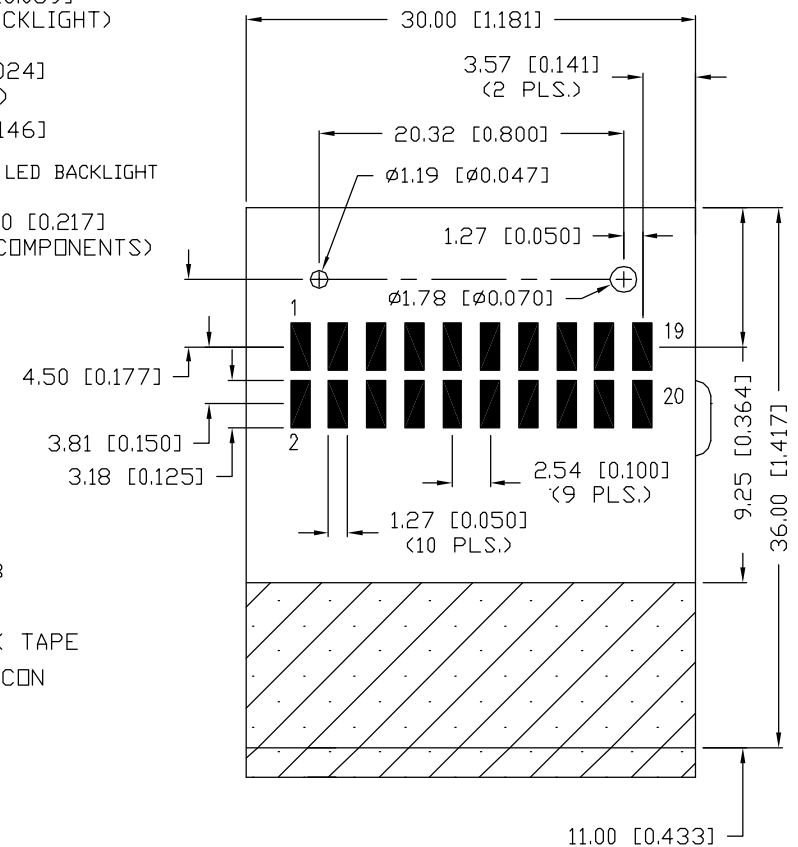
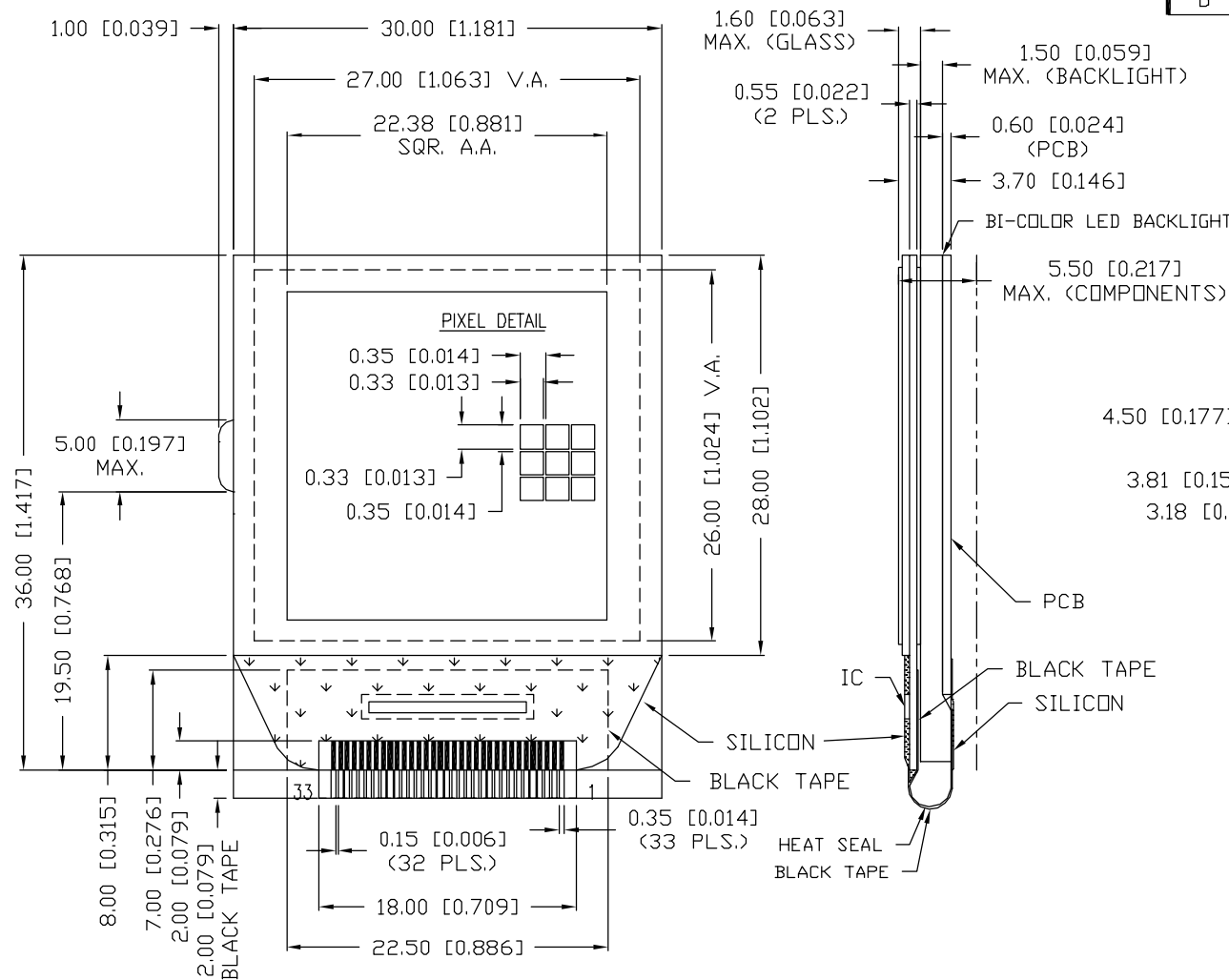


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NOTES:

1. BI-COLOR LED BACKLIGHT, 470nm BLUE, 525nm GREEN.
 2. NOVATEK IC: NT7532.



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REV. B	PART NUMBER LCM-S6464CGWF	CONFIDENTIAL INFORMATION THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES. 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
64 x 64 CHIP ON GLASS GRAPHIC LCD MODULE, FSTN, TRANSFLECTIVE, 3.0V, 1/65 DUTY, 1/9 BIAS, VLCD=10V, 6:00 VIEW, PARALLEL INTERFACE: 6800, 0°C~50°C OP. TEMP.		DRAWN BY: CT CHECKED BY: APPROVED BY: DATE: 2.18.04 PAGE: 1 OF 5 SCALE: N/A	

BACKLIGHT

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LCM-S6464CGWF

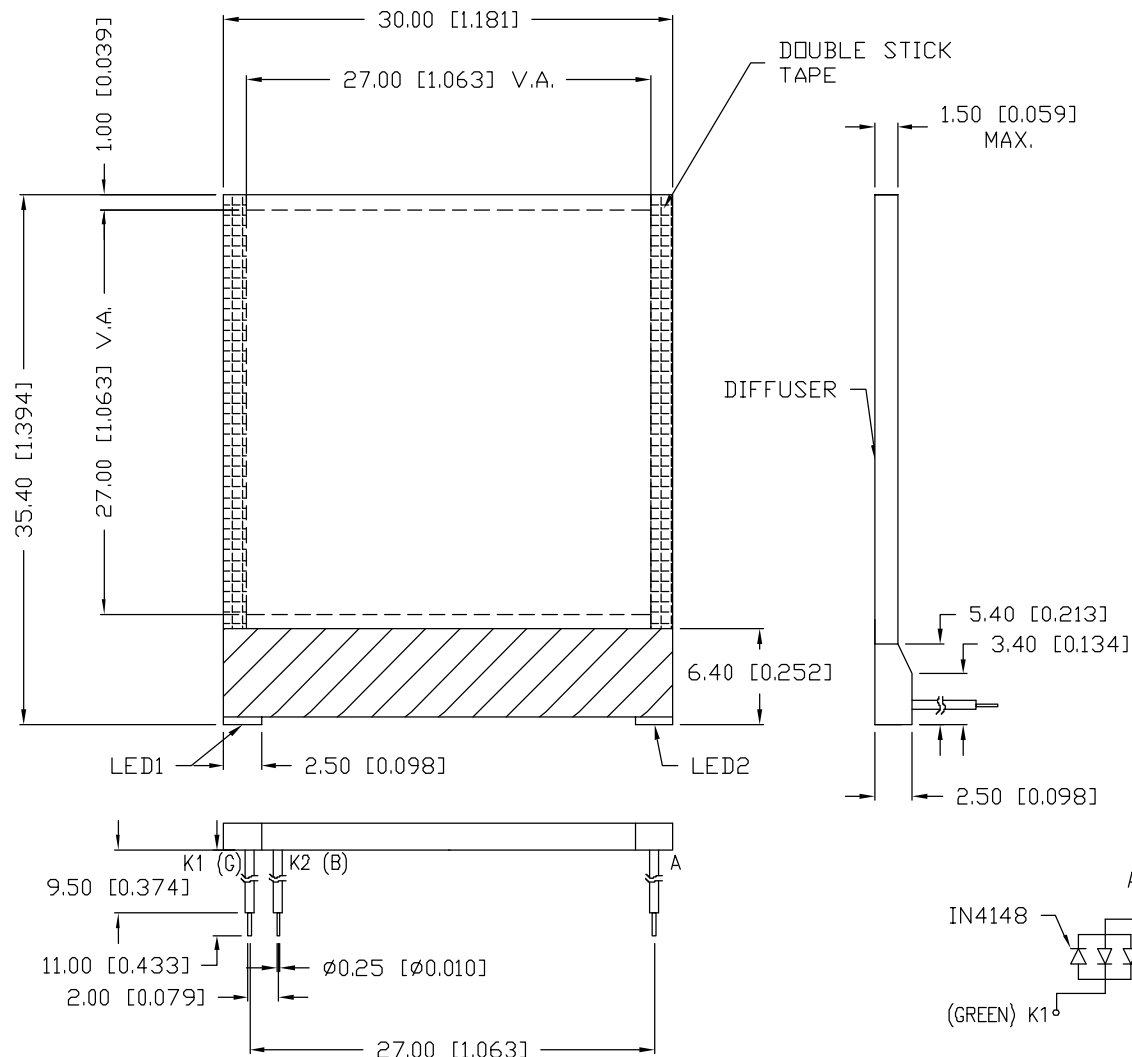
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REV. E.C.N. NUMBER AND REVISION COMMENTS

DATE

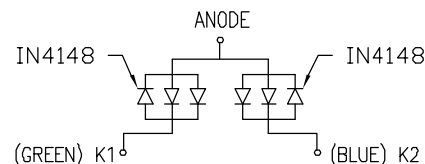
SEE PAGE 1.



ELECTRO-OPTICAL CHARACTERISTICS $T_A=25^\circ\text{C}$ PER MODULE					$I_f = 30\text{ mA}$	
PARAMETER	MIN	TYP	MAX	UNITS	TEST COND	
PEAK WAVELENGTH		470 (BLUE) 525 (GREEN)		nm		
FORWARD VOLTAGE	3.8	4.0	4.2	V_f		
REVERSE VOLTAGE	1.0			V_r	$V_r=100\mu\text{A}$	
LUMINOUS INTENSITY		15		cd/m^2	$I_f=30\text{ mA}$	
EMITTED COLOR:	BLUE/GREEN					
REFLECTOR FINISH:	WHITE					

LIMITS OF SAFE OPERATION AT 25°C PER LED

PARAMETER	MAX	UNITS
PEAK FORWARD CURRENT *	100	mA
STEADY CURRENT	30	mA
POWER DISSIPATION	0.11	W
DERATE FROM 25°C	-1.0	$\text{mW}/^\circ\text{C}$
OPERATING TEMP.	-20 TO +70	$^\circ\text{C}$
STORAGE TEMP.	-30 TO +80	$^\circ\text{C}$
SOLDERING TEMP.	+260	$^\circ\text{C}$
2.0mm FROM BODY	3 SEC. MAX	

* $t < 10\mu\text{s}$ 

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FSTN, TRANSFLECTIVE, 3.0V, 1/65 DUTY, 1/9 BIAS, VLCD=10V,
6:00 VIEW, PARALLEL INTERFACE: 6800, $0^\circ\text{C}\sim 50^\circ\text{C}$ OP. TEMP.

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APPROVED BY:

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PAGE: 2 OF 5

SCALE: N/A

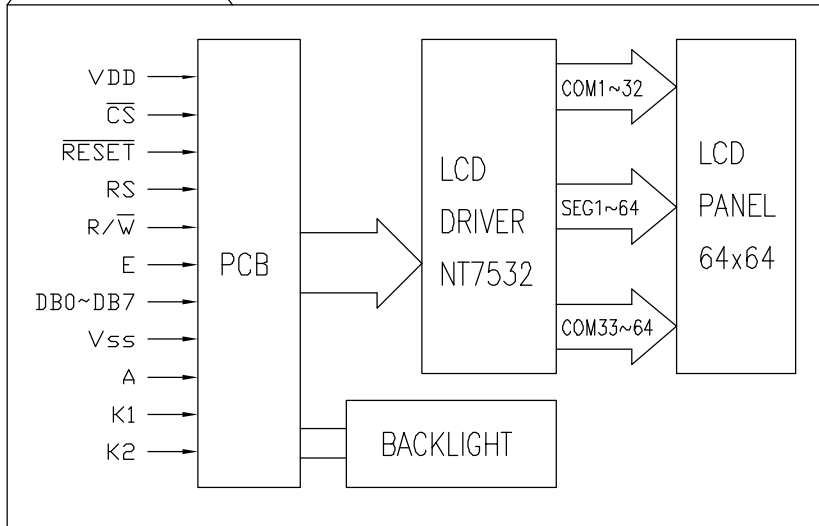
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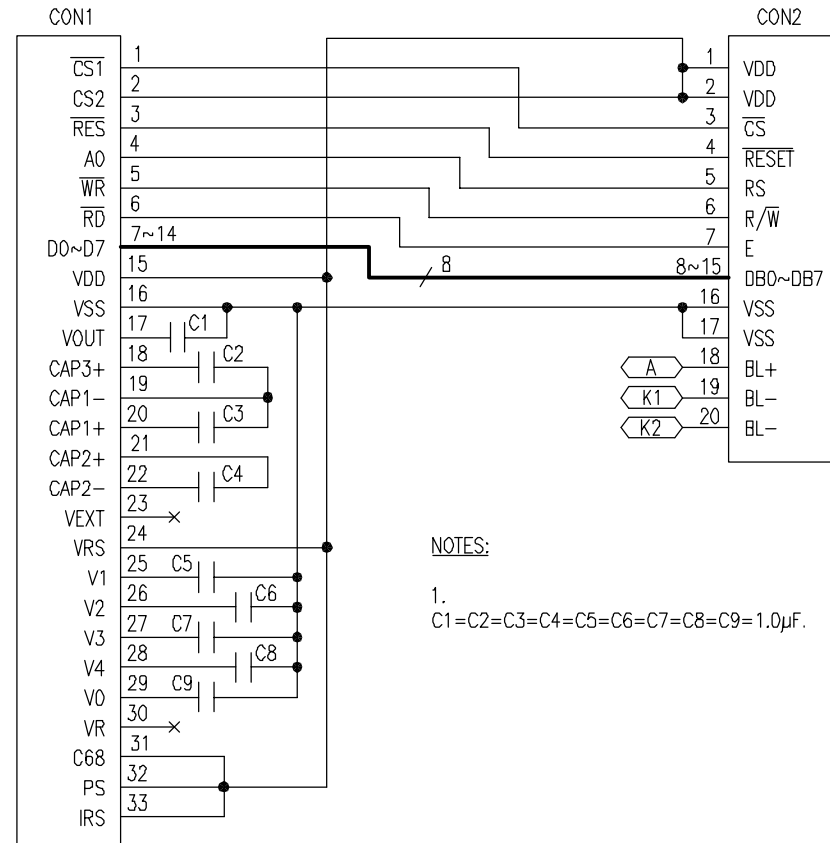
DATE _____

BLOCK DIAGRAM



PIN CONFIGURATION

PIN NO.	SYMBOL	LEVEL	FUNCTION	
1~2	VDD	—	POWER SUPPLY	
3	$\overline{CS}$	L	CHIP SELECT	
4	RESET	L	RESET SIGNAL	
5	RS	H/L	REGISTER SELECT (H): DATA BITS ARE DISPLAY DATA REGISTER SELECT (L): DATA BITS ARE CONTROL DATA	
6	$R/\overline{W}$	H/L	READ/WRITE INPUT	
7	E	H/L	ENABLE INPUT	
8~15	DB0~DB7	H/L	BI-DIRECTIONAL DATA. WHEN SERIAL INTERFACE SELECTED (PS="L") DB6: SERIAL INPUT CLOCK(SCLK); DB7: SERIAL DATA (SID) (MAY BE HIGH IMPEDANCE IF $\overline{CS}$ IS NOT ACTIVE)	
16~17	Vss	—	GROUND	
18	A	—	BACKLIGHT ANODE	
19	K1	—	BACKLIGHT	GREEN CATHODE
20	K2	—		BLUE CATHODE



NOTES:

1.
 $C_1=C_2=C_3=C_4=C_5=C_6=C_7=C_8=C_9=1.0\mu F$.

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B

LCM-S6464CGWF

64 x 64 CHIP ON GLASS GRAPHIC LCD MODULE,
FSTN, TRANFLECTIVE, 3.0V, 1/65 DUTY, 1/9 BIAS, VLCD=10V,
6:00 VIEW, PARALLEL INTERFACE: 6800, 0°C~50°C OP. TEMP.

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PAGE: 3 OF 5

SCALE: N/A

READ/WRITE CHARACTERISTICS		(VDD=2.7V~3.3V, Ta=25°C)			
ITEM	SYMBOL	MIN.	MAX.	UNIT	CONDITION
ADDRESS SETUP TIME	tAS6	0	—	ns	—
ADDRESS HOLD TIME	tAH6	0	—	ns	—
SYSTEM CYCLE TIME	tCYC6	300	—	ns	—
ENABLE PULSE L (WR)	tEWLW	90	—	ns	—
ENABLE PULSE L (RD)	tEWLR	120	—	ns	—
ENABLE PULSE H (WR)	tEWHW	120	—	ns	—
ENABLE PULSE H (RD)	tEWHR	60	—	ns	—
DATA SETUP TIME	tDS6	40	—	ns	—
DATA HOLD TIME	tDH6	15	—	ns	—
OUTPUT DISABLE TIME	tOH6	10	100	ns	CL=100pF
ACCESS TIME	tACC6	—	140	ns	CL=100pF

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE RANGE	VDD	—	-0.3	6.0	V
	VLCD		-0.3	12.0	V
INPUT VOLTAGE	VI	Ta=25°C	-0.3	VDD+0.3	V
OPERATING TEMPERATURE	Topr	—	0	+50	°C
STORAGE TEMPERATURE	Tstg	—	-10	60	°C

DC CHARACTERISTICS

Ta=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITION
OPERATING VOLTAGE	VDD	2.4	—	3.5	V	—
OPERATING VOLTAGE	VDD2	2.4	—	3.5	V	—
BOOSTER OUTPUT VOLTAGE	VOUT	6.0	—	12.0	V	—
VOLTAGE REGULATOR OUTPUT VOLTAGE	Vo	4.5	—	11.5	V	—
REFERENCE VOLTAGE	VREF1	2.04	2.10	2.16	V	—
REFERENCE VOLTAGE	VREF2	2.00	2.10	2.20	V	—
DYNAMIC CURRENT 1	IDD1	—	21	35	μA	VDD2=3V, Vo=11V BUILT-IN SUPPLY OFF
DYNAMIC CURRENT 2	IDD2	—	96	160	μA	VDD2=3V, Vo=11V NORMAL MODE
DYNAMIC CURRENT 3	IDD3	—	153	255	μA	VDD2=3V, Vo=11V HIGH POWER MODE
SLEEP MODE CURRENT	ISP	—	0.01	5	μA	—
STANDBY MODE CURRENT	ISB	—	4	8	μA	—
INPUT VOLTAGE	HIGH LEVEL	VIHC	0.8xVDD	—	V	—
	LOW LEVEL	VILC	VSS	0.2xVDD	V	—
OUTPUT VOLTAGE	HIGH LEVEL	VOHC	0.8xVDD	—	V	IOH=-0.5mA
	LOW LEVEL	VOLC	VSS	0.2xVDD	V	IOL=0.5mA
INPUT LEAKAGE CURRENT	ILI	-1.0	—	1.0	μA	—
HZ LEAKAGE CURRENT	IHZ	-3.0	—	3.0	μA	DO~D7, FR, CL, DOF ARE HIGH IMPEDANCE
LCD ON RESISTANCE	RON1	—	2.0	3.5	kΩ	Vo=11.0V
LCD ON RESISTANCE	RON2	—	3.2	5.4	kΩ	Vo=8.0V
INPUT PAD CAPACITY	Cin	—	5.0	8.0	pF	f=1MHz
OSCILLATION FREQUENCY	fOSC	27	33	39	kHz	—

*V02V12V22V32V42VSS MUST BE SATISFIED.

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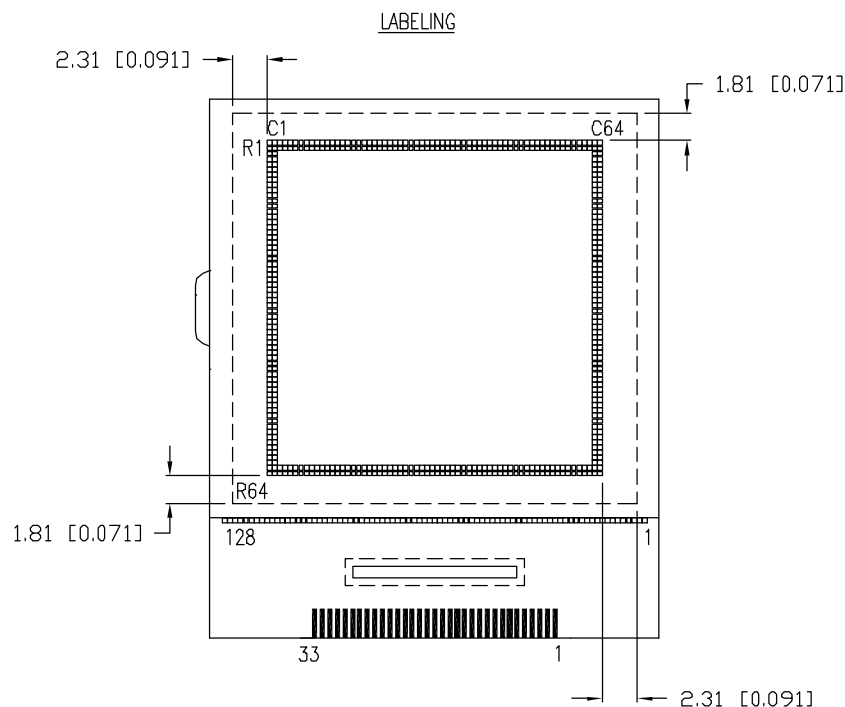
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PART NUMBER
LCM-S6464CGWFREV.
BREV. E.C.N. NUMBER AND REVISION COMMENTS
SEE PAGE 1.

DATE



PAD NO.	IC NO.	PAD CONFIGURATION
1	COM63	COM1[R1(C1-C64)]
2	COM62	COM2[R2(C1-C64)]
31	COM33	COM31[R31(C1-C64)]
32	COM32	COM32[R32(C1-C64)]
33	SEG63	SEG64[C64(R1-R64)]
34	SEG62	SEG63[C63(R1-R64)]
95	SEG1	SEG2[C2(R1-R64)]
96	SEG0	SEG1[C1(R1-R64)]
97	COM0	COM64[R64(C1-C64)]
98	COM1	COM63[R63(C1-C64)]
127	COM30	COM34[R34(C1-C64)]
128	COM31	COM33[R33(C1-C64)]

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