

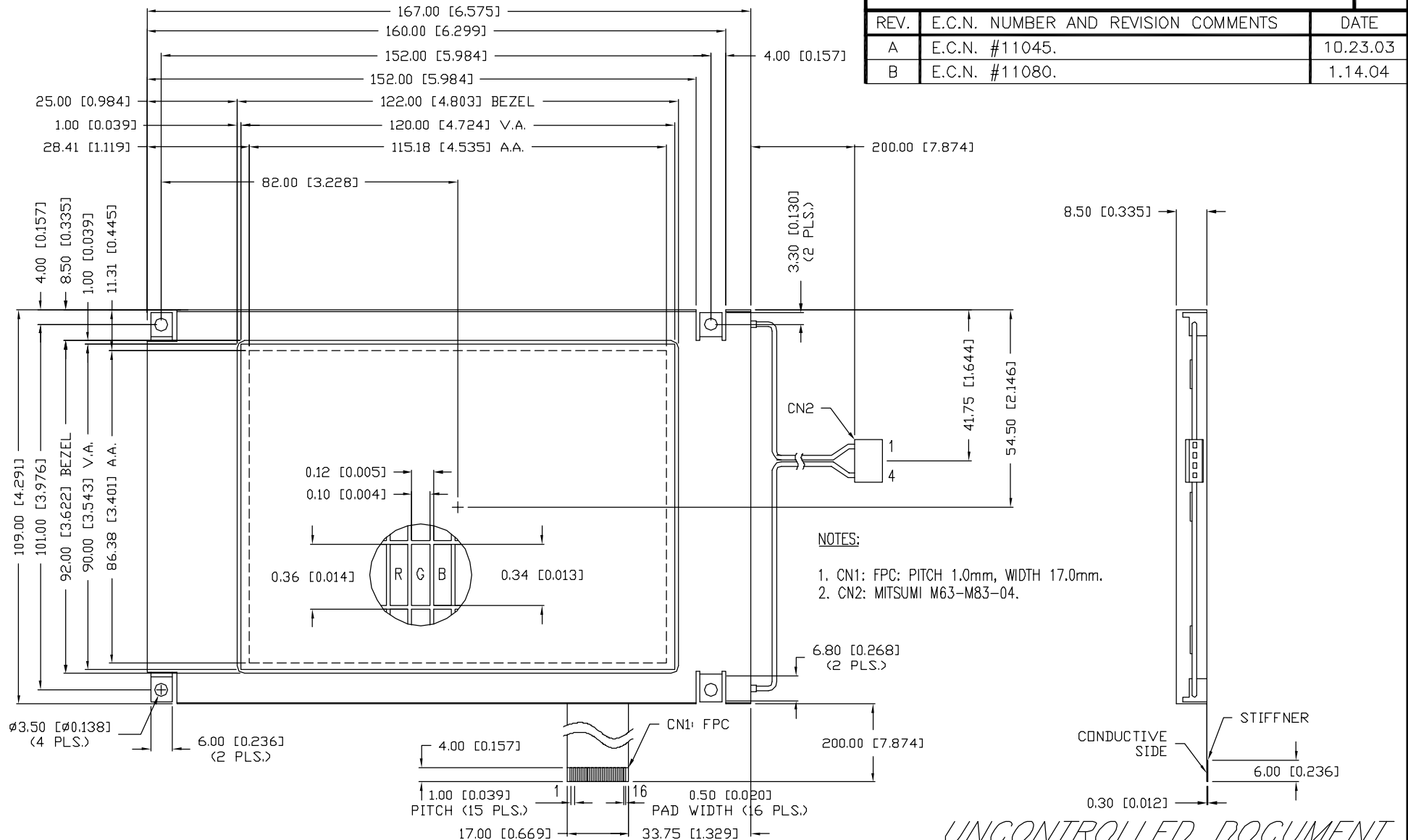
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PART NUMBER

LCM-S320240GCN-57

REV.

B



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5.7" COLOR STN, 320 x 240 GRAPHIC MODULE,
NEGATIVE, TRANSMISSIVE, CCFL BACKLIGHT, 1/242 DUTY,
6:00 VIEW ANGLE, WEIGHT: 200g.

DRAWN BY:

CT

CHECKED BY:

APPROVED BY:

DATE: 7.10.03

PAGE: 1 OF 6

SCALE: N/A

PIN CONFIGURATION CN1

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FLM	-	FIRST LINE MARKER
2	CL1	H/L	INPUT DATA LATCH SIGNAL (LOAD)
3	CL2	H/L	DATA SHIFT CLOCK (CP)
4	DISPOFF	-	DISPLAY CONTROL SIGNAL H:ON, L:OFF
5	VDD	-	LOGIC SUPPLY VOLTAGE
6	VSS	-	GND
7	VLCD	-	POWER SUPPLY FOR LCD DRIVER
8	D0	H/L	DISPLAY DATA
9	D1	H/L	DISPLAY DATA
10	D2	H/L	DISPLAY DATA
11	D3	H/L	DISPLAY DATA
12	D4	H/L	DISPLAY DATA
13	D5	H/L	DISPLAY DATA
14	D6	H/L	DISPLAY DATA
15	D7	H/L	DISPLAY DATA
16	VSS	-	GND

INPUT DATA ALLOCATION TABLE

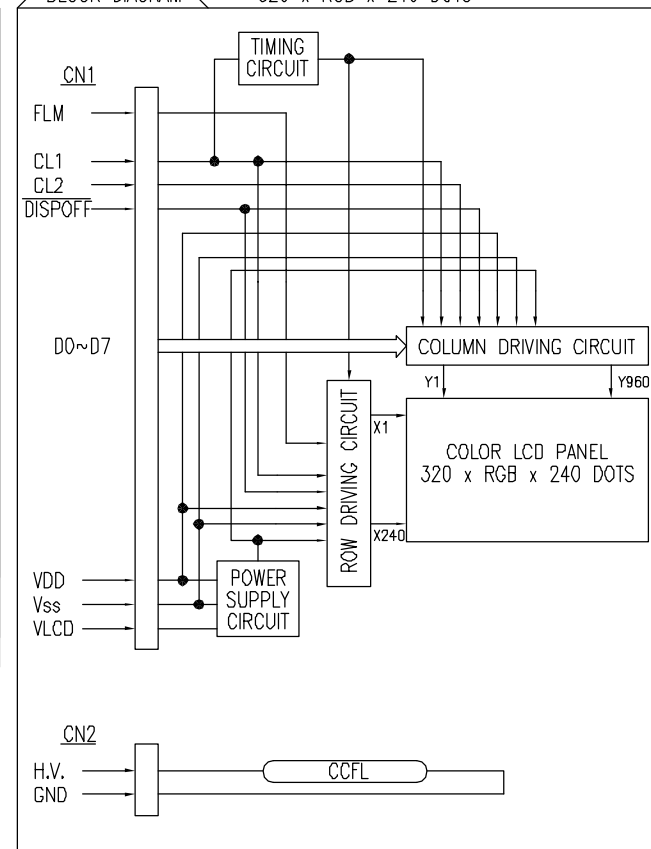
DATA SIGNAL	D7	D6	D5	D4	D3	D2	D1	D0	D7	D6	D5	D4	D3	D2	D1	D0
Y	1	2	3	4	5	6	7	8	9	10	11	12	9	9	9	9
X	1	2	3	4	5	6	7	8	9	10	11	12	5	5	5	5
													6	7	8	9
1	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
2	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
3	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
4	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
5	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
6	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
7	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
8	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
9	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
10	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
238	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
239	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G
240	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G

R: RED G: GREEN B: BLUE

PIN CONFIGURATION CN2

PIN NO.	SYMBOL	FUNCTION
1	H.V.	POWER SUPPLY VOLTAGE FOR CCFL
2	-	-
3	-	-
4	GND	CCFL GND

BLOCK DIAGRAM 320 x RGB x 240 DOTS



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ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LOGIC	V _{DD}	V _{DD} - V _{SS}	3.15	3.3	3.45	V
RECOMMENDED MODULE DRIVING VOLTAGE	V _{LCD}	T _A =0°C	1.2	—	—	V
		T _A =25°C	1.5	2.0	2.5	V
		T _A =50°C	—	—	2.8	V
INPUT LEAKAGE CURRENT	I _{LCD}	V _{CON} =1.5~2.5V	—	0.5	1.0	mA
	I _{IN}	V _{IN} =V _{DD} OR V _{SS}	—	—	±1.0	μA
INPUT SIGNAL VOLTAGE (NOTE 1)	V _{IH}	"H" LEVEL	0.8V _{DD}	—	V _{DD}	V
	V _{IL}	"L" LEVEL	0	—	0.2V _{DD}	
POWER SUPPLY CURRENT	I _{DD}	V _{DD} =3.3V	—	45	100	mA
FRAME FREQUENCY (NOTE 2)	f _{FLM}	—	60	70	80	Hz
CCFL BACKLIGHT	STARTING VOLTAGE	V _S	T _a =5°C	850	—	V _{rms}
	LAMP VOLTAGE	V _L	T _a =25°C	—	325	V _{rms}
	FREQUENCY	f _L	T _a =25°C	40	60	KHz
	LAMP CURRENT	I _L	T _a =25°C	5.0	5.5	mA _{rms}
	BRIGHTNESS	—	—	150	—	cd/m ²
	LIFE HOURS	—	—	10000	20000	HOURS

CAUTION:

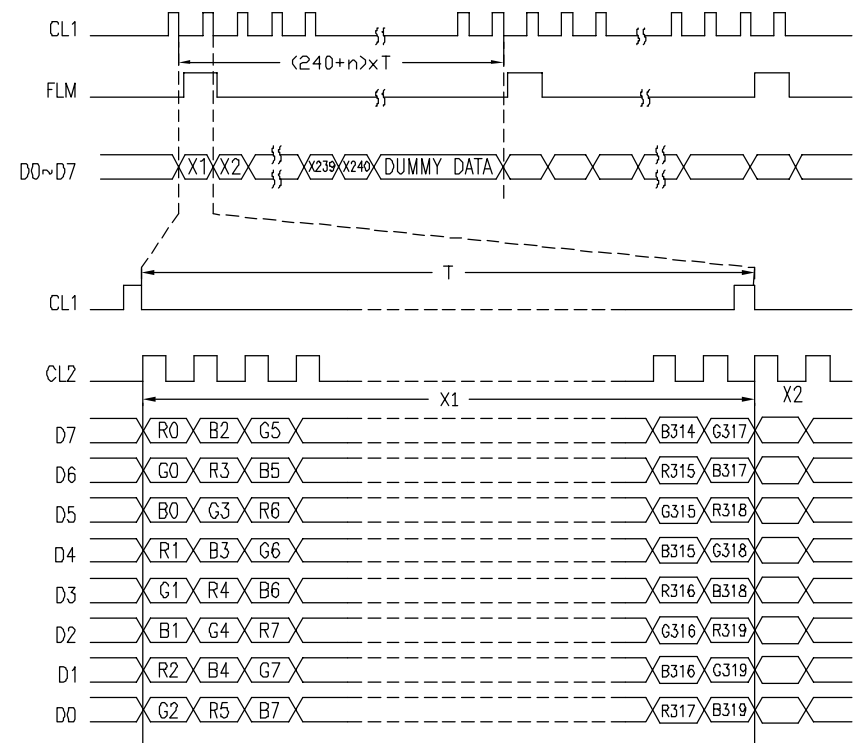
1. FLM, CL1, CL2, DISPOFF, D0~D7.
2. MAKE SURE THAT THERE IS NO FLICKER AND RIPPLE PHENOMENON WHEN SETTING THE FRAME FREQUENCY.
3. STARTING DISCHARGE VOLTAGE IS INCREASED WHEN LCM IS OPERATING AT LOW TEMPERATURES.
4. AVERAGE LIFE TIME OF CCFL WILL BE DECREASED WHEN LCM IS OPERATED AT LOW TEMPERATURES.

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	V _{DD} -V _{SS}	T _a =25°C	-0.3	7.0	V
POWER SUPPLY FOR LCD DRIVER	V _{LCD} -V _{SS}	T _a =25°C	0	V _{DD}	V
INPUT VOLTAGE	V _I	T _a =25°C	-0.3	V _{DD} +0.3	V
OPERATING TEMPERATURE*	T _{opr}	—	0	+50	°C
STORAGE TEMPERATURE	T _{stg}	—	-20	+60	°C

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INTERFACE TIMING CHART



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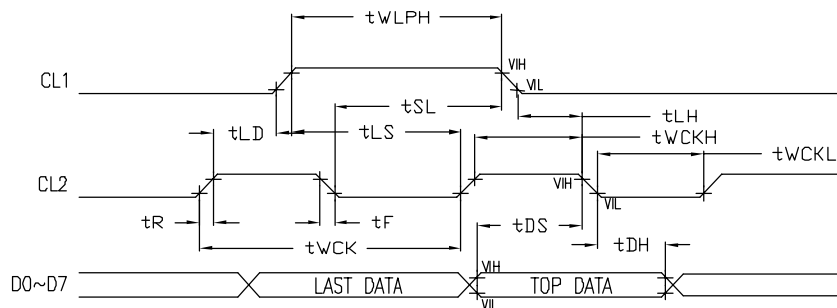
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PAGE: 3 OF 6

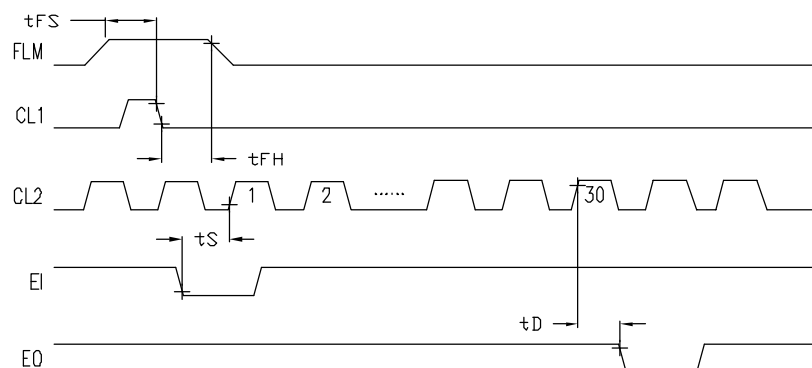
SCALE: N/A

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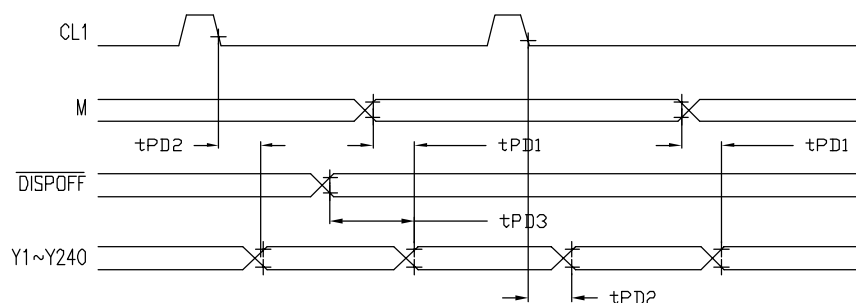
INPUT TIMING CHARACTERISTIC



INPUT/OUTPUT TIMING CHARACTERISTIC



INPUT/OUTPUT TIMING CHARACTERISTIC



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

DATE

SEE PAGE 1.

AC CHARACTERISTICS

(VDD = 3.0~4.5V, VSS = 0V, Ta = 0°C~+50°C)

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SHIFT CLOCK PERIOD	t _{WCK}	—	66	—	—	ns
SHIFT CLOCK "H" PULSE WIDTH	t _{WCKH}	—	23	—	—	ns
SHIFT CLOCK "L" PULSE WIDTH	t _{WCKL}	—	23	—	—	ns
DATA SETUP TIME	t _{DS}	—	10	—	—	ns
DATA HOLD TIME	t _{DH}	—	25	—	—	ns
LATCH PULSE "H" PULSE WIDTH	t _{WLPH}	—	30	—	—	ns
SHIFT CLOCK RISE TO LATCH PULSE RISE TIME	t _{LD}	—	10	—	—	ns
SHIFT CLOCK FALL TO LATCH PULSE FALL TIME	t _{SL}	—	30	—	—	ns
LATCH PULSE RISE TO SHIFT CLOCK RISE TIME	t _{LS}	—	30	—	—	ns
LATCH PULSE FALL TO SHIFT CLOCK FALL TIME	t _{LH}	—	30	—	—	ns
ENABLE SETUP TIME	t _S	—	12	—	—	ns
INPUT SIGNAL RISE TIME	t _R	—	—	—	50	ns
INPUT SIGNAL FALL TIME	t _F	—	—	—	50	ns
OUTPUT DELAY TIME(1)	t _D	—	—	—	44	ns
OUTPUT DELAY TIME(2)	t _{PD1}	—	—	—	1.2	ns
OUTPUT DELAY TIME(3)	t _{PD2}	—	—	—	1.2	ns
OUTPUT DELAY TIME(4)	t _{PD3}	—	—	—	1.2	ns
FLM SETUP TIME	t _{FS}	—	30	—	—	ns
FLM HOLD TIME	t _{FH}	—	50	—	—	ns

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PART NUMBER

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5.7" COLOR STN, 320 x 240 GRAPHIC MODULE,
NEGATIVE, TRANSMISSIVE, CCFL BACKLIGHT, 1/242 DUTY,
6:00 VIEW ANGLE, WEIGHT: 200g.

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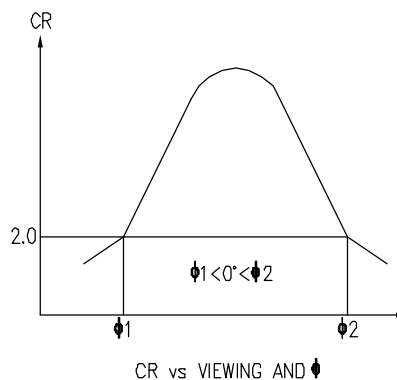
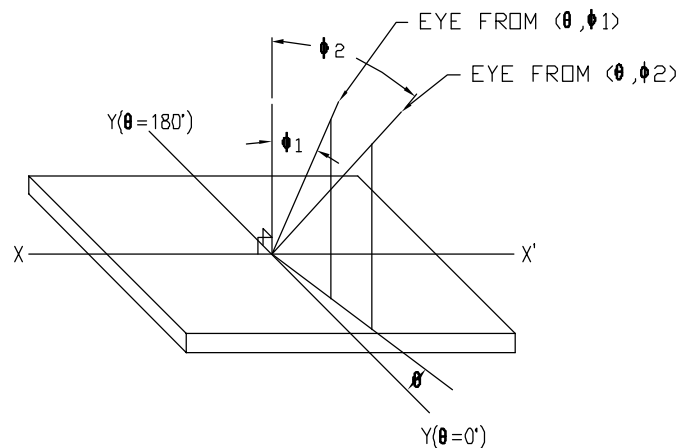
PAGE: 4 OF 6

SCALE: N/A

OPTICAL CHARACTERISTICS			T _a =25°C (BACKLIGHT ON)					
ITEM		SYMBOL	CONDITION	STANDARD VALUE			UNIT	
				MIN.	TYP.	MAX.		
VIEWING ANGLE RANGE		φ1,φ2	θ=0° CR≥2	—	40	—	DEG.	
CONTRAST RATIO		CR	θ=0°, φ=0°	—	40	—	—	
CHROMATICITY COORDINATES		R	X	θ = 0°, φ = 0°	0.44	0.49	0.54	—
			Y		0.30	0.35	0.40	—
		G	X		0.28	0.33	0.38	—
			Y		0.44	0.49	0.54	—
		B	X		0.15	0.20	0.25	—
			Y		0.16	0.21	0.26	—
		W	X		0.27	0.32	0.37	—
			Y		0.30	0.35	0.40	—
RESPONSE TIME	RISE: NOTE 1	T _r	—	250	—	ms		
	FALL: NOTE 2	T _f	—	200	—			

NOTES:

1. THE TIME THAT THE LUMINANCE LEVEL REACHES 90% OF FULL BRIGHTNESS LEVEL FROM 0% WHEN "ON" SIGNAL IS APPLIED.
2. THE TIME THAT THE LUMINANCE LEVEL REACHES 10% OF FULL BRIGHTNESS LEVEL FROM 100% WHEN "OFF" SIGNAL IS APPLIED.



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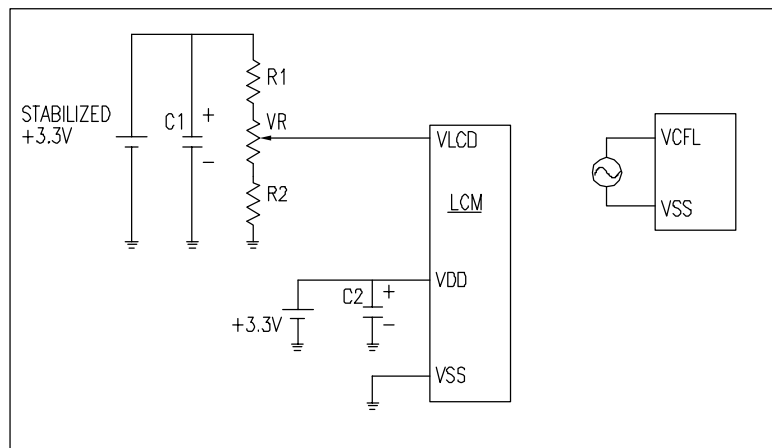
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PAGE: 5 OF 6

SCALE: N/A

POWER SUPPLY FOR LCM

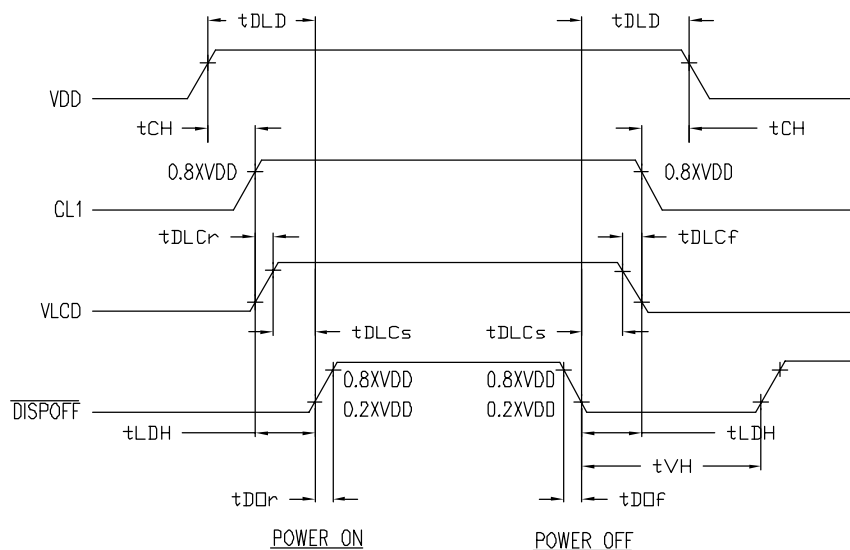


POWER SUPPLY SEQUENCE

SYMBOL	MIN.	MAX.	UNIT
t_{DLD}	200	—	ms
t_{CH}	0	—	ms
t_{LDH}	20	—	ms
t_{DOr}	—	100	ns
t_{DOF}	—	100	ns
t_{DLCr}	0	—	ms
t_{DLCf}	0	—	ms
t_{DLCs}	20	—	ms
t_{VH}	200	—	ms

WARNING:

1. POWER ON/OFF SHOULD BE PERFORMED USING DISPOFF FUNCTION.
2. INCORRECT POWER SUPPLY SIGNAL SEQUENCE MAY CAUSE PERMANENT DAMAGE TO THE LCD.



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