

UNCONTROLLED DOCUMENT

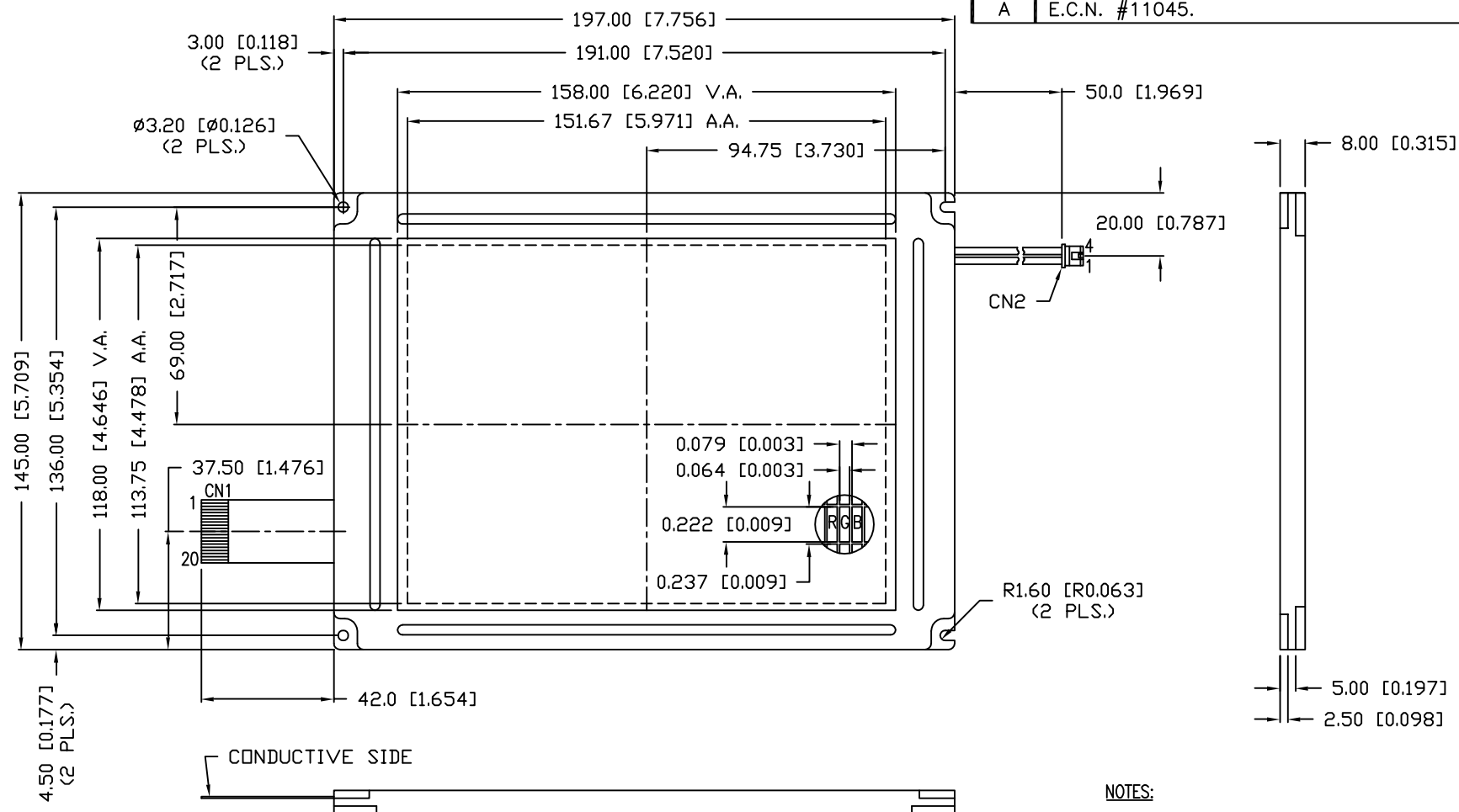
PART NUMBER

REV.

LCM-S640480GCN-75

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REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #11045.	10.23.03



NOTES:

1. CN1: FPC PITCH 1.0mm. RECOMMENDED CONNECTOR: MOLEX# 52271-2090.
2. CN2: MITSUMI: M63-M83-04 PIN 1: +V, PIN 4: GND.

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7.5" COLOR STN, 640 x 480 GRAPHIC MODULE, NEGATIVE, TRANSMISSIVE, 6:00 VIEW, 1/484 DUTY, CCFL BACKLIGHT, WEIGHT: 240g.			DRAWN BY: CT CHECKED BY: APPROVED BY:	DATE: 1.21.03 PAGE: 1 OF 5 SCALE: N/A

PIN CONFIGURATION CN1

PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FLM	H/L	SCAN START-UP SIGNAL
2	Vss	-	GND
3	CL1	H/L	INPUT DATA LATCH SIGNAL
4	Vss	-	GND
5	CL2	H/L	DATA SHIFT CLOCK SIGNAL
6	Vss	-	GND
7	D0	H/L	DISPLAY DATA
8	D1	H/L	DISPLAY DATA
9	D2	H/L	DISPLAY DATA
10	D3	H/L	DISPLAY DATA
11	D4	H/L	DISPLAY DATA
12	D5	H/L	DISPLAY DATA
13	D6	H/L	DISPLAY DATA
14	D7	H/L	DISPLAY DATA
15	DISPOFF	H/L	DISPLAY CONTROL SIGNAL H: ON, L: OFF
16	VDD	-	LOGIC SUPPLY VOLTAGE
17	VDD	-	LOGIC SUPPLY VOLTAGE
18	VSS	-	GND
19	VLCD	-	POWER SUPPLY FOR LCD
20	Vss	-	GND

INPUT DATA ALLOCATION TABLE

DATA SIGNAL	D7	D6	D5	D4	D3	D2	D1	D0	D7	D6	D5	D4		D4	D3	D2	D1	D0
Y	1	2	3	4	5	6	7	8	9	10	11	12	---	9	9	9	9	9
X														1	1	1	1	1
														1	1	1	1	2
1	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
2	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
3	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
4	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
5	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
6	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
7	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
8	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
9	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
10	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
478	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
479	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B
480	R	G	B	R	G	B	R	G	B	R	G	B		G	B	R	G	B

R: RED
G: GREEN
B: BLUE

PIN CONFIGURATION CN2

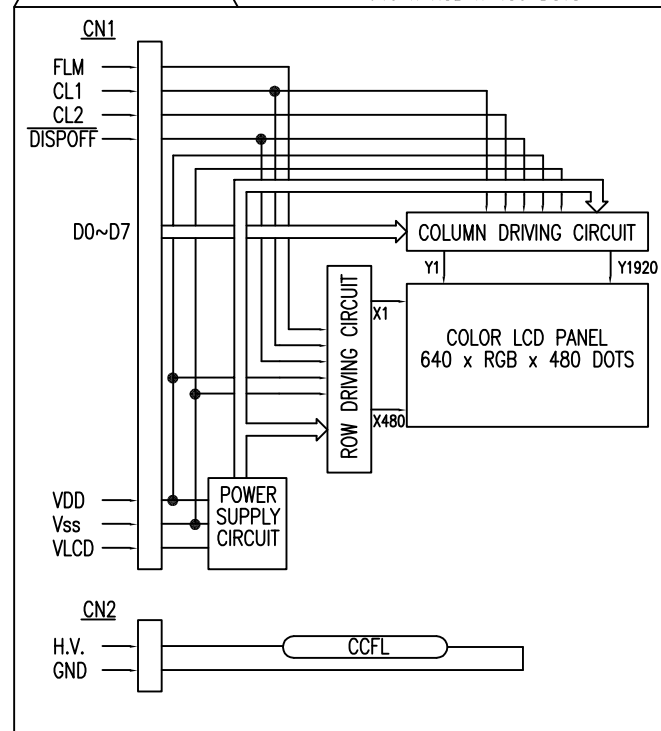
PIN NO.	SYMBOL	FUNCTION
1	H.V.	POWER SUPPLY VOLTAGE FOR CCFL
2	NC	
3	NC	
4	GND	CCFL GND

NOTES:

CN2: M63-M83-04 (MITSUMI)
RECOMMENDED CONNECTORS:
M61-M73-04 (MITSUMI) (INTER CONNECTOR TYPE)
M60-04-30-114P (MITSUMI) (STRAIGHT TYPE)
M60-04-30-134P (MITSUMI) (ANGLE TYPE)

BLOCK DIAGRAM

640 x RGB x 480 DOTS



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7.5" COLOR STN, 640 x 480 GRAPHIC MODULE,
NEGATIVE, TRANSMISSIVE, 6:00 VIEW,
1/484 DUTY, CCFL BACKLIGHT, WEIGHT: 240g.

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RELIABILITY NOTE

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APPROVED BY:

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PAGE: 2 OF 5

SCALE: N/A

ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	-	3.15	3.3	3.45	V
CONTRAST ADJUST VOLTAGE	$V_{LCD}-V_{SS}$	$T_a=5^{\circ}\text{C}$	-	-	40	V
		$T_a=25^{\circ}\text{C}$	35.1	36.6	38.1	
		$T_a=40^{\circ}\text{C}$	32	-	-	
INPUT SIGNAL VOLTAGE	V_{IH}	"H" LEVEL	$0.8V_{DD}$	-	V_{DD}	V
	V_{IL}	"L" LEVEL	0	-	$0.2V_{DD}$	
POWER SUPPLY CURRENT (LOGIC)	I_{DD}	$V_{DD}=3.3\text{V}$	-	14	30	mA
POWER SUPPLY CURRENT (LCD)	V_{DD}	$V_{DD}=3.3\text{V}$	-	21	50	mA
FRAME FREQUENCY (NOTE 2)	f_{FLM}	-	-	100	120	Hz
CONTRAST RATIO	CR	-	-	30	-	-
CCFL BACKLIGHT	STARTING VOLTAGE	V_S	$T_a=5^{\circ}\text{C}$	850	-	V_{rms}
	LAMP VOLTAGE	V_L	$T_a=25^{\circ}\text{C}$	-	443	V_{rms}
	FREQUENCY	f_L	$T_a=25^{\circ}\text{C}$	40	60	KHz
	LAMP CURRENT	I_L	$T_a=25^{\circ}\text{C}$	3.5	4.0	mA_{rms}
	BRIGHTNESS	-	-	150	-	cd/m^2

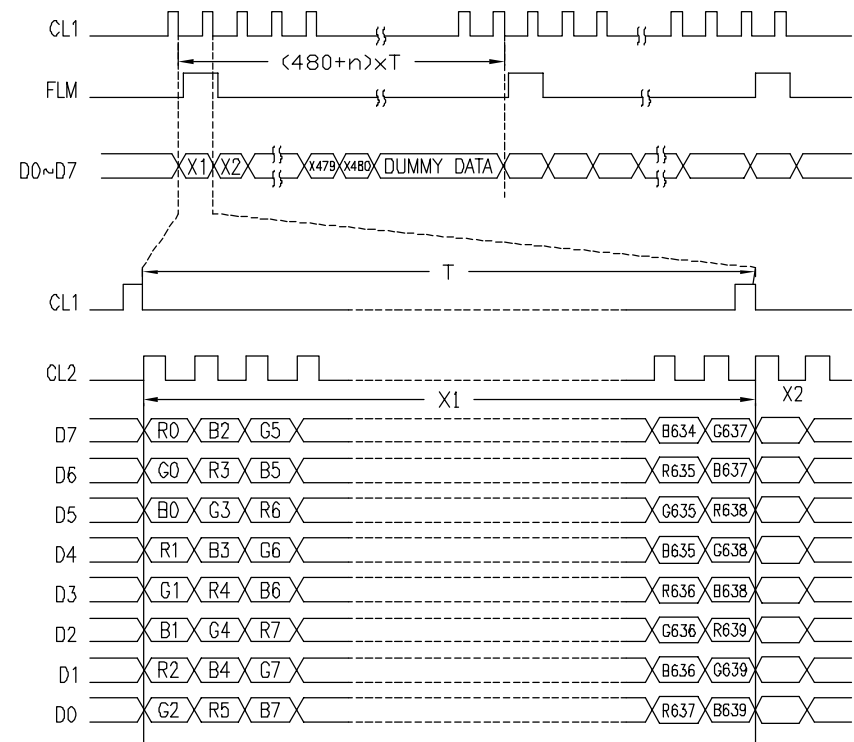
NOTES:

1. IN PROPORTION AS THE VLCD VOLTAGE DECREASES THE BRIGHTNESS WILL INCREASE.
2. MAKE SURE THAT THERE IS NO FLICKER AND RIPPLE PHENOMENON WHEN SETTING THE FRAME FREQUENCY.

ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	TEST CONDITION	STANDARD VALUE		UNIT
			MIN	MAX	
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	$T_a=25^{\circ}\text{C}$	-0.3	7.0	V
SUPPLY VOLTAGE FOR CONTRAST	$V_{LCD}-V_{SS}$	$T_a=25^{\circ}\text{C}$	0	42	V
INPUT VOLTAGE	V_I	$T_a=25^{\circ}\text{C}$	$V_{SS}-0.3$	$V_{DD}+0.3$	V
OPERATING TEMPERATURE	T_{opr}	-	0	+50	$^{\circ}\text{C}$
STORAGE TEMPERATURE	T_{stg}	-	-20	+70	$^{\circ}\text{C}$

INTERFACE TIMING CHART



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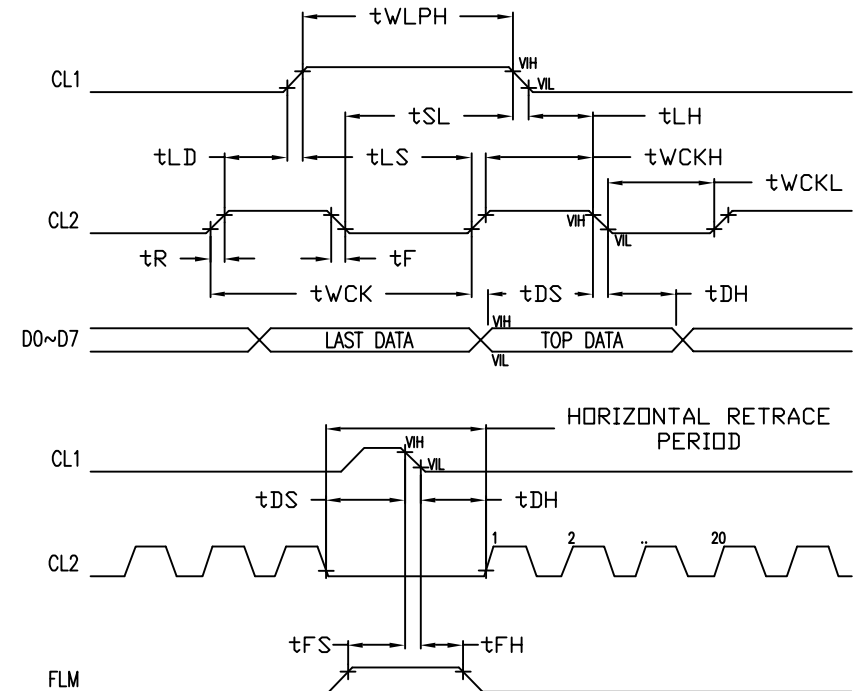
PAGE: 3 OF 5

SCALE: N/A

AC CHARACTERISTICS

(VDD = 3.0~4.5V, VLCD = +10.0~42.0V, Ta = 0°C~40°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_{TS}	-	12	-	-	ns
INPUT SIGNAL RISE TIME	t_R	-	-	-	50	ns
INPUT SIGNAL FALL TIME	t_F	-	-	-	50	ns
OUTPUT DELAY	t_D	-	-	-	44	ns
FLM SETUP TIME	t_{FS}	-	30	-	-	ns
FLM HOLD TIME	t_{FH}	-	50	-	-	ns



NOTE:

1. VIH: 0.8xVDD.
2. VIL: 0.2xVDD.

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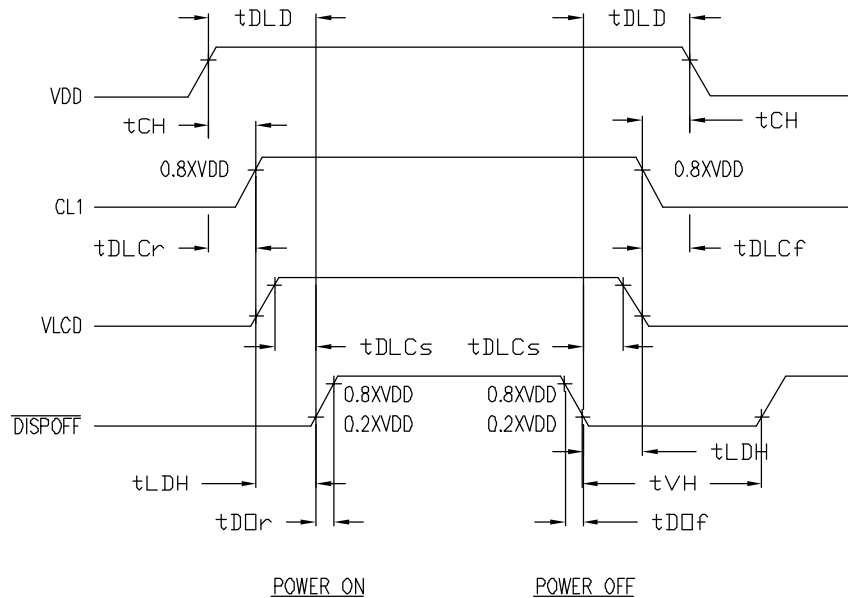
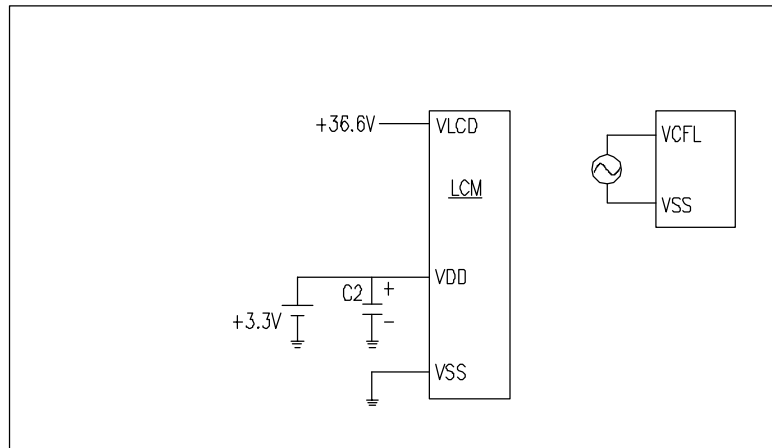
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POWER SUPPLY FOR LCM



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OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
CONTRAST RATIO	CR	$\Phi = 0^\circ$	-	30	-	-
CHROMATICITY COORDINATES	R	X	-	0.49	-	-
		Y	-	0.35	-	-
	G	X	-	0.33	-	-
		Y	-	0.49	-	-
	B	X	-	0.20	-	-
		Y	-	0.21	-	-
	W	X	-	0.32	-	-
		Y	-	0.35	-	-
RESPONSE TIME	RISE: NOTE 1	T_r	-	340	-	ms
	FALL: NOTE 2	T_f	-	100	-	

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.

POWER SUPPLY SEQUENCE

SYMBOL	MIN.	MAX.	UNIT
t_{DLd}	200	-	ms
t_{CH}	0	-	ms
t_{LDH}	20	-	ms
t_{DOr}	-	100	ms
t_{DOf}	-	100	ms
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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