

UNCONTROLLED DOCUMENT

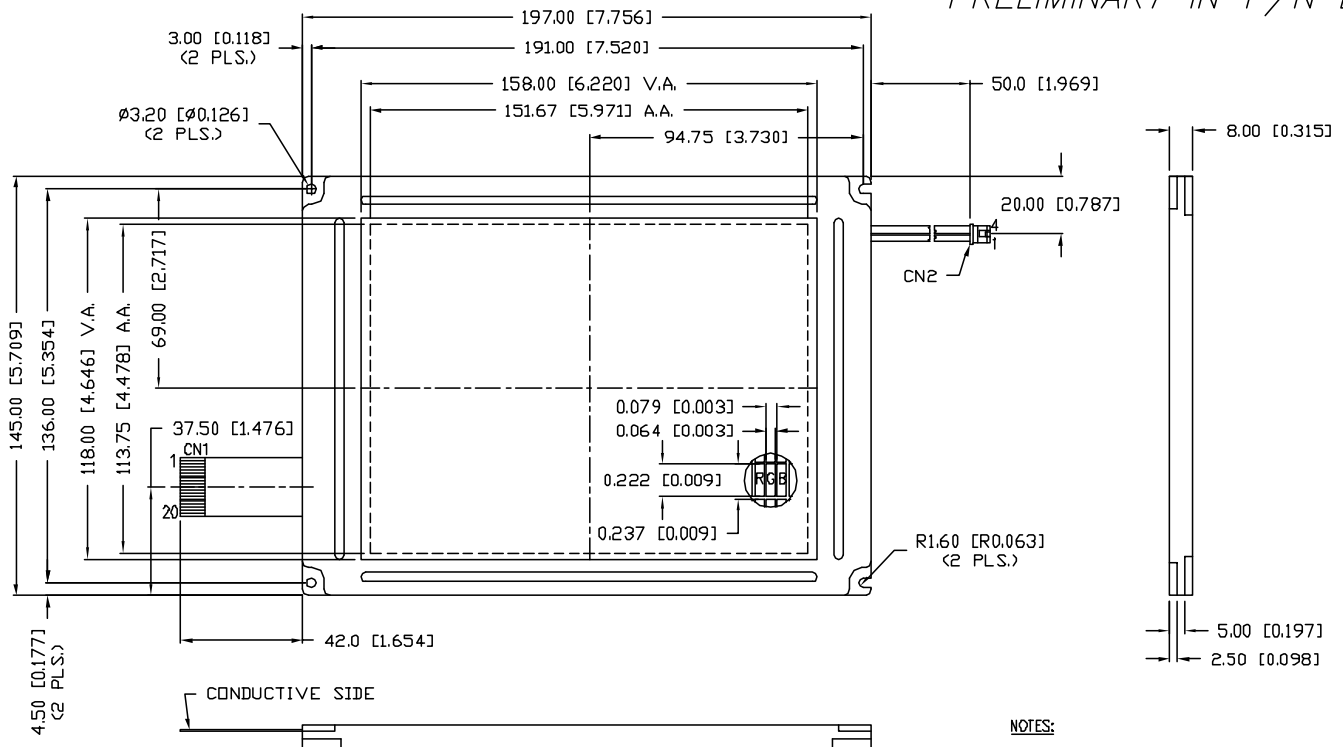
SC:2

PART NUMBER

REV.

LCM-S640480GCN-75

PRELIMINARY IN P/N DIR



NOTES:

- CN1: FPC PITCH 1.0mm. RECOMMENDED
CONNECTOR: MOLEX# 52271-2090.
- CN2: MITSUMI: M63-MB3-04 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.

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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PIN CONFIGURATION CN1			
PIN NO.	SYMBOL	LEVEL	FUNCTION
1	FLM	H/L	SCAN START-UP SIGNAL
2	V _{SS}	-	GND
3	CL1	H/L	INPUT DATA LATCH SIGNAL
4	V _{SS}	-	GND
5	CL2	H/L	DATA SHIFT CLOCK SIGNAL
6	V _{SS}	-	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

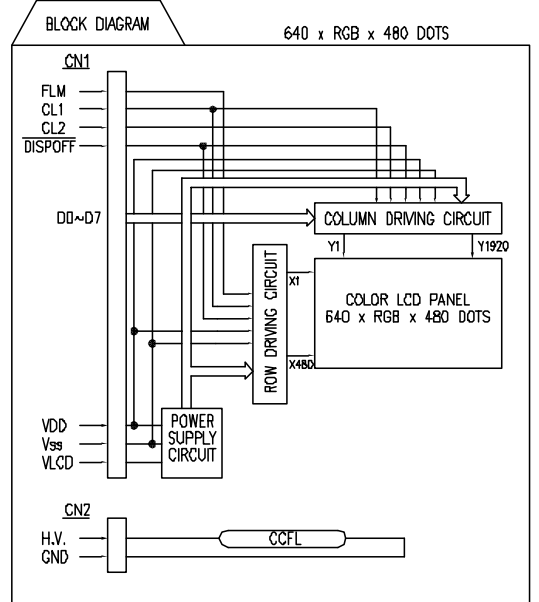
INPUT DATA ALLOCATION TABLE																				
DATA SIGNAL	D7	D6	D5	D4	D3	D2	D1	D0	D7	D6	D5	D4	D3	D2	D1	D0	D3	D2	D1	D0
Y	1	2	3	4	5	6	7	8	9	10	11	12	9	9	9	9	9	9	9	9
X	1	2	3	4	5	6	7	8	9	10	11	12	6	7	8	9	0	0	0	0
1	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
2	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
3	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
4	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
5	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
6	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
7	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
8	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
9	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
10	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
478	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
479	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B
480	R	G	B	R	G	B	R	G	B	R	G	B	G	B	R	G	B	R	G	B

R: RED
G: GREEN
B: BLUE

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)

PIN CONFIGURATION CN2		
PIN NO.	SYMBOL	FUNCTION
1	H.V.	POWER SUPPLY VOLTAGE FOR CCFL
2	NC	
3	NC	
4	GND	CCFL GND



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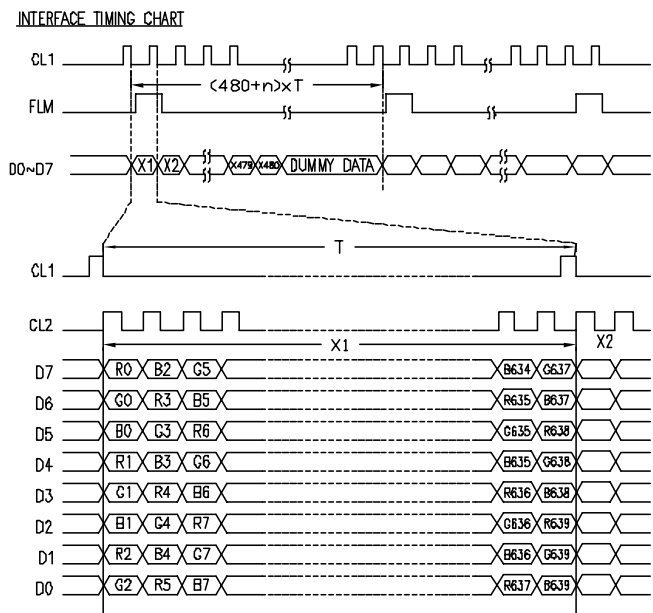
ELECTRICAL CHARACTERISTICS							
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
SUPPLY VOLTAGE FOR LOGIC	$V_{DD}-V_{SS}$	-	3.15	3.3	3.45	V	
CONTRAST ADJUST VOLTAGE	$V_{LCD}-V_{SS}$	Ta=5°C	-	-	40	V	
		Ta=25°C	35.1	36.6	38.1		
		Ta=40°C	32	-	-		
INPUT SIGNAL VOLTAGE	V_{IH}	"H" LEVEL	0.8V _{DD}	-	V _{DD}	V	
	V_{IL}	"L" LEVEL	0	-	0.2V _{DD}		
POWER SUPPLY CURRENT (LOGIC)	I _{DD}	V _{DD} =3.3V	-	10	30	mA	
POWER SUPPLY CURRENT (LCD)	V _{DD}	V _{DD} =3.3V	-	15	50	mA	
FRAME FREQUENCY (NOTE 2)	f _{FLM}	-	-	100	120	Hz	
CONTRAST RATIO	CR	-	-	30	-	-	
CCFL BACKLIGHT	STARTING VOLTAGE	VS	Ta=5°C	-	850	V _{rms}	
	LAMP VOLTAGE	VL	Ta=25°C	-	443	V _{rms}	
	FREQUENCY	fL	Ta=25°C	40	60	80	KHz
	LAMP CURRENT	IL	Ta=25°C	2.5	4.0	4.5	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	$V_{DD}-V_{SS}$	Ta=25°C	-0.3	7.0	V
SUPPLY VOLTAGE FOR CONTRAST	$V_{LCD}-V_{SS}$	Ta=25°C	0	42	V
INPUT VOLTAGE	V_i	Ta=25°C	$V_{SS}-0.3$	$V_{DD}+0.3$	V
OPERATING TEMPERATURE*	T _{opr}	-	0	+50	°C
STORAGE TEMPERATURE	T _{stg}	-	-20	+70	°C

*ALSO AVAILABLE IN WIDE OPERATING TEMPERATURE: -20°C TO +70°C



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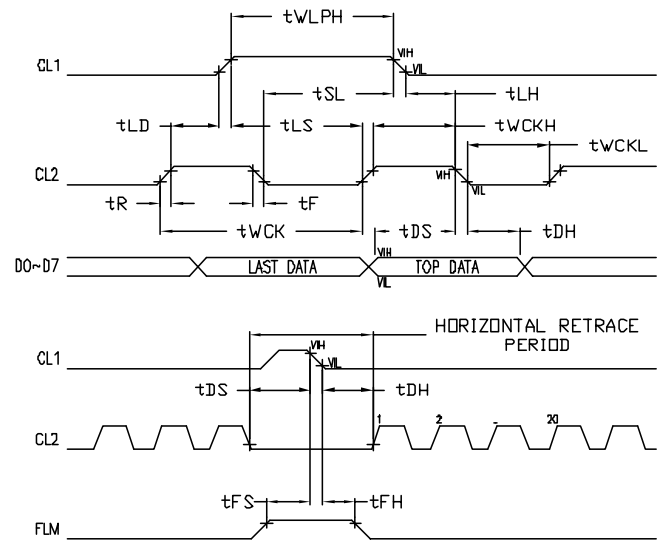
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PRELIMINARY IN P/N DIR

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. VH: 0.8xVDD.
- 2. VL: 0.2xVDD.

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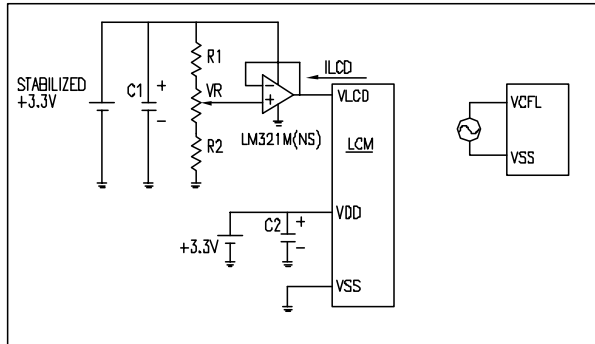
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POWER SUPPLY FOR LCM



PRELIMINARY IN P/N DIR

OPTICAL CHARACTERISTICS							
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT	
			MIN.	TYP.	MAX.		
CONTRAST RATIO	CR	$\theta = 0^\circ$	-	30	-	-	
CHROMATICITY COORDINATES	R	X	-	0.49	-	-	
		Y	-	0.35	-	-	
	G	X	-	0.33	-	-	
		Y	-	0.49	-	-	
	B	X	$\theta = 0^\circ, \theta = 0^\circ$	-	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:

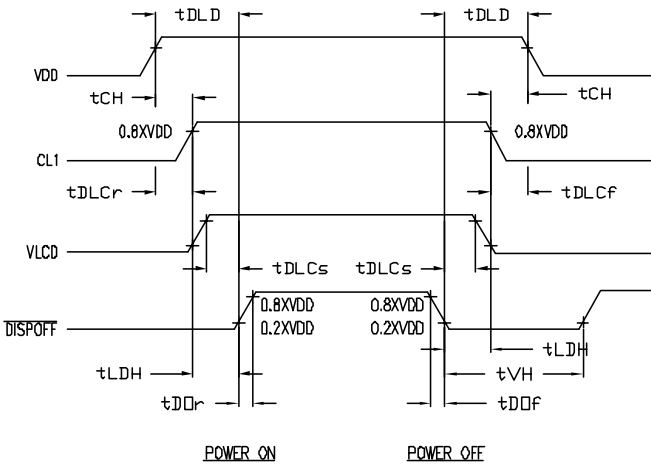
1. THE TIME THAT THE LUMINANCE LEVEL REACHES 90% OF FULL BRIGHTNESS LEVEL FROM 0% WHEN "ON" SIGNAL IS APPLIED.
2. THE TIME THAT THE LUMINANCE LEVEL REACHES 10% OF FULL BRIGHTNESS LEVEL FROM 100% WHEN "OFF" SIGNAL IS APPLIED.

POWER SUPPLY SEQUENCE

SYMBOL	MIN.	MAX.	UNIT
$t_{DL D}$	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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