

H91-658

HITACHI

LMG740X Family

Features

- 240 dot (W) x 128 dot (H) graphic and alphanumeric display
- Controller HD61830B built-in
- CFL backlit built-in
- Fast response LCD
- Anti-glare polariser
- Suitable backlight inverter: INVC132
- Colour tone: LMG7400PLFC - black & white transmissive
LMG7401PLBC - blue & white transmissive
LMG7402PLFF - black on grey transfective

Mechanical Data (Nominal Dimensions)

Module size	159W x 101H x 11D mm (max)
Effective display area	126W x 71H mm
Dot size	0.47W x 0.47H mm
Dot pitch	0.5W x 0.5H mm
Viewing direction	6 o'clock
Weight	about 200g
Duty	1 / 128

Figure 1 - IF 1

Pin No.	Symbol	Function
A1	VSS (0V)	Ground
A2	VDD (+5V)	Power supply for logic
A3	V0	Power supply for LCD drive
A4	RS	Register select
A5	R / W	Read / write
A6	E	Enable
A7 - A14	DB0 - DB7	Data bus
A15	\overline{CS}	Chip select
A16	\overline{RES}	Reset
A17	VEE (-15V)	Power supply for LCD drive
A18	DISP ON	VDD / display on GND / off

Figure 2 - IF 2

Pin No.	Symbol	Function
1	GND	CFL ground
2	NC	-
3	NC	-
4	HV	Power supply for CFL

Figure 3 - Power

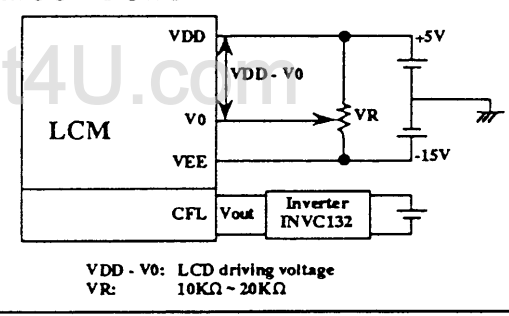


Figure 4 - Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit	
Logic circuit power supply voltage	VDD - VSS	-	4.75	5	5.25	V	
LC driver circuit power supply voltage	VEE - VSS	-	-14.5	-15	-15.5	V	
Input voltage	VI	H Level	0.8VDD	-	VDD	V	
		L Level	0	-	0.2VDD	V	
Power supply current (Note 1)	IDD	VDD - VSS = 5.0V VDD - V0 = 15.8V	-	6	-	mA	
	IEE	VDD - VSS = 5.0V VDD - V0 = 15.8V	-	4	-	mA	
Recommended LC driving voltage (Note 2)	VDD - V0	1 / 128 Duty φ = 10%	Ta = 0°C	-	16.9	-	V
			Ta = 25°C	-	15.8	-	V
			Ta = 40°C	-	15.4	-	V
Frame frequency	fFLM	-	-	75	-	Hz	
CFL lamp voltage	VCFL	Ta = 25°C	-	360	-	Vrms	
CFL lamp frequency	FCFL	Ta = 25°C	30	70	85	KHz	
CFL lamp current	ICFL	Ta = 25°C	2.5	5	5.5	mA rms	
CFL starting discharge voltage	VS	Ta = 25°C (Note 4)	1,000	-	-	Vrms	

- Note 1: fFLM = 75.0Hz VDD - V0 = 15.8V D = GND (VSS)
 Note 2: Recommended LC driving voltage may fluctuate about ±0.5V by each module
 Note 3: Recommended CFL inverter: Hitachi type INVC132
 Note 4: Starting discharge voltage is increased when LCM is operating at lower temperatures
 Note 5: Average life of CFL will be decreased when operated at lower temperatures

Figure 5 - Block Diagram

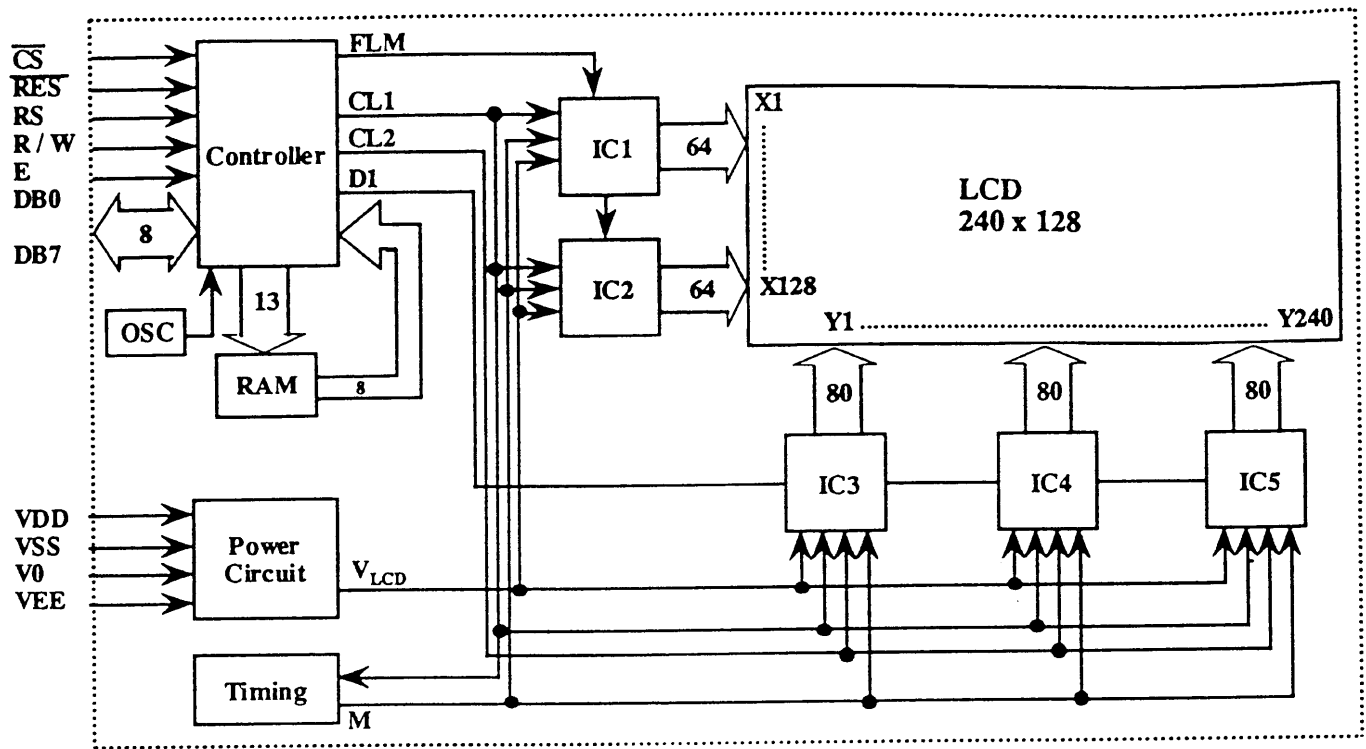


Figure 6 - Interface

Item	Symbol	Min	Typ	Max	Unit
Enable Cycle Time	tCYC	1	-	-	μs
Enable Pulse Width	H Level	tWEH	0.45	-	μs
	L Level	tWEL	0.45	-	μs
Enable Rise Time	tEr	-	-	25	ns
Enable Fall Time	tEf	-	-	25	ns
CS, R/W, RS Set Up Time	tAS	140	-	-	ns
Data Set Up Time	tDIS	225	-	-	ns
Data Delay Time	tDD	-	-	225	ns
Data Hold Time	tH	10	-	-	ns
CS, R/W, RS --> Hold Time	tAH	10	-	-	ns
Data Hold Time	tDH	20	-	-	ns

Figure 7 - Interface Timing (MPU <--> LMG)

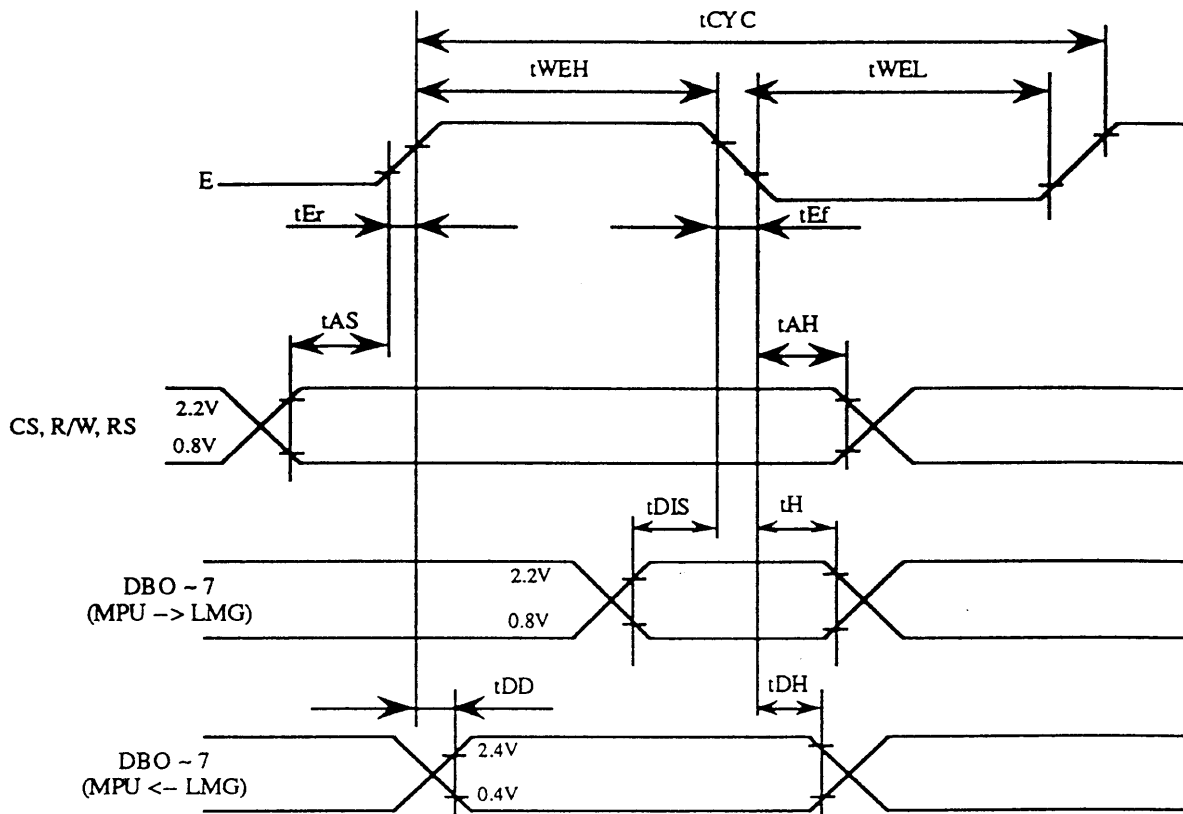


Figure 8 - External Dimensions

