

# LCG-160A36, LCD Graphic Module 160 x 36



## ■ FEATURES

- ◆ RECOMMENDED CONTROLLER
- ◆ (HD64646/MSM6225/SED1335)
- ◆ +5 V POWER SUPPLY
- ◆ 1/36 DUTY CYCLE
- ◆ EDGE LIGHTING TYPE LED BACKLIGHT

## ■ MECHANICAL DATA

ITEM	DIMENSIONS	UNIT
Module Size (W x H x T)	180.0 x 65.0 x 9.7 ( 13.8 LED )	mm
Viewing Area ( W x H )	134.0 x 40.4	mm
Active Area ( W x H )	127.96 x 33.88	mm
Dot Size ( W x H )	0.76 x 1.02	mm
Dot Pitch ( W x H )	0.80 x 1.06	mm

## ■ INTERFACE PIN CONNECTIONS

NO.	SYMBOL	LEVEL	FUNCTION
1	V <sub>SS</sub>	0V	Power Supply Ground
2	V <sub>DD</sub>	5V	Power Supply Voltage
3	V <sub>o</sub>	-	Contrast Adjustment Voltage
4	FLM	H	Frame Start Signal
5	CL1	H→L	Common Driver Data Shift Signal
6	CL2	H→L	Clock Pulse For Segment Shift Register
7	M	H/L	Control Signal For AC Driving
8	DB0	H/L	Data Bit0
9	DB1	H/L	Data Bit1
10	DB2	H/L	Data Bit2
11	DB3	H/L	Data Bit3
12	V <sub>EE</sub>	-	Power Supply Voltage For LCD

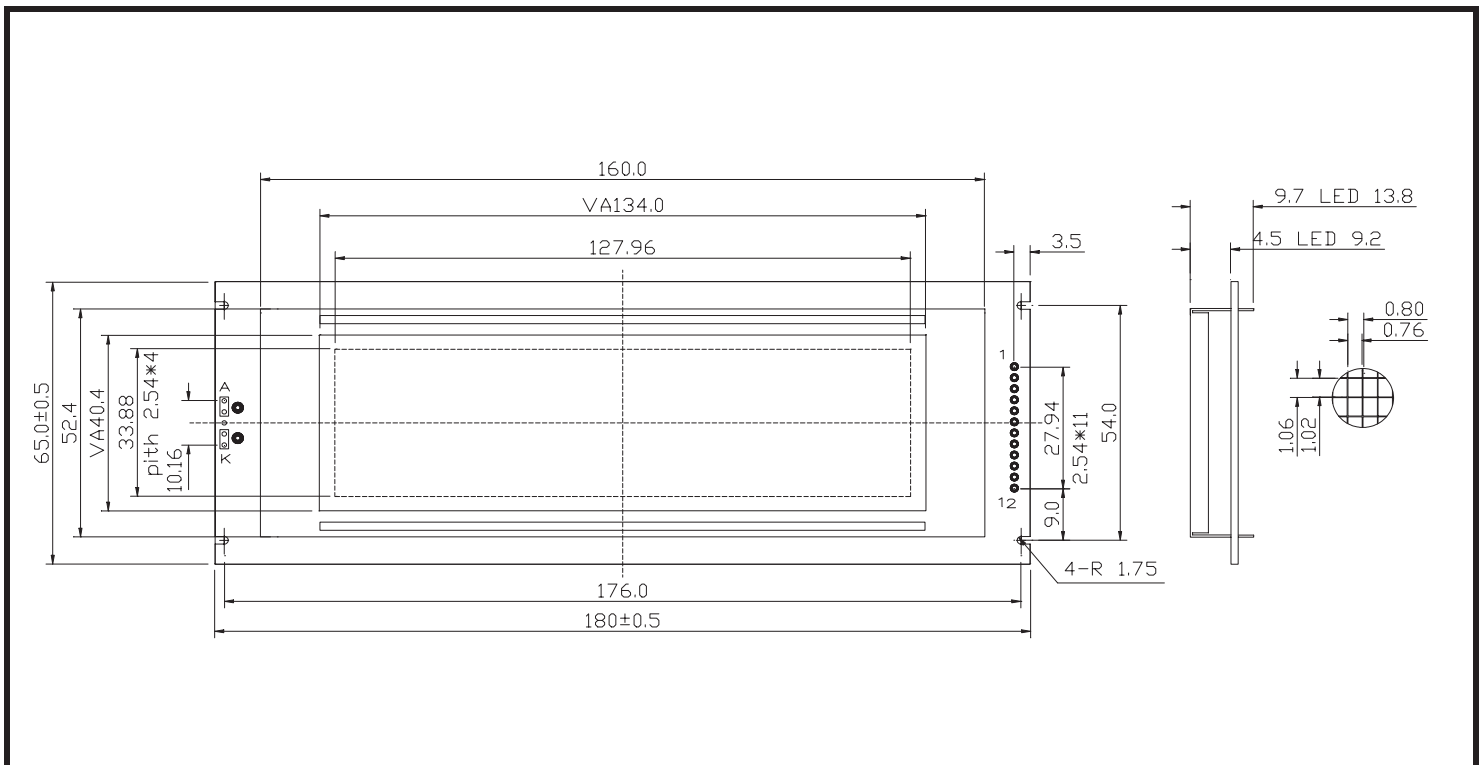
## ■ ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V <sub>DD-V<sub>SS</sub></sub>	0	-	7	V
Supply Voltage For LCD Drive	V <sub>DD-V<sub>o</sub></sub>	0	-	18	V
Input Voltage	V <sub>I</sub>	V <sub>SS</sub>	-	V <sub>DD</sub>	V

## ■ ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage For Logic	V <sub>DD-V<sub>SS</sub></sub>	-	4.5	5	5.5	V	
LCD Supply Voltage	V <sub>DD-V<sub>o</sub></sub>	V <sub>DD</sub> =5V Ta=25°C	7.7	8.4	9	V	
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> =5V	-	10	16	mA	
Input Voltage	"HIGH" Level	V <sub>IH</sub>	-	2.2	-	V <sub>DD</sub>	V
	"LOW" Level	V <sub>IL</sub>	-	-	-	0.6	V
Output Voltage	"HIGH" Level	V <sub>OH</sub>	-	2.4	-	-	V
	"LOW" Level	V <sub>OL</sub>	-	-	-	0.4	V

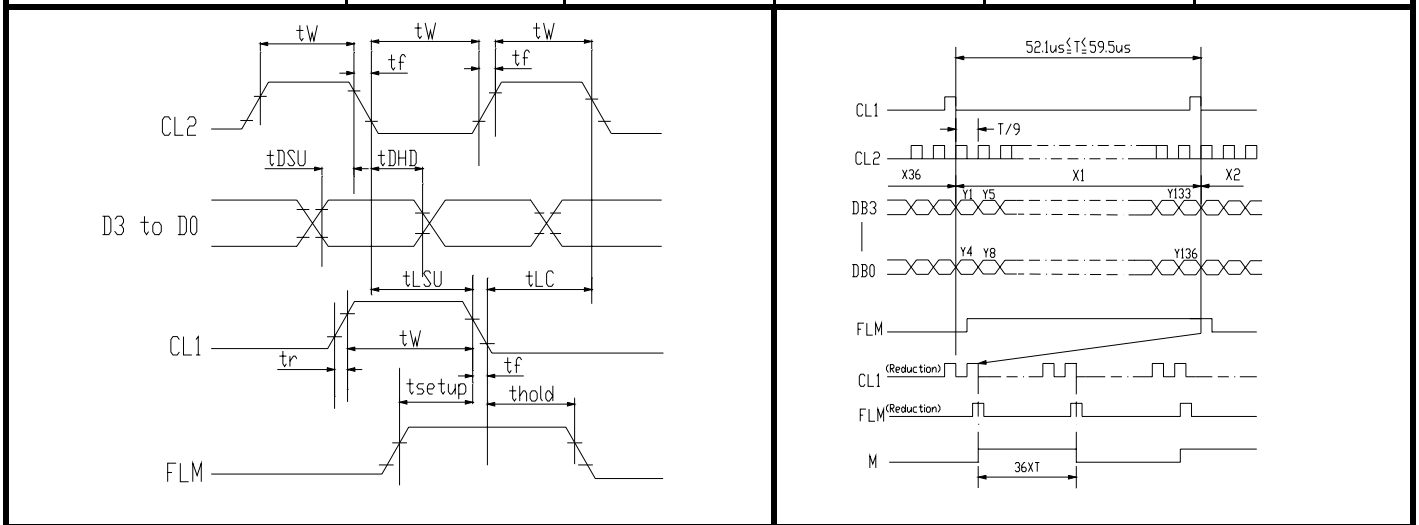
## ■ EXTERNAL DIMENSIONS



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## ■ TIMING CHARACTERISTICS

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT.
Frequency Of Maximum Clock	$f_{CP}$	-	-	8	MHZ
CL1, CL2, Pulse Width	$t_w$	45	-	-	ns
Rise, Fall Time	$t_r, t_f$	-	-	15	ns
Data Setup Time	$t_{DSU}$	20	-	-	ns
Data Hold Time	$t_{DHD}$	20	-	-	ns
CL1 Setup Time	$t_{LSU}$	80	-	-	ns
CL1 → CL2 Time	$t_{LC}$	80	-	-	ns
FLM Setup Time	$t_{setup}$	100	-	-	ns
FLM Hold Time	$t_{hold}$	100	-	-	ns
M Delay Time	$t_{DF}$	-	-	300	ns



## ■ BLOCK DIAGRAM

