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PRODUCT SPECIFICATION

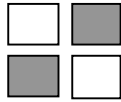
MONOCHROME LCD MODULE

PART NUMBER : FDG160036A

DESCRIPTION : 32x160Graphic

REVISION : Rev A

Approval for Specification only		Approval for Sample Only
Approval for Pre-production	x	Approval for Mass Production



FDG160036A (160 DOTS X 36 DOTS)

FEATURES

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

INTERFACE PIN CONNECTIONS

NO.	SYMBOL	LEVEL	FUNCTION
1	V _{SS}	0V	Power Supply Ground
2	V _{DD}	5V	Power Supply Voltage
3	V _o	-	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 _{EE}	-	Power Supply Voltage For LCD

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

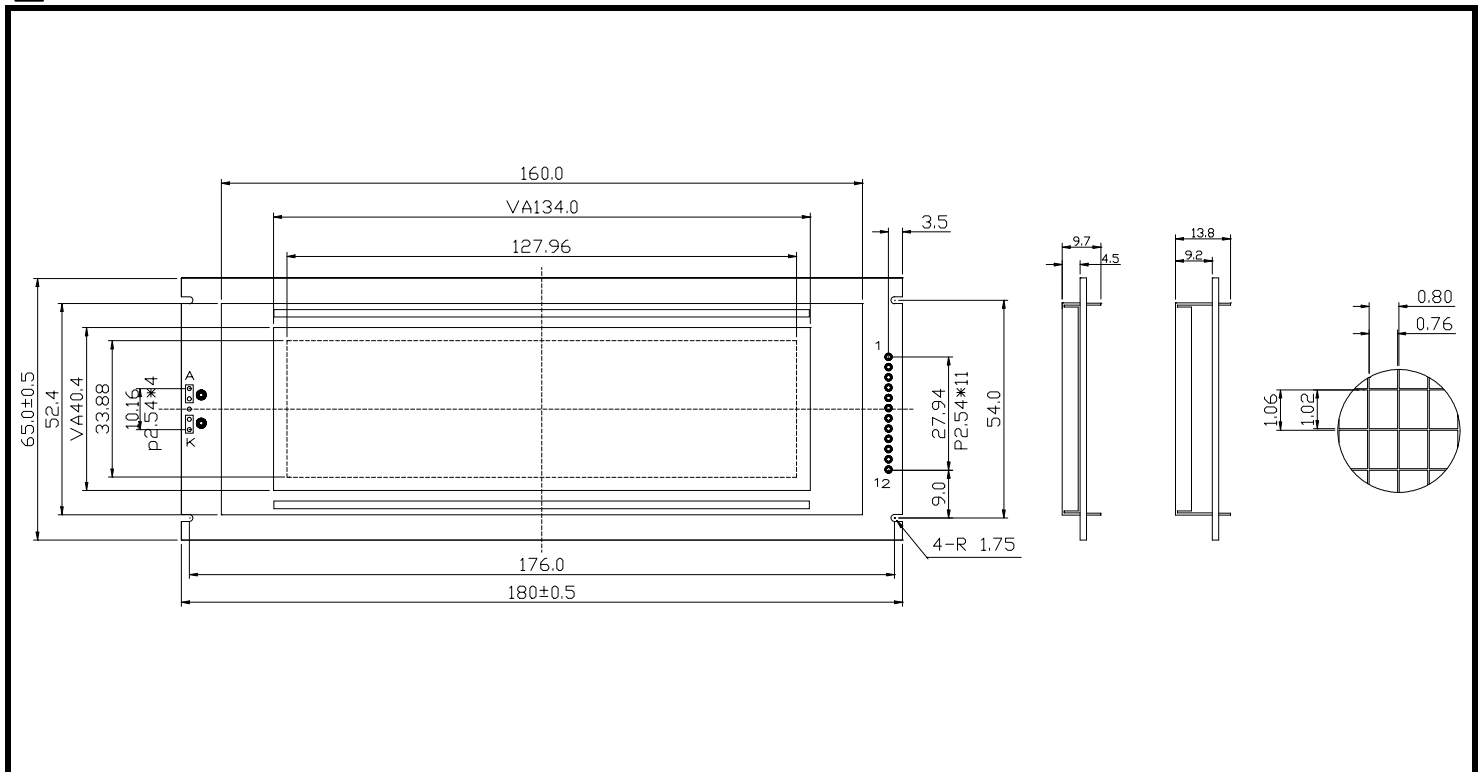
ABSOLUTE MAXIMUM RATINGS

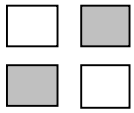
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage For Logic	V _{DD} -V _{SS}	0	-	7	V
Supply Voltage For LCD Drive	V _{DD} -V _o	0	-	18	V
Input Voltage	V _I	V _{SS}	-	V _{DD}	V

ELECTRICAL CHARACTERISTICS

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

EXTERNAL DIMENSIONS

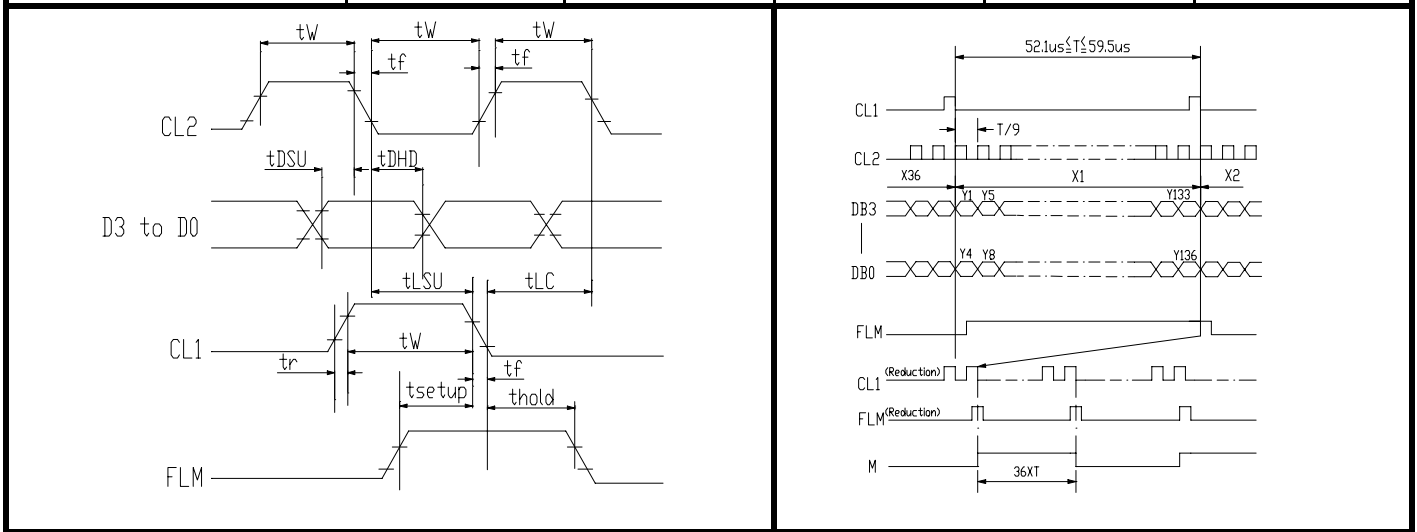




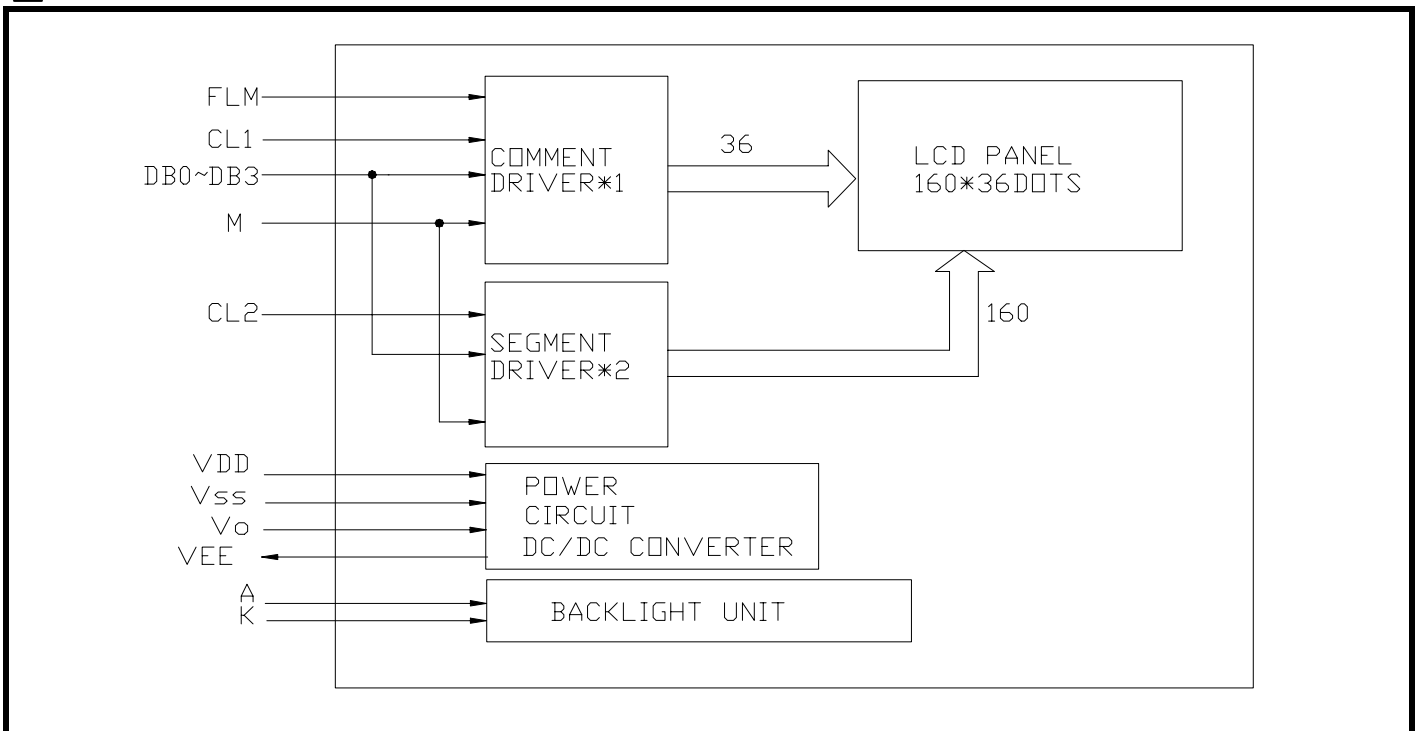
FDG160036A (160 DOTS X 36 DOTS)

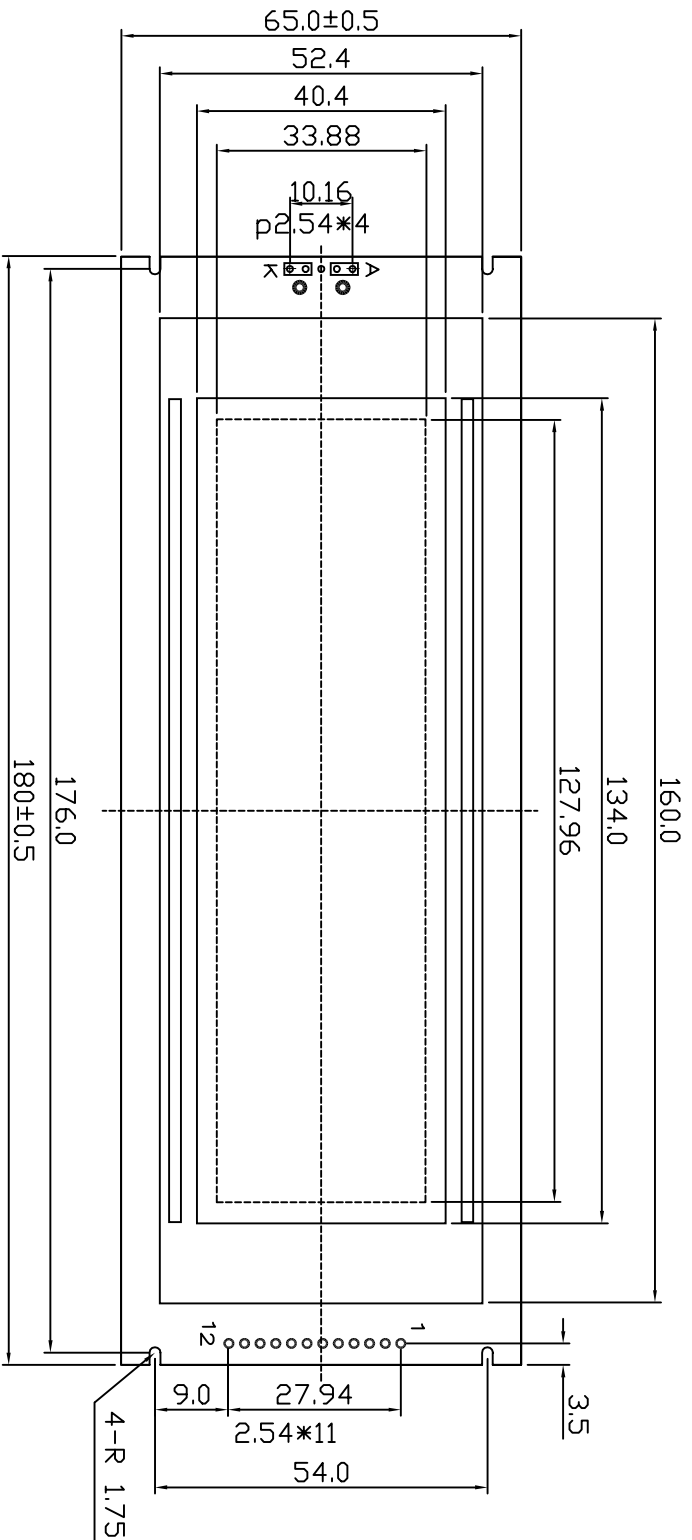
■ TIMING CHARACTERISTICS

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

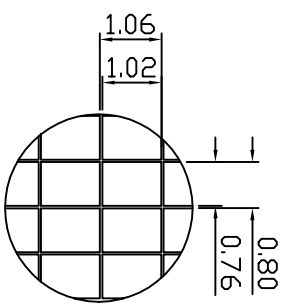


■ BLOCK DIAGRAM





PIN NO	SIGNAL
1	VSS
2	VDD
3	VO
4	FLM
5	CL1
6	CL2
7	M
8	DB0
9	DB1
10	DB2
11	DB3
12	VLCD



SCALE 10:1

NOTE	ITEM	CONTENT	DATA	REV	TOLERANCE	SCALE	UNIT	SYMBOL	CUSTOMER APVL	TITLE	DWG NO	PAGE
		CHANGE NUMBER	2004.03.01	0	X. ±0.30 .XX±0.05	1/1	mm	APVD CHKD DWN G111	Hsu Hsu Hsu	DATE 2004.03.01	A-42-0019	1/1
SUNLIKE DISPLAY												
											SG16036A	