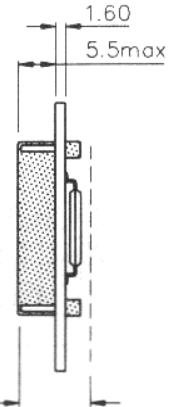
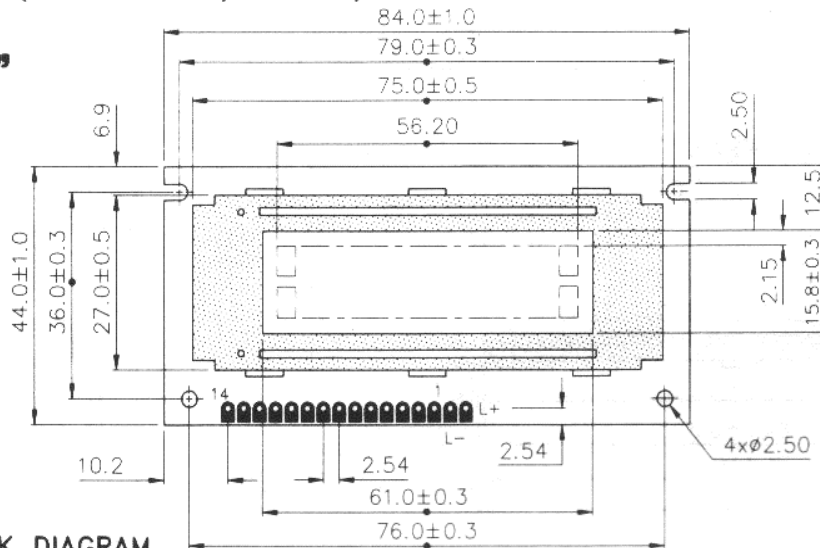


MODULE DIMENSIONS

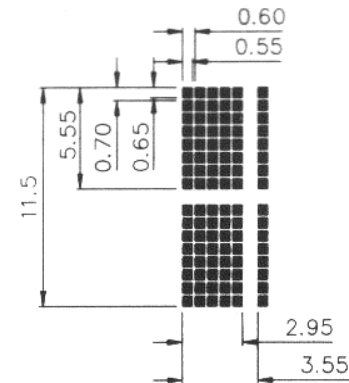
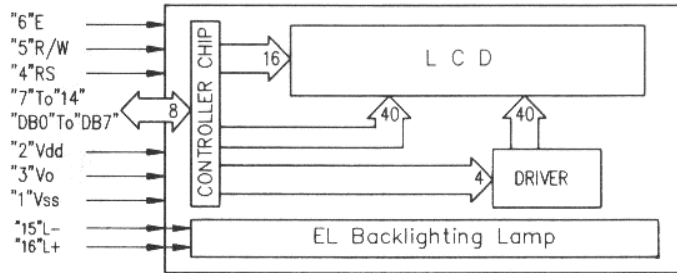
VK2010 (2x16 DMM, 1/16 MUX)

DIMENSION IN MM

"B1"



BLOCK DIAGRAM



ELECTROLUMINESCENT BACKLIGHTING

ELECTRICAL CHARACTERISTICS

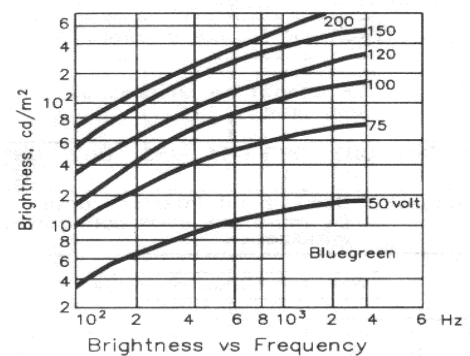
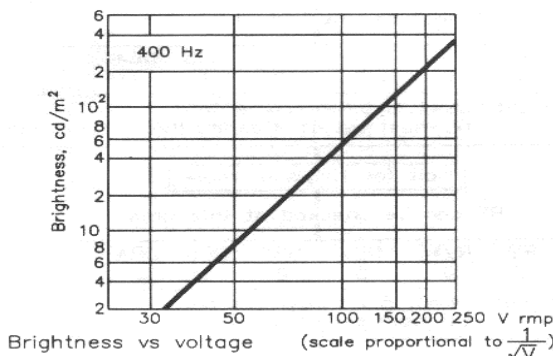
PARAMETER	TYP.	GENERAL OPERTING CONDITION	UNIT
VOLTAGE	115	100~150	V
FREQUENCY	400	50~1000	HZ
CURRENT	0.20	0.05~0.60	mA/cm ²
WATTAGE	5.90	1~10	mW/cm ²
BRIGHTNESS	70	10~100	cd/m
HALF LIFE *	500	SEE NOTE	hrs
COLOR	-	BLUE-GREEN	-

OPERATING CONDITION

TEMPERATURE	0~50°C
HUMIDITY	< 95%RH
STORAGE CONDITION	20°, < 60%RH, DARK ROOM.

*NOTE: EL BACKLIGHTING CANNOT BE OPERATED CONTINUOUSLY, SUGGEST POWER UP ONLY UPON USAGE.

BRIGHTNESS



DEFINITION OF TERMINALS		
PIN NO	SYMBOL	FUNCTION
1.	V _{SS}	Ground terminal of module
2.	V _{dd}	Supply terminal of module, +5V
3.	V _o	Power supply for Liquid Crystal Drive
4.	RS	Register Select RS = 0 ... Instruction Register RS = 1 ... Data Register
5.	R/W	Read/Write R/W = 1 ... Read R/W = 0 ... Write
6.	E	Enable
7~14.	DB0 ~ DB7	Bi-directional Data Bus. Data transfer is performed once, thru DB0-DB7, in the case of interface data length is 8-bits; and twice, thru DB4-DB7, in the case of interface data length is 4-bits. Upper four bits first then lower four bits
15.	LAMP- (L-)	LED or EL lamp power supply terminals
16.	LAMP+ (L+)	LED or EL lamp power supply terminals

OPERATING SPECIFICATIONS		
	STANDARD TEMP	WIDE TEMP
Operating temperature range	0°C to +50°C	-20°C to +70°C
Storage temperature range	-20°C to +70°C	-40°C to +85°C
Operating relative humidity	90% MAX	90% MAX

ELECTRICAL CHARACTERISTICS (Ta = +25°C)						
PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Supply Voltage	VDD		4.5	5.0	5.5	V
LCD Drive Voltage						
Normal Temp Model (TN-STN)	VDD-V _o		4.2	4.5*	4.8	V
Wide Temp Model (TN)	(V _{LCD})		4.4	4.7	5.0	V
Wide Temp Model (STN)			6.4	6.8	7.5	V
Supply Current ¹	IDD	VDD = 5V V _o = 0V MIN	-	1.0	3.0	mA
Input Voltage ²	VIL		0	-	0.6	V
	VIH		2.2	-	VDD	V
Output Voltage ³	VOL	10L = 1.6 mA	-	-	0.4	V
	VOH	10H = 0.2 mA	2.4	-	-	V
LED Current	I _{LED}	L+ - L- = 5V	-	40	60	mA

* DRIVE VOLTAGE (V_{LCD}) IS IDENTICAL FOR LCD MODULES MANUFACTURES. ACCEPTABLE RESULTS CAN BE OBTAINED BY ADJUSTING V_{LCD}. IF THIS DOES NOT WORK, VIKAY CAN MODIFY DISPLAY TO MEET CUSTOM NEEDS CONSULT FACTORY

POWER SUPPLY REQUIREMENTS

- ◆ Wide Temperature Range Version
- ◆ Standard
- ◆ Super-Twist Display Version

When RL=23.5K, VR=10~20K
RL=5K, VR=2~5K

This circuit shows the typical power supply connection for all dot matrix module. The display Voltage (V_{LCD}) is slightly different for different version (eg. standard, wide temp and supertwist.). Recommend end user to use **VARIABLE RESISTOR** as shows in the circuit for optimum V_{LCD} (V_{dd} - V_o) adjustment to obtain best display contrast and viewing angle.

NOTE: 1. Applies to DB0 - DB7, E, RS and RW
2. Applies to DB0 - DB7
3. Supply current may slightly exceed MAX. Rating if SAMSUNG controller is used without pull-up resistor for DB0 - DB7