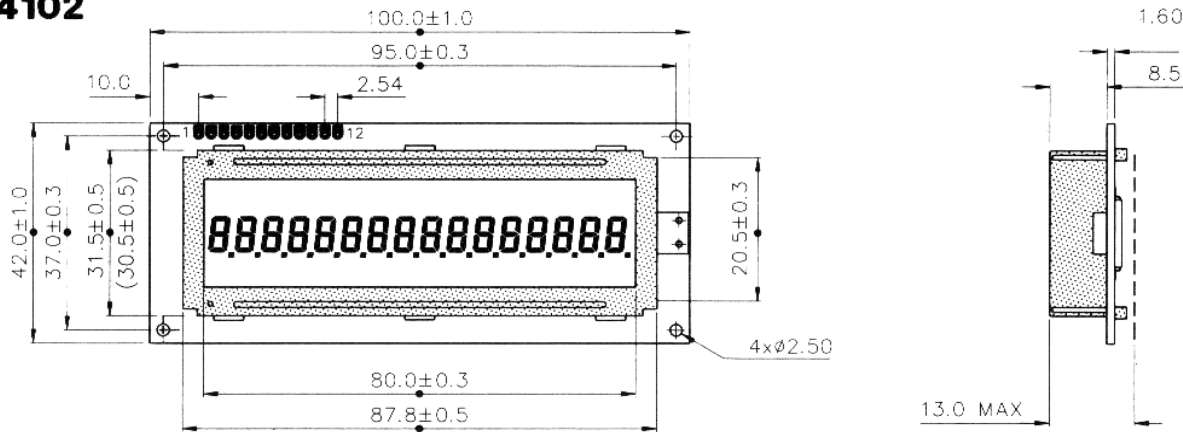


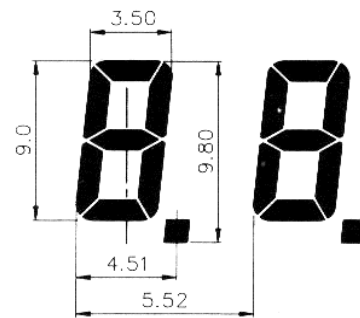
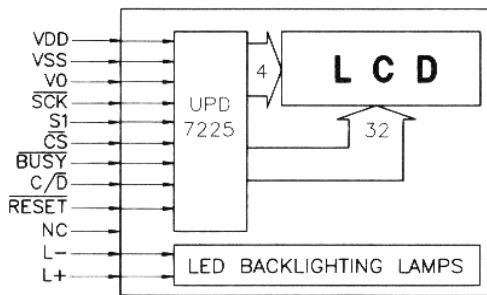
MODULE DIMENSIONS

VK4102

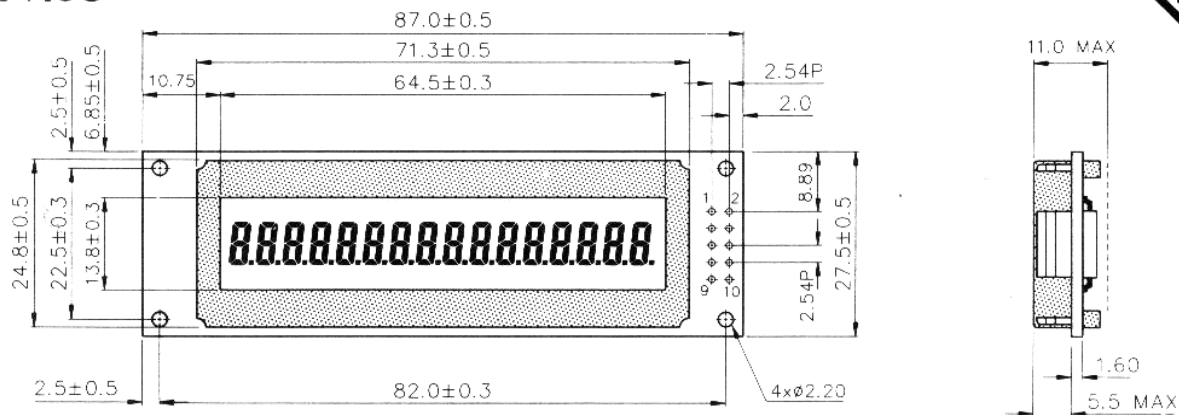
DIMENSION IN MM



BLOCK DIAGRAM

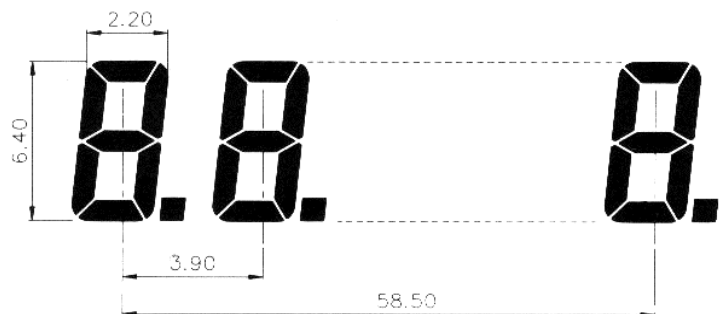
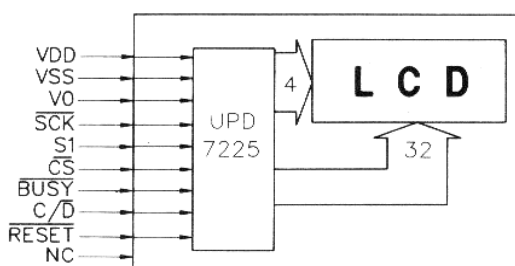


VK4103



PRELIMINARY

BLOCK DIAGRAM



DESCRIPTION

VK4102/3 is a 16-digit intelligent module designed to communicate with microprocessor through an 8-bit serial interface.

FEATURES

- Low power consumption CMOS technology.
- Compact design and easy panel mounting.
- Built-in 7-segment numeric decoder
- Two 32x4 static RAM for display data and blinking data storage.
- An intelligent quadruplex driver display module.
- positive or negative mode option.
- 9.00 mm / 6.40 mm 7-segment digit character height.
- +5V single power supply.
- VK4102 has highly reliable and uniform LED backlight.
- Serial data input.

OPERATING SPECIFICATIONS

Operating Temperature -20°C to +70°C
 Storage Temperature -30°C to +85°C
 Operating Relative Humidity 90% max

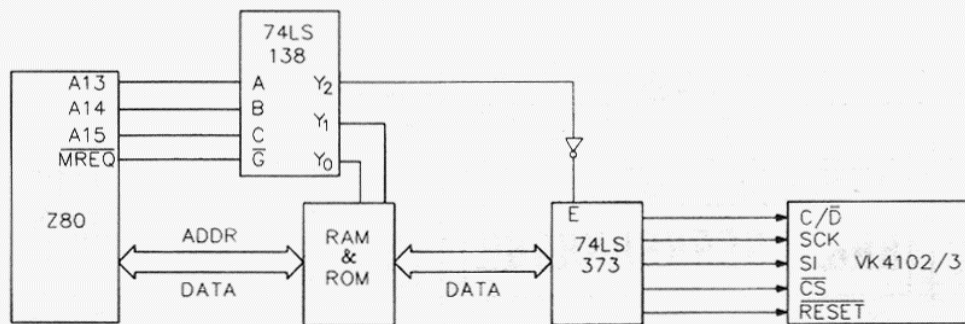
ORDERING INFORMATION

VK4102 Positive mode LCD
 VK4102L Positive mode LCD with backlighting
 VK4102N Negative mode LCD with backlighting
 VK4103 Positive mode LCD

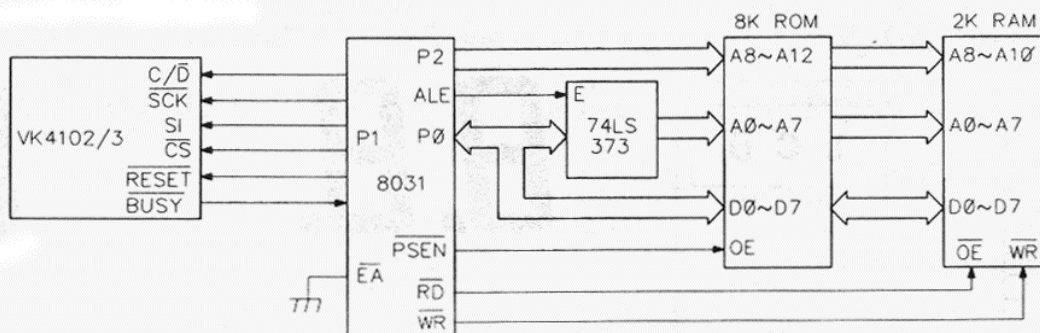
ELECTRICAL CHARACTERISTICS (Ta = +25°C, VDD = 5V)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	VDD		3.0	5.0	5.5	V
Current consumption	IDD			200		μA
Input high voltage	VIH		0.7VDD		VDD	V
Input low voltage	VIL		0		0.3VDD	V
Output high voltage	VOH	Output current = -10 μA	VDD - 0.5			V
Output low voltage	VOL	Output current = 100 μA			0.5	V
Power supply for LCD drive	VDD - VO	Ta = 0°C		4.7		V
		Ta = 25°C		4.5		V
		Ta = 50°C		4.0		V
LED forward voltage	VLED	L+ If = 80mA	4.5	5.0	5.5	V
Peak spectrum	λ	If = 80mA		565		nm
SCK cycle	tCYK		900			ns
SCK high pulse width	tWHK		400			ns
SCK low pulse width	tWLK		400			ns
SI set-up time to SCK ↑	tISK		100			ns
SI hold time after to SCK ↑	tIHK		200			ns
C/D set-up time to 8th. SCK ↑	tOSK		9			μs
C/D hold time after 8th. SCK ↑	tOHK		1			μs
CS hold time after 8th. CLK ↑	tCHK		1			μs
CS pulse width low	tCWL		40			μs
CS pulse width high	tCWH		40			μs

INTERFACING VK4102/3 TO Z80 μP



INTERFACING VK4102/3 TO 8031 MICRO-CONTROLLER



DEFINITION OF TERMINALS

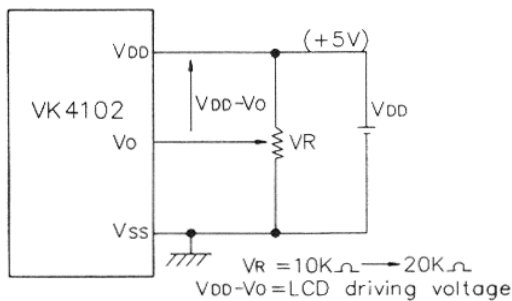
PIN NO.	SYMBOL	FUNCTION
1	Vss	Ground terminal
2	Vdd	Supply terminal
3	Vo	LCD driving voltage
4	SCK	Serial clock input
5	SI	Serial input
6	CS	Chip select input
7	BUSY	Busy output
8	c/D	Command/Data select
9	RESET	Reset Input
10	NC	No connection
11	L-	Terminal for backlighting with limiting resistor
12	L+	

DECODED DISPLAY RAM DATA

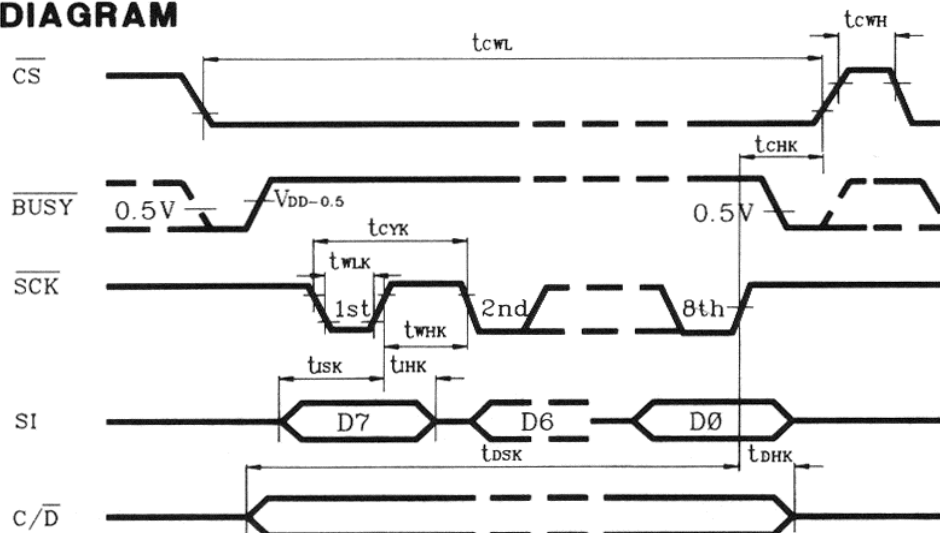
7-Segment Numeric Data Decoder
Character Set

Display byte (HEX)	Character	Display RAM address		Display byte (HEX)	Character	Display RAM address	
		N+1	N			N+1	N
0 0	0	D	7	0 8	0	F	7
0 1	1	0	6	0 9	1	B	7
0 2	2	E	3	0 A	2	2	0
0 3	3	A	7	0 B	3	F	1
0 4	4	3	6	0 C	4	D	1
0 5	5	B	5	0 D	5	A	0
0 6	6	F	5	0 E	6	E	4
0 7	7	0	7	0 F	7	0	0

POWER SUPPLY



TIMING DIAGRAM



A.C TIMING MEASUREMENT VOLTAGE

