

### SET UP/ INILIZATION Sequence

Hex Data Byte	C/D line	CS (Chip Select)	Comments
0x40	1	0	M=0(4-share-1/3 duty; FF=0)
0x30	1	0	Unsynchronized XFR (sync would be 31)
0x18	1	0	blink off
0x11	1	0	Display ON
0x15	1	0	Segment Decoder ON
0x20	1	0	Clear Data and pointer

When sending data and using the 7 segment decoder, Just send it as binary

Note the address pointer works right to left i.e. When reset the first digit to be sent is the right most.

So, for example to display “123”

Hex Data Byte	C/D line	CS(Chip Select)	Comments
0x03	0	0	Number 3
0x02	0	0	Number 2
0x01	0	0	Number 1
		1	Raise chip select

When sending serial byte, the MSB goes first, and the SCK line needs to be pulsed low for each bit. The CS (Chip select) should be low for the entire sequence, and not raised until all data bytes are sent. You then must raise the CS to display the data sent.

To turn a decimal point on use this

Hex Data Byte	C/D line	CS(Chip Select)	Comments
0x14	1	0	Segment Decoder off
0xE0	1	0	Set pointer 0 (incr by 2 for each digit)
0xB8	1	0	Decimal point on
0x15	1	0	Segment Decoder ON
		1	Raise chip select

The controller chip is a NEC UPD7225

The following NEC documents will be helpful.

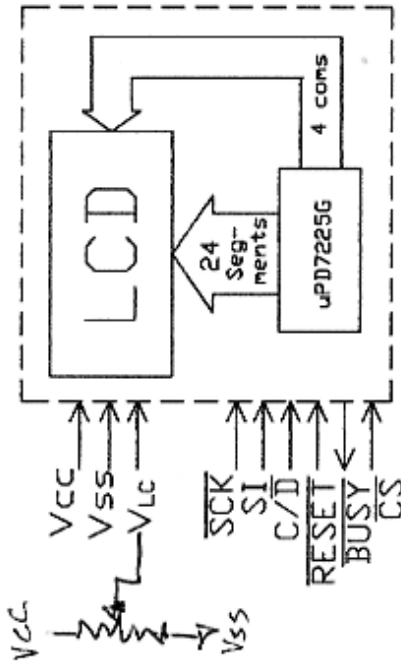
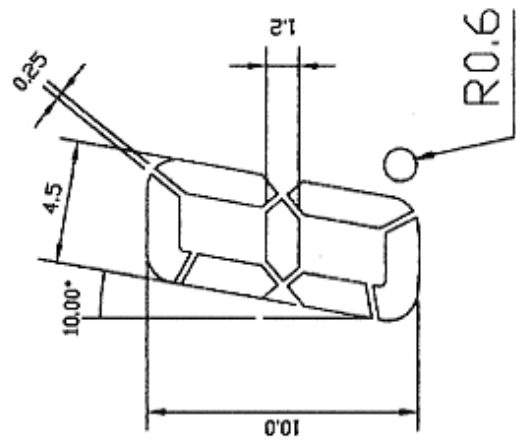
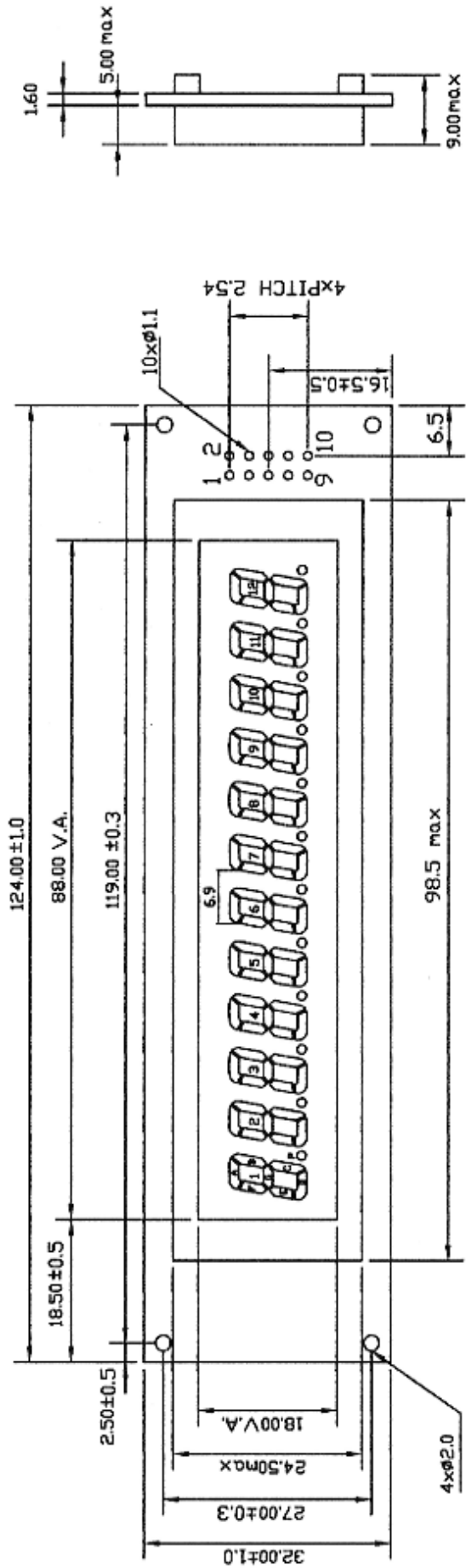
Document # IEA-1254A, Application note

Document # S14308EJ6V1DS00, Data Sheet

I found them by searching <http://www.necel.com>

### Cleaning:

Occasionally you will see a missing segment. It is very simple to clean the LCD contacts and fix. There are 8 metal tabs that hold the metal bezel on, twist each of these about 45 degrees to release them & slowly remove the bezel. Note the orientation of everything so you re-assemble it the same way. The glass will just come off. There are two rubber connectors, one at left and right ends. (Not the white strips) Take these off, and carefully clean both ends, the PCB contacts and glass where they connect. You can use water or diluted household alcohol and a Q-tip. Allow them to dry completely before re-assembling. And you should be good to go. If your display is really messed up then you probably put in back in the opposite direction, if so just take it apart reverse it and reassemble.



D/n No	Designation
1	VCC
2	VSS
3	SCK
4	SI
5	C/D
6	RESET
7	BUSY
8	CS
9	Vlc
10	N/C

module house

POLARIZER	VIEWING DIR.	LCD NO.	SCALE	DATE	DRG. NO.
Reflective			Not in scale	12-08-98	
VOLTAGE	OPERAT. TEMP.	DRAWN BY	APP. BY	REV.	SH.
	-20 to 70°C			1	

KTM-S1201

OF

