5. Technical Detail & Electrical Diagram

5.1. Hardware Description

5.1.1. Microcomputer

The uPD75P3018/uPD75P3018A series Microcomputer was chosen for the following reasons:

* Cheaper.
* Low operating current.
* Having an on-chip programmable LCD controller/driver.
* Eight interrupt sources and efficient interrupt processing.
* Five versatile timers.
* Less chip count.
* Pin compatibility of similar package with difference ROM sizes.
* Small package (80-pin plastic QFP, 14 x 14 mm).
* Good support.

5.1.2. Pin Assignment

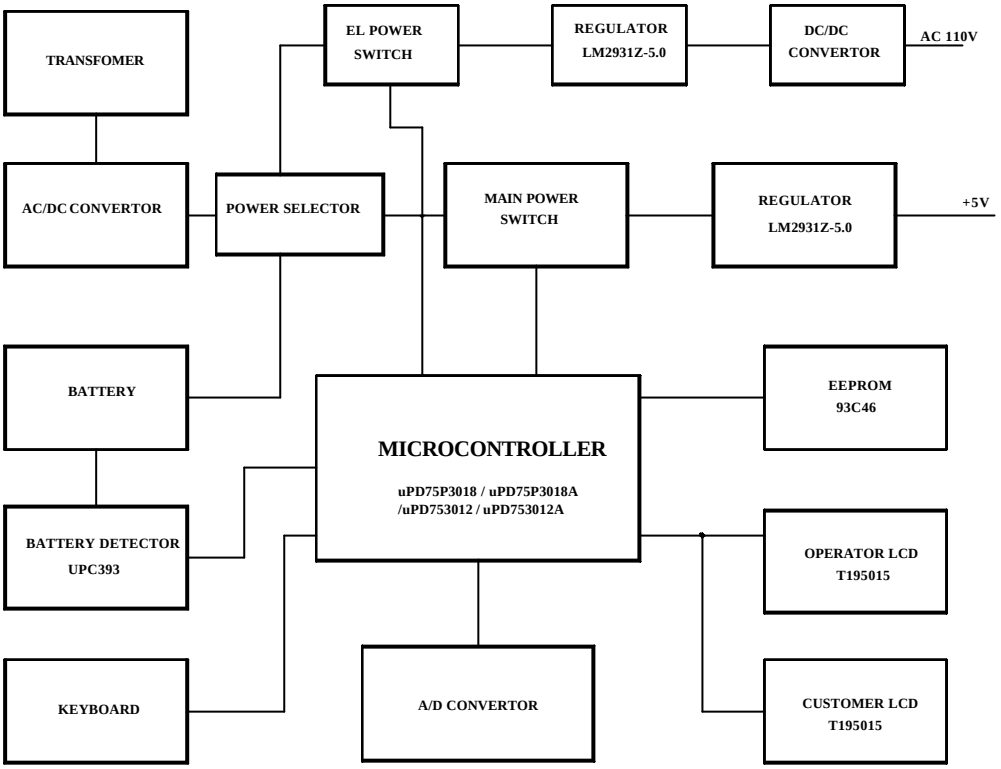
Pin	I/O	Assignment	Device	Remark
P00/INT4				
P01/SCK	O	SCK	93C46P	EEPROM
P02/SO	O	S0	93C46P	EEPROM
P03/SI	I	SI	93C46P	EEPROM
P10/INT0	I	SPANSW	SWITCH	Span Enable/Disable
P11/INT1	I	A/D INT	uPC4062	A/D Conversion Interrupt
P12/INT2	I	BATT T1	uPC393C	Detects battery Voltage Level 1
P13/TI0	I	BATT T2	uPC393C	Detects battery Voltage Level 2
P20/PTO0	O	A/D PA	74HC4066	A/D Conversion Control
P21	O	A/D PZ	74HC4066	A/D Conversion Control
P22/PCL	O	A/D P-	74HC4066	A/D Conversion Control
P23/BUZ	O	A/D P+	74HC4066	A/D Conversion Control
P30	O	CS	93C46P	EEPROM
P31	O	P-ON/OFF	Power Switch	DC Main Power
P32	O	BUZZ	Buzzer	Buzzer Sounder
P33	O	P-EL	Power Switch	Back-Light power
P40	O	T1	Keyboard	Key Scanning Line
P41	O	T2	Keyboard	Key Scanning Line
P42	O	T3	Keyboard	Key Scanning Line
P43	O	T4	Keyboard	Key Scanning Line
P50				

Pin	I/O	Assignment	Device	Remark
P51				
P52				
P53				
P60/KR0	I	K1	Keyboard	Key Return Line
P61/KR1	I	K2	Keyboard	Key Return Line
P62/KR2	I	K3	Keyboard	Key Return Line
P63/KR3	I	K4	Keyboard	Key Return Line
P70/KR4	I	K5	Keyboard	Key Return Line
P71/KR5				
P72/KR6				
P73/KR7				
S0	O	SEGMENT 0	LCD	Segment Signal Output
S1	O	SEGMENT 1	LCD	Segment Signal Output
S2	O	SEGMENT 2	LCD	Segment Signal Output

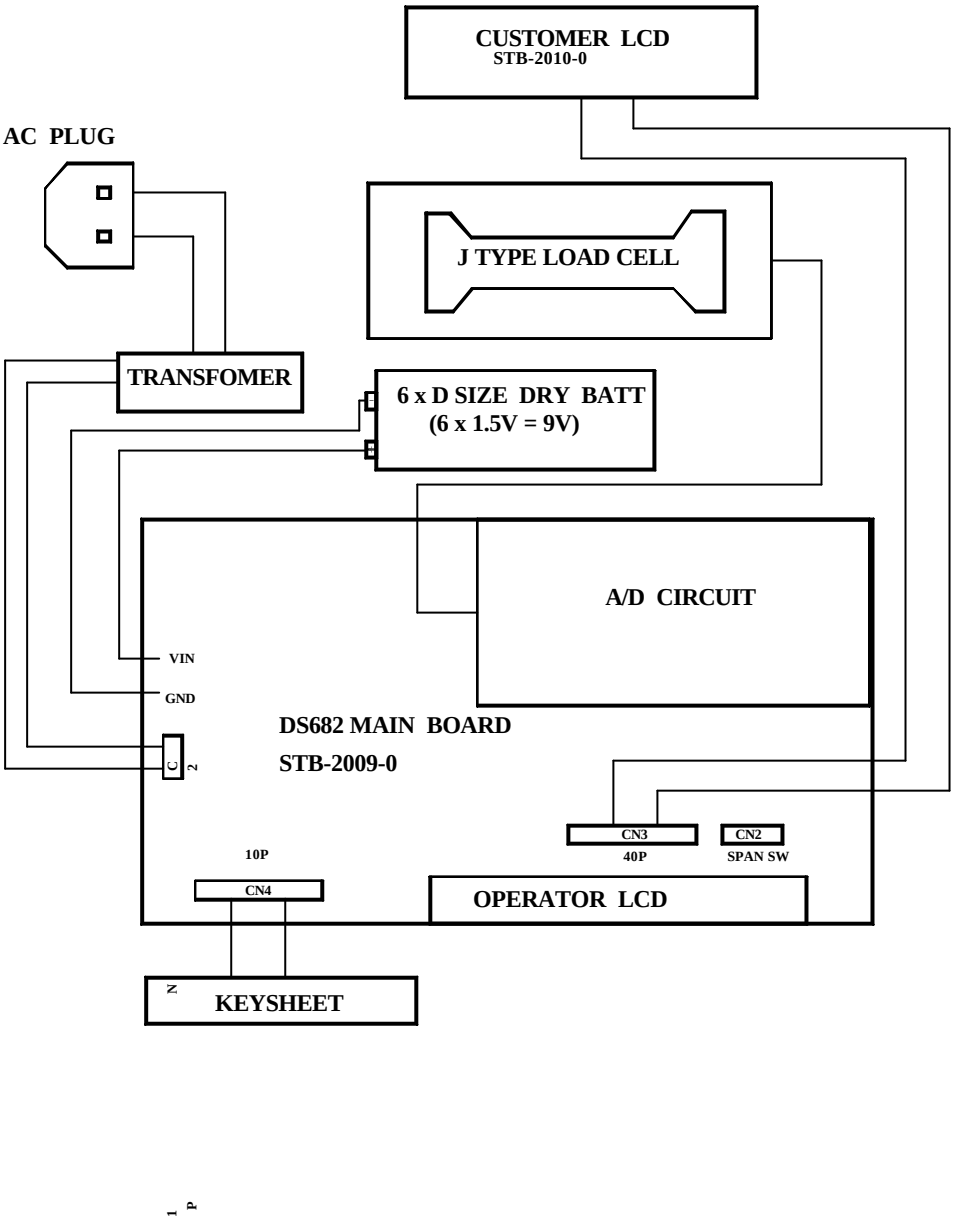
Pin	I/O	Assignment	Device	Remark
S3	O	SEGMENT 3	LCD	Segment Signal Output
S4	O	SEGMENT 4	LCD	Segment Signal Output
S5	O	SEGMENT 5	LCD	Segment Signal Output
S6	O	SEGMENT 6	LCD	Segment Signal Output
S7	O	SEGMENT 7	LCD	Segment Signal Output
S8	O	SEGMENT 8	LCD	Segment Signal Output
S9	O	SEGMENT 9	LCD	Segment Signal Output
S10	O	SEGMENT 10	LCD	Segment Signal Output
S11	O	SEGMENT 11	LCD	Segment Signal Output
S12	O	SEGMENT 12	LCD	Segment Signal Output
S13	O	SEGMENT 13	LCD	Segment Signal Output
S14	O	SEGMENT 14	LCD	Segment Signal Output
S15	O	SEGMENT 15	LCD	Segment Signal Output
S16	O	SEGMENT 16	LCD	Segment Signal Output
S17	O	SEGMENT 17	LCD	Segment Signal Output
S18	O	SEGMENT 18	LCD	Segment Signal Output
S19	O	SEGMENT 19	LCD	Segment Signal Output
S20	O	SEGMENT 20	LCD	Segment Signal Output

Pin	I/O	Assignment	Device	Remark
S21	O	SEGMENT 21	LCD	Segment Signal Output
S22	O	SEGMENT 22	LCD	Segment Signal Output
S23	O	SEGMENT 23	LCD	Segment Signal Output
BP0/S24	O	SEGMENT 24	LCD	Segment Signal Output
BP1/S25	O	SEGMENT 25	LCD	Segment Signal Output
BP2/S26	O	SEGMENT 26	LCD	Segment Signal Output
BP3/S27	O	SEGMENT 27	LCD	Segment Signal Output
BP4/S28	O	SEGMENT 28	LCD	Segment Signal Output
BP5/S29	O	SEGMENT 29	LCD	Segment Signal Output
BP6/S30	O	SEGMENT 30	LCD	Segment Signal Output
BP7/S31	O	SEGMENT 31	LCD	Segment Signal Output
COM0	O	COMMON 0	LCD	Common Signal Output
COM1	O	COMMON 1	LCD	Common Signal Output
COM2	O	COMMON 2	LCD	Common Signal Output
COM3	O	COMMON 3	LCD	Common Signal Output
BIAS	O	BIAS	-	LCD Drive Power Supply
VLC0	-	VLC0	-	LCD Drive Power Pin
VLC1	-	VLC1	-	LCD Drive Power Pin
VLC2	-	VLC2	-	LCD Drive Power Pin
RESET	I	RESET	-	SYSTEM RESET
X1	I	-	Oscillator	4.19 MHz Crystal
X2	I	-	Oscillator	4.19 MHz Crystal
XT1	I	-	-	Connect To The VSS Pin
XT2				
VSS	-	-	-	Grounding Potential Pin
VDD	-	-	-	Positive Power Pin (5V)
NC/VPP	-	-	-	Connect To The VDD Pin

5.2. Block Diagram



5.3. Physical layout of Electrical Connection

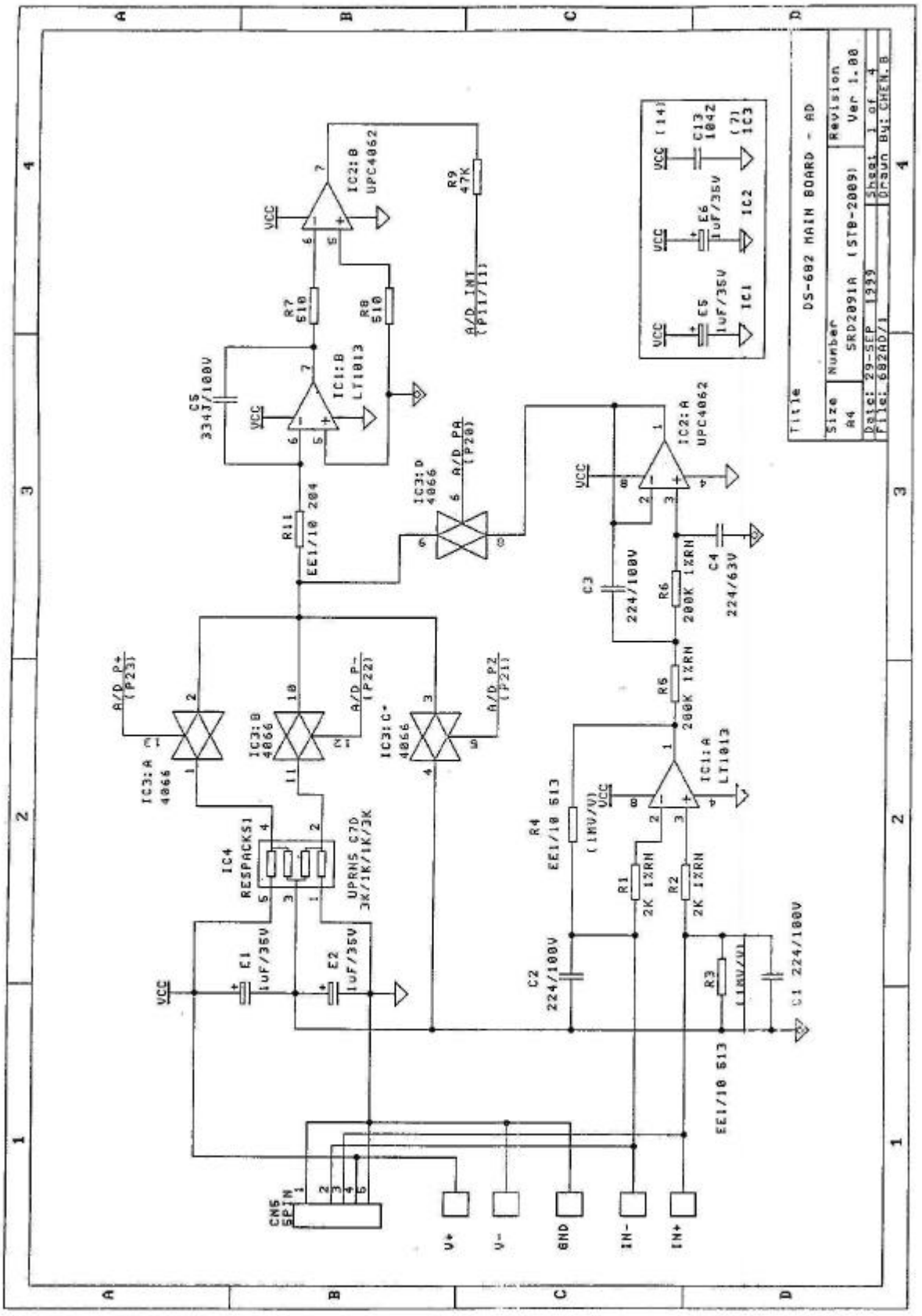


5.4. Circuitry Diagram

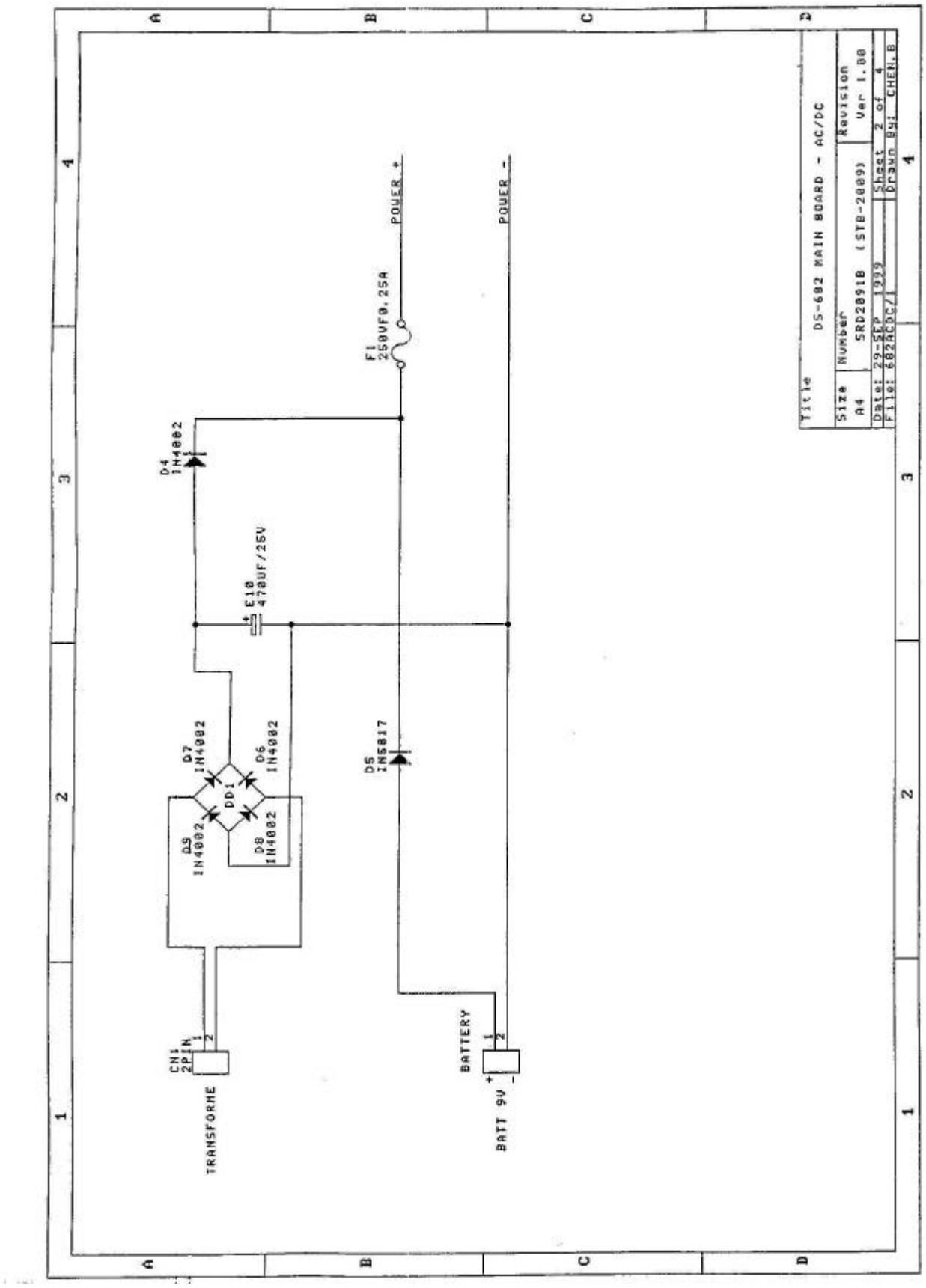
Please find the attached diagrams.

Circuitry Diagram Cover page

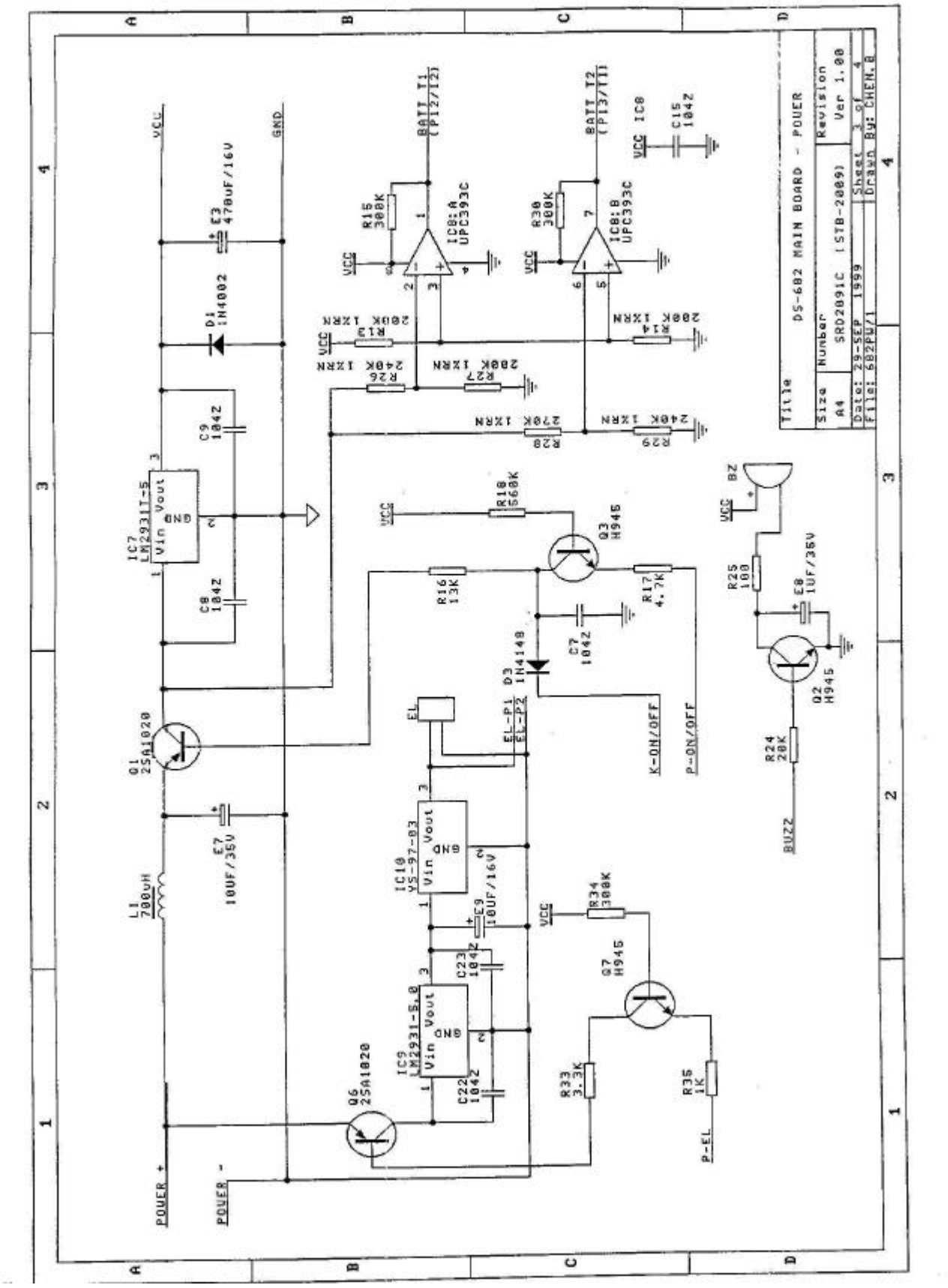
DS-682 MAIN BOARD-A/D



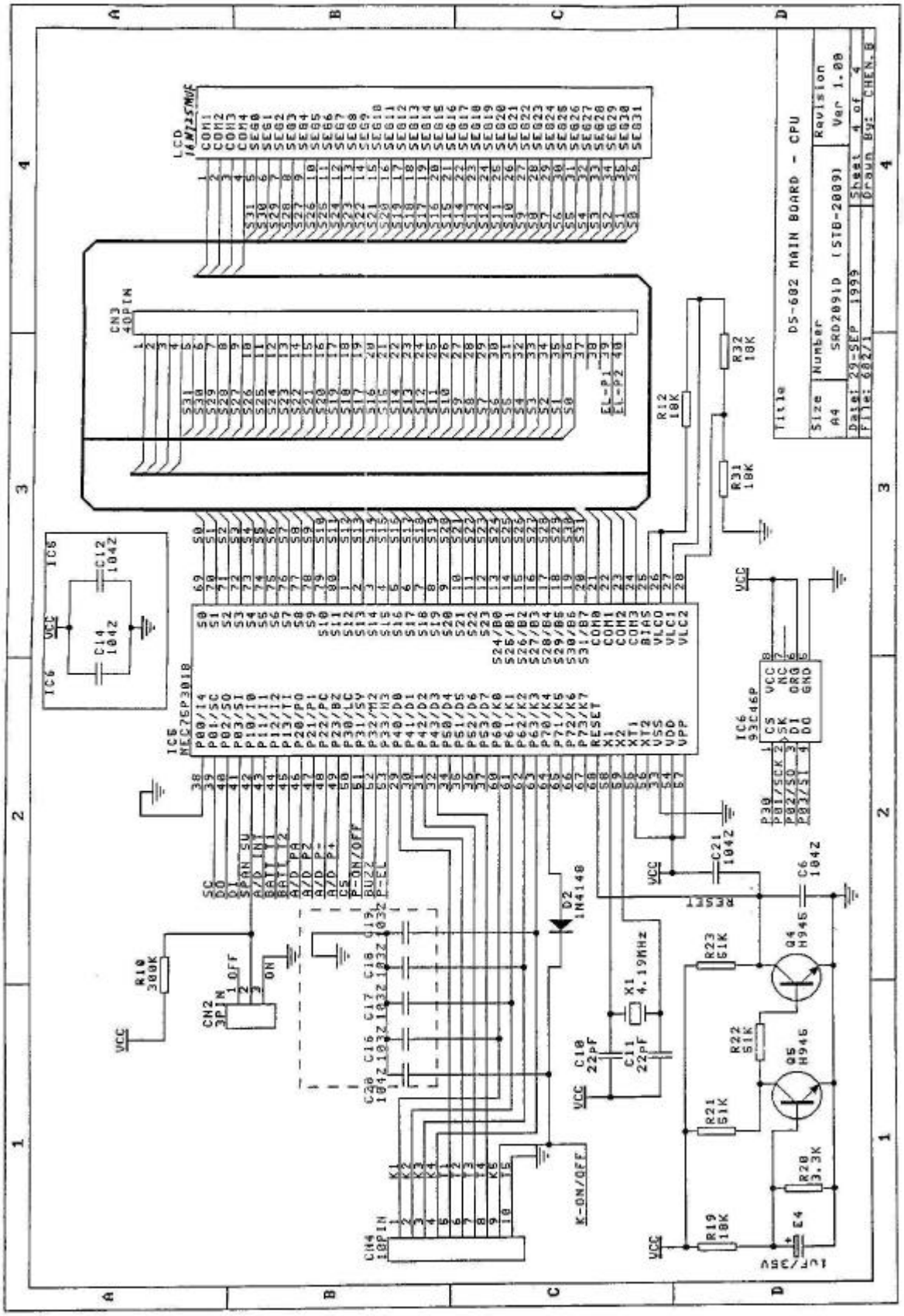
DS-682 MAIN BOARD AC/DC



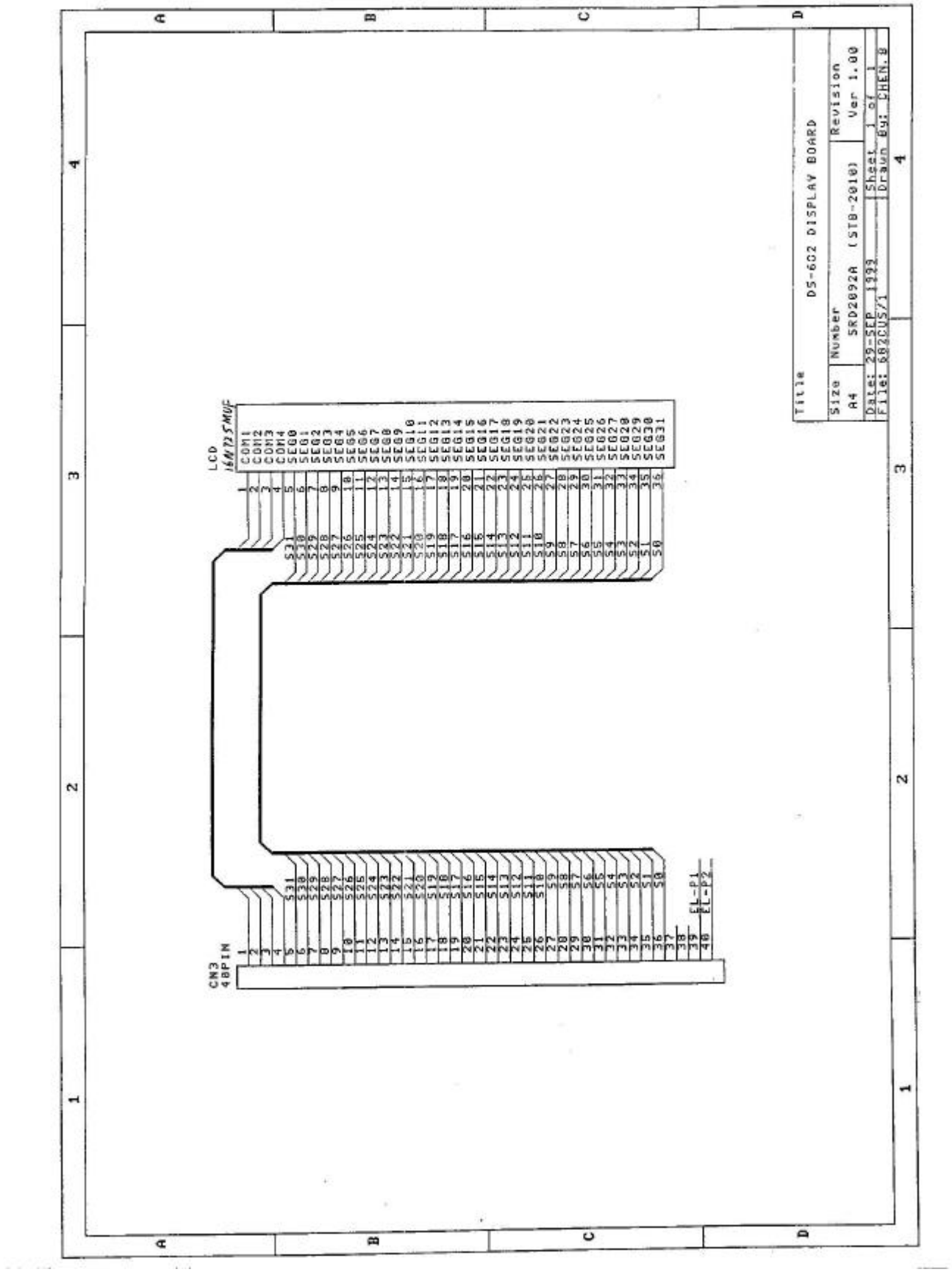
DS-682 MAIN BOARD -POWER



DS-682 MAIN BOARD - CPU



DS-682 DISPLAY BOARD



DS-682 KEY-LAYOUT