FIELD MAINTENANCE PRINT SET

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UNIT VARIATIONS COVERED BY THIS PRINT SET
H7834

H7834
Field Maintenance Print Set

Digital Equipment Corporation

PRINT SET ORDER NO. MPØØ7Ø2

REV. | SIZE B | CODE TC | NUMBER H-7834-Ø-1

REVISIONS

REV.	CHG. NO.	DATE

USED ON OPTION/MODEL	
H7834	
LA34	

SHEET 1 OF 1

DRN.	W. J. MAHER	DATE 28SEP78
CHK'D	A Brigham	DATE 29-9-78
PROJ. ENG.	[illegible]	DATE 10/9/78
	R. M. MacKenzie	19 OCT 78
FIELD SERV.	R. M. MacKenzie	DATE 19 OCT 78

digital

TITLE: POWER SUPPLY (H7834)

SIZE	CODE	NUMBER	REV.
B	TC	H7834-Ø-1	

DIST.

DRB 124

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE June, 1978

TITLE H7834 POWER SUPPLY

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
Ralph MacKenzie	Ralph M. MacKenzie 10/17/78	A	SP	H7834-0-2	

EN-1079A-16-R873-(392)
DRA 107A

SHEET 1 OF 9

ENGINEERING SPECIFICATION — CONTINUATION SHEET

TITLE H7834 POWER SUPPLY

1.0 Characteristics

1.1 Performance

1.1.1 Inputs

The module shall perform as specified herein when supplied with the inputs described in the following paragraphs.

1.1.1.1 Voltage

The AC input voltage shall be one phase, two wire, switch selectable in two ranges:

87 - 128 VRMS
174 - 256 VRMS

1.1.1.2 Frequency

The frequency of the AC input voltage shall be 47 - 63 Hz.

1.1.1.3 Current

The input current shall be as follows:

1.3 A RMS maximum at 87 VRMS
0.7 A RMS maximum at 174 VRMS

1.1.1.4 Inrush Current

The input inrush current shall be as follows:

50A peak for ½ cycle at 128 VRMS
50A peak for ½ cycle at 256 VRMS

1.1.1.5 Power

The input power shall be 65 watts maximum. Apparent input power shall be 110 VA maximum.

1.1.1.6 Power Factor

The power factor shall be 0.6 minimum at full load and 87 VRMS.

1.1.1.7 Leakage Current

When installed in the LA34 terminal the leakage current shall be 0.5 MA RMS max each line to ground at 250V RMS sine, 50 Hz.

SIZE	CODE	NUMBER	REV
A	SP	H7834-0-2	

DEC FORM NO EN-01022-16-N370-(381)
DRA 108

SHEET 2 OF 9

1.1.1.8 Overcurrent

The input overcurrent protection is provided by a user accessable 3A normal blow fuse.

1.1.1.9 Electromagnetic Interference/Susceptibility

When installed in the LA34 the conducted or radiated interference/susceptibility shall be as follows:

1.1.1.9.1 Conducted Transients

System degradation shall not be caused by a single 300V, 0.2 watt sec. maximum voltage transient. Survival level for a single voltage transient shall be 1000V at 2.5 watt-sec max. Survival level for an average power transient shall be 0.5W maximum.

1.1.1.9.2 Conducted CW Noise

Conducted CW noise shall not exceed the following:

10 KHz to 3 MHz	3VRMS max.
3 MHz to 500 MHz	1VRMS max.
500 MHz to 1 GHz	0.5VRMS max.

1.1.1.9.3 RF Field Susceptibility

The following RF fields shall not cause system degradation (with the power supply installed in the terminal)

10 KHz to 30 MHz	1V/M max.
30 MHz to 1 GHz	10V/M max.

1.1.1.10 Power Line Disturbances

With the module installed in the terminal, the performance with power line disturbances shall be as follows:

1.1.1.10.1 Overvoltage

The H7834 power supply shall withstand for one second 117% of the rated maximum input voltages specified in 1.1.1.1 without causing system degradation or damage.

1.1.1.10.2 Undervoltage

The H7834 power supply module shall withstand undervoltages and power interruptions without sustaining damage or causing damage to theLA34.

1.1.1.10.3 Ride Through

At 87VRMS input and full load, all outputs shall remain within their specified limits for 20 milliseconds minimum.

1.1.1.11 Electromagnetic Interference

With the module installed in the terminal, the conducted and radiated emissions level shall be as follows:

1.1.1.11.1 Conducted Emission

The conducted emissions shall satisfy the VDE A limit.

1.1.1.11.2 Radiated Emissions

The radiated emissions shall satisfy the VDE A limit.

1.1.1.12 Dielectric Withstanding

With the AC power disconnected the module shall withstand the application of the following high voltage direct current levels without damage or arcing.

1.1.1.12.1 Input to Frame

The module shall withstand 2.5 KV DC from input to frame for one minute.

1.1.1.12.2 Input to Output

The module shall withstand 2.5 KV DC from input to output for one minute.

1.1.2 Outputs

The module shall provide outputs as defined in the following paragraphs. All outputs are defined at the output connector J2.

1.1.2.1 Currents

The output currents shall meet the requirements of a single LA00 terminal.

+5.1 VDC at 0.5A minimum to 3.0A maximum
+12 VDC at 0.02A minimum to 0.2A maximum
-12VDC at 0.02A minimum to 0.2A maximum
+21 VDC at 0A minimum to 1.0A maximum
-21 VDC at 0.1A minimum to 1.0A maximum

The total average power from the +21V and -21V outputs is limited to 21 watts.

1.1.2.2 Voltages

The output voltages shall have the following tolerances under the specified loads.

1.1.2.2.1 +5.1 volt Output

the +5.1 volt output shall have the following characteristics as measured at Pin 3 (Pin 2 return) of J2:

a) Overall regulation: ±5%
b) Initial tolerance ±1%
c) Static line regulation: ±0.5%
d) Static load regulation: ±1.5%
e) Long term stability: ±0.1%/1000 hrs.
f) Thermal drift: -0.01 ± .01%/°C
g) Ripple: 200 MV p-p for f ≤ 20 KHz
h) Noise: 200 MV peak to peak at f≤ 100 KHz
i) Dynamic load regulation: TBDL

1.1.2.2.2 +21 Volt Output

The +21 volt output shall have the following characteristics as measured at Pin 7 (Pin 6 return) of J2:

a) Overall regulation: ±10%

1.1.2.2.2 (continued)

b) Initial tolerance ±3%
c) Static line regulation: ±0.5%
d) Static load regulation: ±4%
e) Long term stability: ±0.1%/1000 hrs.
f) Thermal drift: -0.05 ± .05%/°C
g) Ripple: 200 MV p-p max for f ≤ 20 KHz
h) Noise: 1% peak at f ≤ 100 KHz
i) Dynamic load regulation:±3.5% based upon any one of the following load conditions

1) 2 ± 0.25A load switched at 50% duty cycle at a PRF of 5 to 500 Hz (minimum loading on -21V output during this time).

2) Triangular pulsed load of 7 ± 1A peak amplitude, average value of 3.5 ± 0.25A pulse width of 1 ± 0.1 msec (msec) at base of triangle), and a PRF of 0 to 140 Hz (identical loading on -21V output during this time).

3) Triangular pulsed load of 2 ± 0.25A peak amplitude, average value of 1 ± 0.1A, pulse width of 1 ± 0.1msec (at base of triangle), and a PRF of 0 to 500 Hz (identical loading on -21V output during this time).

1.1.2.2.3 -21 Volt Output

The -21 volt output shall have the following characteristics as measured at Pin 5 (Pin 6 return) of J2:

a) Overall regulation: ± 10%
b) Initial tolerance: ±3%
c) Static line regulation: ± 0.5%
d) Static load regulation: ± 4%
e) Long term stability: ±0.1%/1000 hrs.
f) Thermal Drift: -0.05 ± 0.5%/°C
g) Ripple: 200 MV p-p maximum for f ≤ 20 KHz

1.1.2.2.3 (continued)

h) Noise: 1% peak at f ≤ 100 KHz

i) Dynamic load regulation: ± 3.5% based upon any one of the following load conditions

1) 2 ± 0.25A load switched at 50% duty cycle at a PRF of 5 to 500 Hz (minimum loading on +21V output during this time).

2) Triangular pulse load of 7 ± 1A peak amplitude, average value of 3.5 ± 0.25A, pulse width of 1 ± 0.1 msec (at base of triangle). and a PRF of 0 to 140 Hz. (identical loading on +21V output during this time).

3) Triangular pulsed load of 2 ± 0.25A peak amplitude, average value of 1 ± 0.1A, pulse width of 1 ± 0.1 msec (at base of triangle) and a PRF of 0 to 500 Hz (identical loading on +21V output during this time).

1.1.2.2.4 +12 Volt Output

The +12 volt output shall have the following characteristics as measured at Pin 8 (Pin 1 return) of J2:

a) Overall regulation: ± 5%

b) Initial tolerance: ± 4%

c) Static line regulation: ±0.25%

d) Static load regulation: ±0.25%

e) Long term stability: ±0.2%/1000 hrs

f) Thermal drift: ± .004%/°C

g) Ripple: 2.0 MV p-p max for f ≤ 20 KHz

h) Noise: 1% peak at f ≤ 100 KHz

i) Dynamic load regulation: TBDL

1.1.2.2.5 -12 Volt Output

The -12 volt output shall have the following characteristics as measured at Pin 9 (Pin 1 return) of J2):

a) Overall regulation: ± 5%

b) Initial tolerance: ± 3.5%

c) Static line regulation: ± 0.2%

d) Static load regulation: ± 0.7%

e) Long term stability: ± 0.2%/1000 hrs.

f) Thermal drift: ± .002%/°C

g) Ripple: 2.0 MV p-p max for f ≤ 20 KHz

h) Noise: 1% peak at f ≤ 100 KHz

i) Dynamic load regulation: TBDL

1.1.2.3 Overload Protection

Overload protection is provided for all outputs.

1.1.2.3.1 +5V Output

Current limit point: 3.5 ± 0.3A
Short circuit current (R ≤ .050 ohms) : 2.0A maximum

1.1.2.3.2 +21V Output

Current limit point: 2.8 ± 0.3A
Short circuit current (R ≤ .050 ohms) : 6.0A maximum

1.1.2.3.3 -21V Output

Current limit point: 2.8 ± 0.3A
Short circuit current (R ≤ .050 ohms) : 6.0A maximum

1.1.2.3.4 +12V Output

Current limit point: 0.4 ± 0.1A
Short circuit current: 0.65A maximum

1.1.2.3.5 -12V Output

Current limit point: 0.4 ± 0.1A

Short circuit current: 0.65A maximum

1.1.2.4 Overvoltage Protection

Overvoltage protection is provided for the +5.0V output.

Overvoltage limit point: +5.4 ± 0.1 VDC

1.2 Environmental Conditions

The H7834 power supply module shall perform as specified herein when installed in the LA34 terminal under the following encironmental conditions:

1.2.1 Ambient Temperature

a) Operating: 0 to 40°C

b) Non-operating: -40 to +85°C

1.2.2 Temperature Shock

1°C/sec

1.2.3 Humidity

Per DEC Standard 102 Class B and Paragraph 3.1 and 3.2

1.2.4 Shock

Per DEC Standard 102 Class B and Paragraph 5.1 and 5.2

1.2.5 Vibration

Per DEC Standard 102 Class and Paragraph 6.1 and 6.2

1.3 Design and Construction

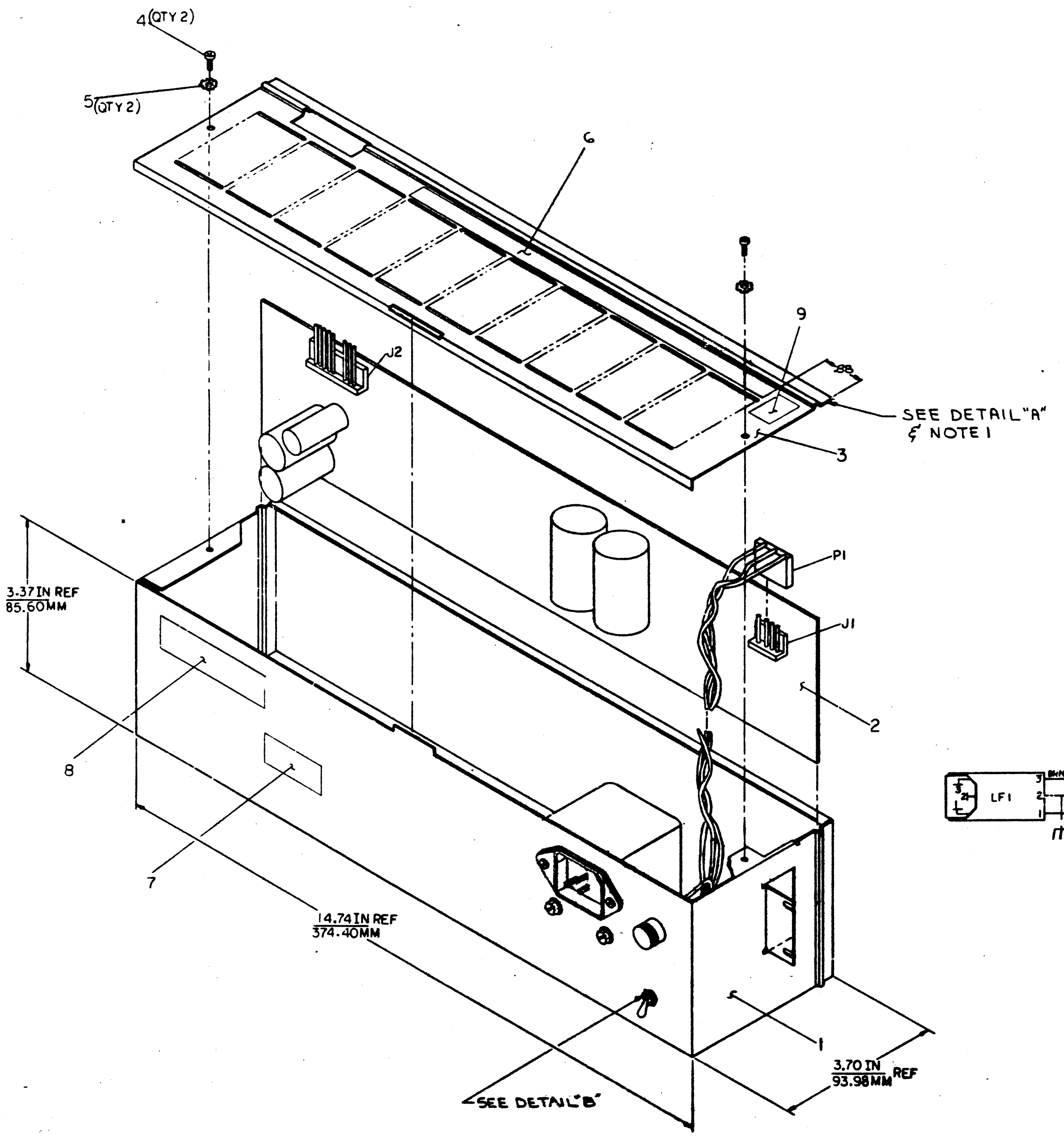
Design and construction of the power supply module shall be in accordance with drawing E-UA-H7834-0-0 and this specification.

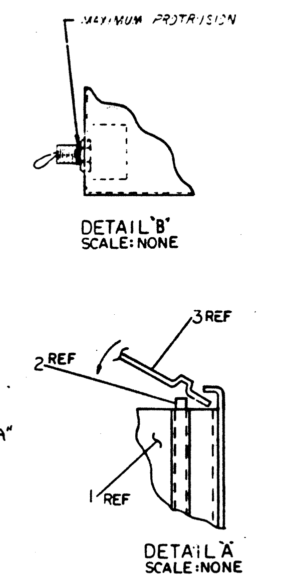
1.4 Operational Failure Rate

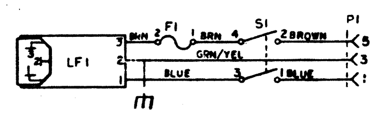
The calculated effective failure rate shall be NGT 20 X 10^{-6} failures per hour.

NOTES:

1. WHEN ASSEMBLING COVER TO CHASSIS COVER MUST SLIP UNDER LIP ON CHASSIS AS SHOWN IN DETAIL "A".







SEE K-PL-H7834-0-DBP

QTY	DESCRIPTION	DWG./PART NO.	ITEM NO
1	HIGH VOLTAGE WARNING LABEL	3615685-00	9
2	EXTERNAL TOOTH LOCKWASHER	900815-00	5
2	SCR, PHL PAN HD. [illegible]	9006418-01	4
1	COVER	[illegible]-420755-00	3
1	LA34 POWER SUPPLY	[illegible]-UA-[illegible]-0-0	2
1	CHASSIS ASSY	E-AD-7015690-0-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

THIRD ANGLE PROJECTION

DO NOT SCALE DWG.

MATERIAL: SEE K-PL

FIRST USED ON: LA34

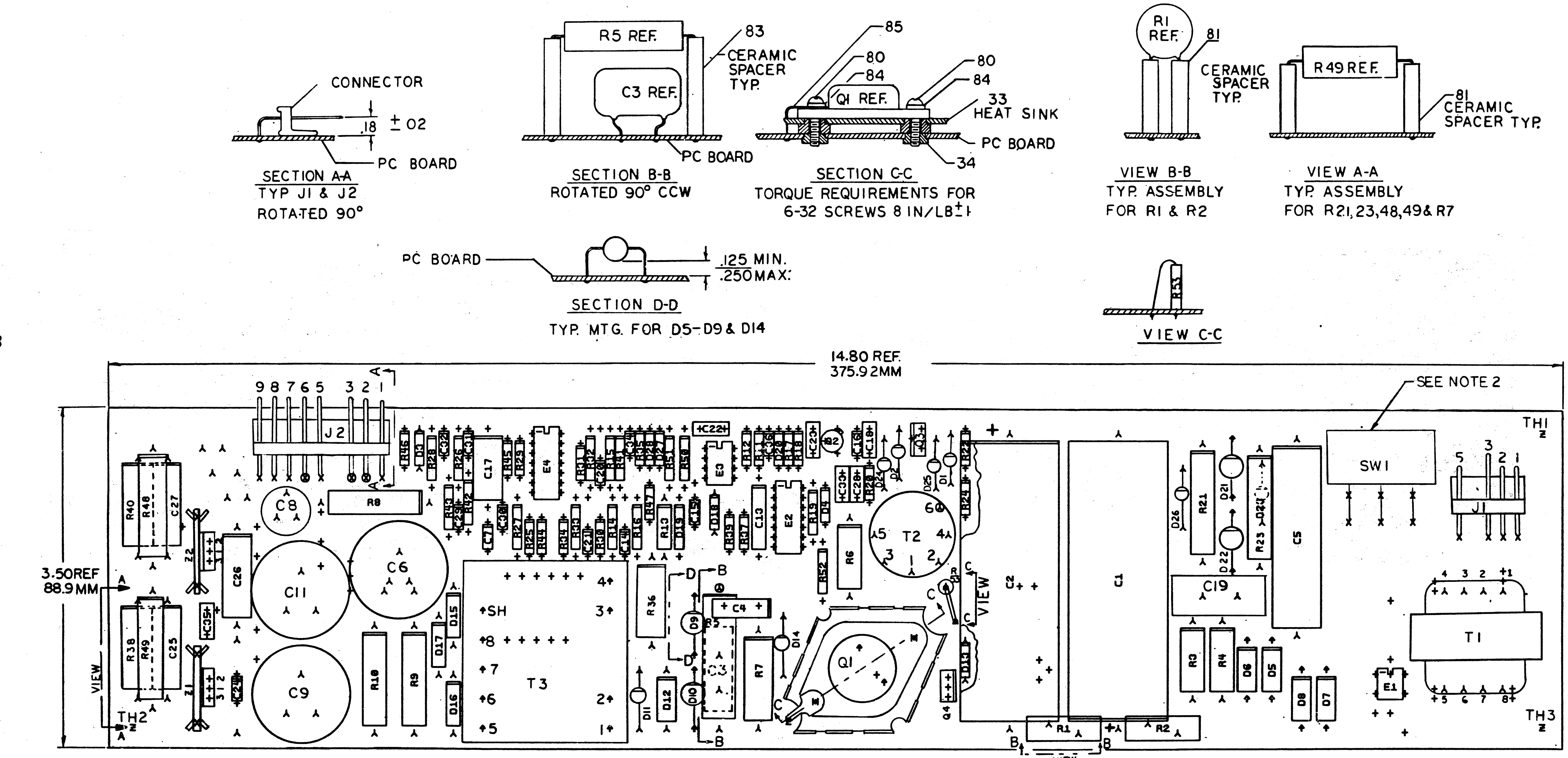
TITLE: POWER SUPPLY H7834

NEXT HIGHER ASSY: [illegible]-H7834-[illegible]

SCALE: NONE

SIZE: E CODE: UA NUMBER: H7834-0

COMPONENT SIDE VIEW



NOTES:
1. THIS BOARD MUST MEET U/L REQ.
2. SW1 MUST BE HAND INSERTED AND HAND SOLDERED AFTER WAVE SOLDER.

REV	CHANGE NO.
D	5413325-PN002
F	5413325-PN004
H	5413325-PN005
J	5413325-PN006

REVISED & REDRAWN

ETCH REV. D.
P.C. DESIGN DATA BASE REV.

SIGNATURES		DATE
DRN.	COSTA	1-29-79
CHK'D.	COSTA	1-29-79
ENG.	RALPH M. MACKENZIE	3-5-79
PROJ. ENG.	R. M. MACKENZIE	3-5-79
PROD.	V. ERDEKIAN	6-3-79
SCALE	2:1	
SHT.	1 OF 3	

NEXT HIGHER ASSY. E-UA-H7834-0-0

digital

TITLE LA34 POWER SUPPLY

SIZE	CODE	NUMBER	REV
D	UA	5413325-0-0	J

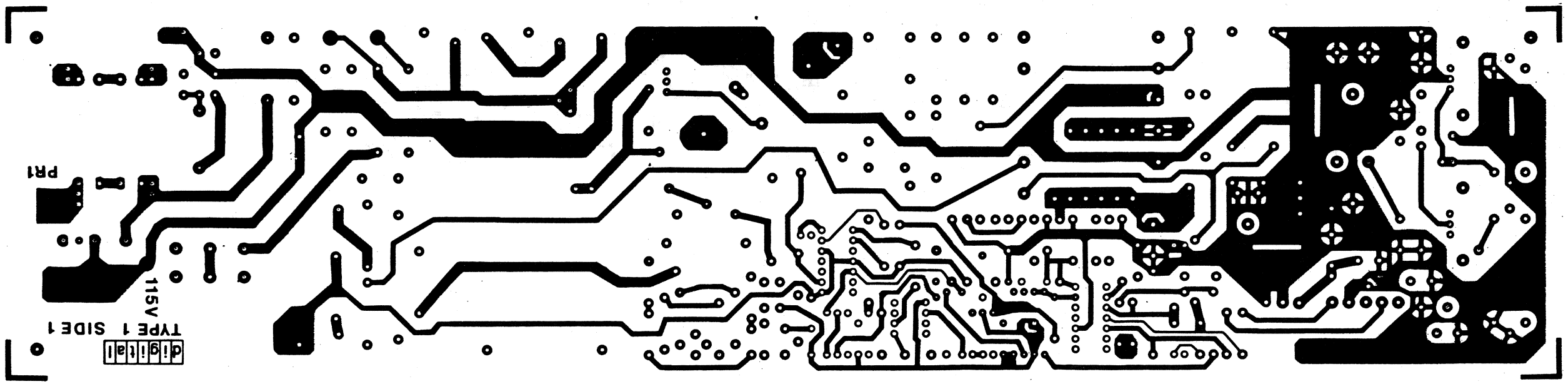
1 MS#

REVISIONS			
REV	CHANGE NO	CHK	

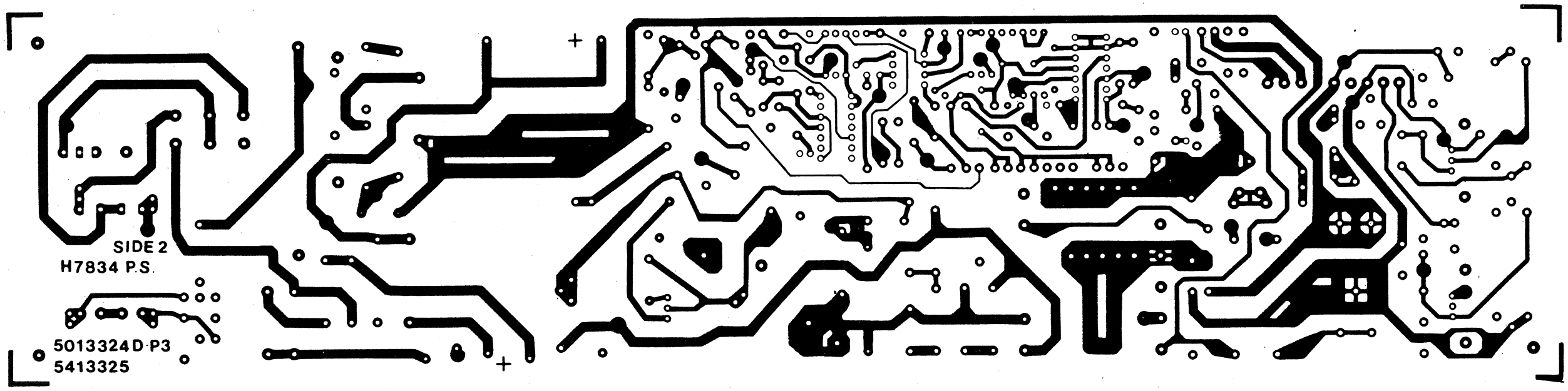
REV	NUMBER	SIZE	CODE	DIST.
J	5413325 0 0	D	UA	

TITLE LA34 POWER SUPPLY

SCALE 2 : 1 SHEET 2 OF 3



DUA 5413325-0-0 J



REVISIONS		
CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV
LA34 POWER SUPPLY	D	UA	54-13325-0-0	J
SCALE 2:1 SHEET 3 OF 3	DIST			

5413325-0-0 J DUA 2