

File E100527
Project 91EK524

Issued: May 24, 1989

REPORT

on

COMPONENT - POWER SUPPLIES

Vicor Corp.
Andover, MA

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R E P L A C E M E N T P A G E

The above referenced section of Procedure has been deleted from this volume, and transferred to Volume 3, Section 1.

D.A.
B.B.

R E P L A C E M E N T P A G E

The above referenced section of Procedure has been deleted from this volume, and transferred to Vol. 6, Sec. 1.

D.A.
B.B.

DESCRIPTION

PRODUCT COVERED:

Component Power Supply, Flat Pac Series, Model Nos. VI-abccc-deee-xx. The power supplies are for use with data processing equipment, and office appliances and business equipment. VI may be replaced by IP for all Models. Refer to Ill. 14.

GENERAL CHARACTER AND USE:

The Flat Pac Series is built using up to three Recognized (QQBK2) Vicor dc-dc output voltages of the modules which provide primary to secondary isolation. It can be configured by selecting the desired output voltages of the modules and paralleling of similar outputs to provide the output configuration described in the nomenclature section of this report (up to three outputs). Units with the same number of modules share the same front end primary circuitry. They are intended to be factory wired within electronic data processing equipment.

The power supplies were investigated for compliance with the Standard for Information Technology Equipment Including Electrical Business Equipment, CAN/CSA C22.2 No. 60950-00, UL60950, CAN/CSA C22.2 No. 950-95, UL1950 Third Edition. Based on the March 15, 1991 Industry Review and per the manufacturer's request, this section of this report was transferred to the category for Power Supplies For Use In Electronic Data Processing Equipment, and Power Supplies For Use In Information Technology Equipment, including Electrical Business Equipment.

NOMENCLATURE BREAKDOWN:

Refer to Ill. 14.

ELECTRICAL RATINGS:

Refer to Ill. 14.

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and Report

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R E P L A C E M E N T P A G E

The above referenced page has been deleted from this Report.

M.M.
B.L.

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

For use only in or with electronic data processing equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - When installed in the end-use equipment, the following are among the considerations to be made.

1. These components have been judged on the basis of the required spacings *in the CAN/CSA C22.2 No. 60950-00, UL60950, CAN/CSA C22.2 No. 950-95, UL1950 Third Edition, which covers the end-use product for which the component was designed.
2. The power supply should be installed in compliance with the enclosure, mounting, spacings, temperature, casualty, and segregation requirements of the ultimate application.

3. The baseplate temperature should be measured in the end-use, and should *not exceed 85°C.
4. The component power supply may be used in still air at 25°C if the output is derated; and the baseplate is maintained at or less than 85°C.
5. Secondary circuits have not been investigated for secondary interconnection or user accessibility.
6. The input and output terminals are not acceptable for field connections and are only intended for connection to mating connectors of internal wiring inside the end-use machine. The acceptability of these and the mating connectors relative to secureness, insulating materials, and temperature should be considered.
7. The "Gate In" and "Gate Out" terminals are in low voltage primary connected circuits.
8. Based on Paragraph 35A.1 of the Standard for Telephone Equipment, UL 1459; these products are acceptable for use with telephone equipment.
9. These units have an earth leakage current which exceeds 3.5 mA at high frequency inputs.

For units which operate at input frequencies higher than 63 Hz the end-product must be provided with industrial type sockets or plugs and the cross-sectional area of the internal protective earthing conductor may not be less than 1.0 mm², or the end-product must be additionally evaluated to determine acceptability with respect to leakage current requirements of UL 1950.

10. If the end-product input frequency exceeds 63 Hz, the following marking must be provided:

"WARNING - HIGH LEAKAGE CURRENT - EARTH CONNECTON ESSENTIAL BEFORE
CONNECTING SUPPLY."

D.A.
B.L.

CONSTRUCTION DETAILS:

General - The design, shape, and arrangement of parts shall be as illustrated except where variations are specifically described. See Ills. 1-3 for schematic.

Spacings - Min spacings between live parts of opposite polarity and between live and dead-metal parts shall be as indicated below.

Spacing Other Than at Field Wiring Terminals

Potential Involved Volts V rms (Peak)	Min Spacings, in (mm)	
	<u>Over Surface</u>	<u>Through Air</u>
0-50 (0-70.7)	3/64 (1.2) b	3/64 (1.2) b
51-125 (72.1-176.8)	1/16 (1.6) b	1/16 (1.6) b
126-250 (178.2-353.5)	3/32 (2.4) b	3/32 (2.4) b

- b - On printed wiring boards, their connectors, and board mounted electrical components, wired on the load side of line filters or similar voltage-peak reduction networks and components, a min spacing of 0.023 in (0.58 mm) plus 0.0002 in (0.005 mm) per volt peak shall be maintained over the surface and through air between uninsulated live parts and any other uninsulated live parts and any other uninsulated conductive part (live or dead) not of the same polarity.

Marking - All markings are located on outer chassis and are ink-stamped *or applied with self-adhesive label. Marking includes Vicor or Vicor Japan, model number and ratings.

Industrial units i.e. F, is "I", frequency 47-440 Hz units are provided with a "Warning High Leakage Current" label. Refer to Ill. 13.

Sealants - Provided on internal components for limiting vibration, Type ECCOSIL SC71 by Emerson and Cuming or Type NUVA-SIL 88 Loctite. Not relied upon for securement of components.

Internal Wiring - Unless otherwise specified, all internal wiring is *Recognized Component appliance wiring material (AVLV2), rated 300 V, 80°C min, and shall be PVC, TFE, PTFE, FEP or neoprene insulated, or shall be surface marked "VW-1".

Mechanical Assembly - Unless otherwise stated, all enclosure parts and component mounting assemblies are secured by welding or thread forming screws or machine screws provided with nuts and lockwashers.

Soldered Connections - All soldered connections are mechanically secured before soldering. When hand soldered, leads on printed circuit boards are bent over prior to soldering.

Exception - Printed circuit board assemblies that are wave soldered.

Electrical Tubing and Sleeving - Recognized Component tubing (YDPU2) and/or sleeving (UZFT2) rated 300 V, 105°C minimum, VW-1 min.

Printed Wiring Boards - Unless otherwise specified, all boards are Recognized Components (ZPMV2), suitable for the solder time and temperature used by the manufacturer, and having a minimum flame rating of 94V-1 and an operating temperature rating of at least 130°C.

Corrosion Protection - Parts are of corrosion resistant material or plated or painted as corrosion protection.

Tolerances - Unless specified otherwise, all indicated dimensions are nominal.

Differences Between Models - All models with same number of modules employ the same front end stage, but differ in the type of dc-dc models provided, number of outputs and output ratings.

Models are described as follows:

<u>Flat Pac Model Series</u>	<u>No. of dc-dc Modules</u>	<u>Fig. Nos.</u>	<u>Schematic Ills. No.</u>
VI-LFX-XX	1	1-4	1
VI-MFX-XX and VI-PFXX-XXX	2	5-9	5
VI-NFX-XX, VI-QFXX-XXX and VI-RFXXX-XXXX	3	10-13	9
*VI-MAX-XX and VI-PAX-XXX	2	9A	7A, 8A
*VI-NAX-XX, VI-QAXX-XXX and VI-RAXXX-XXXX	3	11A	11A, 12A

D.A.
B.L.