

File E100527  
Project 89ME13168

November 30, 1989

REPORT

on

COMPONENT - POWER SUPPLY

Vicor Corp.  
Andover, MA

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## DESCRIPTION

PRODUCT COVERED:

Component - Power Supplies, Mega Module Series, Model Nos. VI-abccc-deee-xx. VI may be replaced with IP. Refer to Ill. 3.

GENERAL CHARACTER AND USE:

**This product is a switching type power supply incorporating semiconductor components in the primary circuit. It is provided with input and output terminals for connection to the end use equipment. The power supply has been investigated for compliance with the Standard for Information Technology Equipment including Electrical Business Equipment, UL 60950-1: 2003, First Edition CAN/CSA C22.2 No. 60950-1-03, UL 1012, Standard for Power Supplies, Sixth Edition and UL 544, Standard for Medical and Dental Equipment, Third Edition.**

The Mega Modules are dc-dc power supplies consisting of 1 to 3 Recognized (QQFU2) Vicor dc-dc converter modules combined together to provide 1 to 3 outputs. A Mega Module provides a single output. Input voltage varies based on dc-dc converters selected and can be between 300 V dc and 12 V dc. Output voltages can be between 48 V dc and 2 V dc. Output powers can be between 600 W (single output) and 25 W for each output.

NOMENCLATURE BREAKDOWN:

See Ill. 3.

ELECTRICAL RATINGS:

See Ill. 3.

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and Report

\*Pages 2,3

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

The above referenced pages have been deleted from this Report.

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 Fifth Edition of the Standard for Information Processing and Business Equipment, UL 60950-1: 2003, CSA C22.2 No. 60950-1-03 First Edition and UL 478, 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 Normal Temperature Test was conducted under the unspecified air temperatures and yielding a temperature on the aluminum baseplate as indicated below:

<u>Mega Model Series +</u>	<u>Number of dc-dc Modules</u>	<u>Forced Air Ambient, °C</u>	<u>Max Base Plate Temperature, °C</u>
VI-LXXXX-XXXX	1	50	70
VI-MXXXX-XXXX, and VI-PXXXX-XXXX	2	50	80
VI-NXXXX-XXXX, VI-QXXXX-XXXX, and VI-RXXXX-XXXX	3	40	75

+ Where X is any number, letter, or optional.

The baseplate temperature should be measured in the end-use, and should not exceed 85° to ensure that transformer T1 is within a 65°C rise limitation.

\* 4. Secondary outputs 5 V - 40 V have been investigated for secondary interconnection and are compliant with SELV requirements in the configurations described in this report. Secondary outputs 48 V - 95 V are nonSELV outputs.

5. 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.

6. The "Gate In" and "Gate Out" terminals are in low voltage primary connected circuits.

7. All testing was conducted using the input fusing specified below. This fusing is not provided as part of the module and must be provided in the end-use.

<u>Megal Master + Series No.</u>	<u>Max Input Fuse</u>
VI-X6XXX-XXXX	5 A, 250 V
VI-X5XXX-XXXX	10 A, 125 V
VI-X4XXX-XXXX	20 A, 60 V
VI-X3XXX-XXXX	25 A, 60 V
VI-X2XXX-XXXX	25 A, 60 V

+ Where X can be any number, or optional

8. Leakage current measurements should be performed in the end use application.

9. For Medical and Dental applications, evaluation of these devices assumed dc supply being isolated from the utility source. If this is not the case, then all Abnormal Tests should be repeated and followed by a Dielectric Withstand Test and leakage current measurements.

10. Based on Paragraph 35 1A of the Standard for Telephone Equipment, UL 1459, these products are acceptable for use with Telephone Equipment.

**VI-abccc-deee-xx**  
**Mega/Master DC-DC Series**

**VI Product Type**

VI = VI (Vicor), VI = VE (Vicor RoHS), VI = IP (VJCL), VI = IE (VJCL RoHS)

**a Product Configuration (maybe followed by "B" = Booster)**

L = 1 module, 1 output      M = Up to 2 modules, 1 output  
 P = Up to 2 modules, 2 outputs      N = Up to 3 modules, 1 output  
 R = Up to 3 modules, 3 outputs      Q = Up to 3 modules, 2 outputs

**b Input Voltage (Vdc)**

Nominal	Range	Nominal	Range
0 = 12	10-20		
V = 24	10-36	4 = 72	55-100
1 = 24	21-32	T = 110	66-160
W = 24	18-36	F = 165	130-260
2 = 36	21-56	5 = 150	100-200
3 = 48	42-60	6 = 300	200-400
N = 48	36-76	7 = 225	100-375

**c Output Voltage (Vdc)**

Nominal	Max(A)	Max(W)	Nominal	Max(A)	Max(W)
Z = 2.0 @	40A	80W	2 = 15.0 @	13.3A	200W
Y = 3.3 @	40A	132W	N = 18.5 @	10.8A	200W
0 = 5.0 @	40A	200W	3 = 24.0 @	8.3A	200W
X = 5.2 @	38.5A	200W	L = 28.0 @	7.1A	200W
W = 5.5 @	36.4A	200W	J = 36.0 @	5.6A	200W
V = 5.8 @	34.5A	200W	K = 40.0 @	5A	200W
T = 6.5 @	30.8A	200W	4 = 48.0 @	4.2A	200W
R = 7.5 @	26.6A	200W	H = 52.0 @	3.8A	200W
M = 10.0 @	20A	200W	F = 72.0 @	2.8A	200W
1 = 12.0 @	16.7A	200W	D = 85.0 @	2.4A	200W
P = 13.8 @	14.5A	200W	B = 95.0 @	2.1A	200W

**d Product Grade**

C = Commercial -20C to 85C  
 I = Industrial -40C to 85C  
 M = Military -55C to 85C  
 E = Economy 0C to 85C

**eee Output Power /Current**

Vout ≥ 5V	Vout < 5V	Vout ≥ 5V	Vout < 5V
U = 200W	40A	M = 600W	120A
V = 150W	30A	P = 450W	90A
W = 100W	20A	Q = 400W	80A
X = 75W	15A	S = 300W	60A
Y = 50W	10A		
Z = 25W	5A		

**xx Options/Specials**

00-99 = Customer special, unique label or testing, non-safety related changes, **d** and **e** are optional for specials