参考資料

COSEL

TEST DATA OF MODULE M

(ACE series)

Regulated DC power supply
Jun.7.2003

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COSEL CO.,LTD.

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CONTENTS

1.Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 1
2.Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 2
3.Dynamic Load Response ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 3
4.Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・・・・・・・・・・・・・・ 4
5.Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 5
6.Ripple Voltage (by Ambient Temperature) ・・・・・・・・・・・・・・・・・・・・・・ 6
7.Ambient Temperature Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 7
8.Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 8
9.Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 9
10.Overcurrent Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 10
11.Overvoltage Protection ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 11
12.Figure of Testing Circuitry ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ 12
(Final Page 12)

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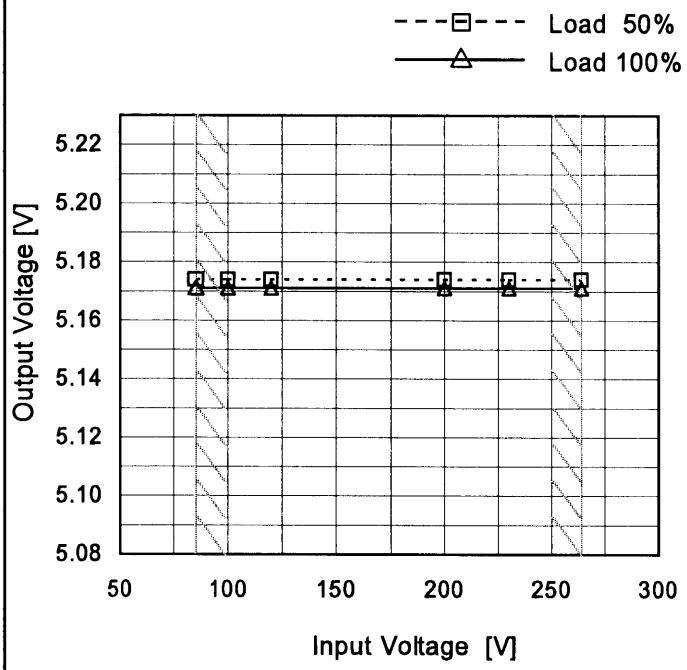
Model	MODULE M
Item	Line Regulation
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	5.174	5.171
100	5.174	5.171
120	5.174	5.171
200	5.174	5.171
230	5.174	5.171
264	5.174	5.171
--	-	-
--	-	-
--	-	-

BC-0892

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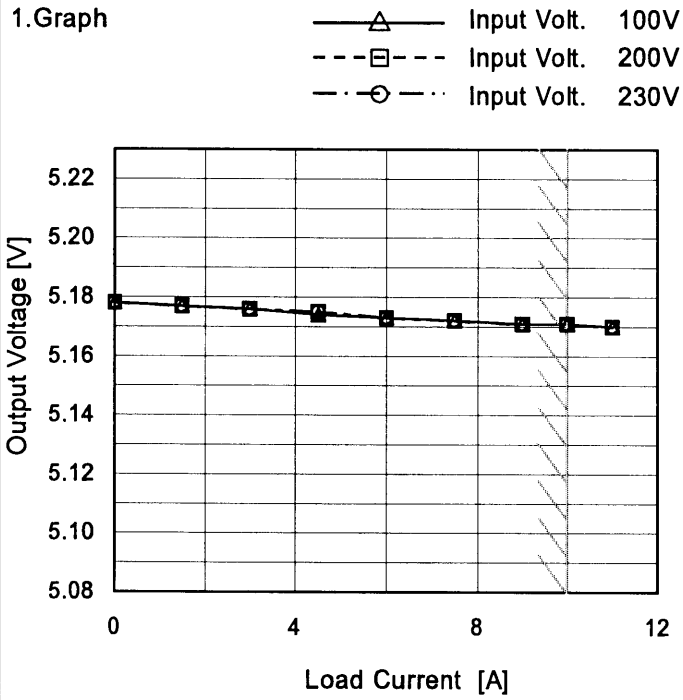
Model	MODULE M
Item	Load Regulation
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	5.178	5.178	5.178
1.5	5.177	5.177	5.177
3.0	5.176	5.176	5.176
4.5	5.174	5.175	5.175
6.0	5.173	5.173	5.173
7.5	5.172	5.172	5.172
9.0	5.171	5.171	5.171
10.0	5.171	5.171	5.171
11.0	5.170	5.170	5.170
--	-	-	-
--	-	-	-

COSEL

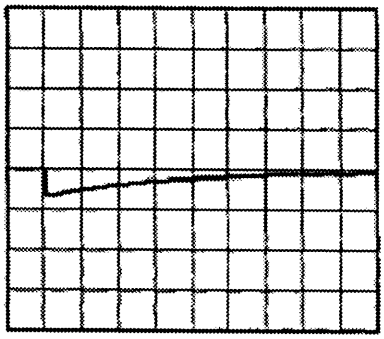
Model	MODULE M
Item	Dynamic Load Response
Object	+5V10A

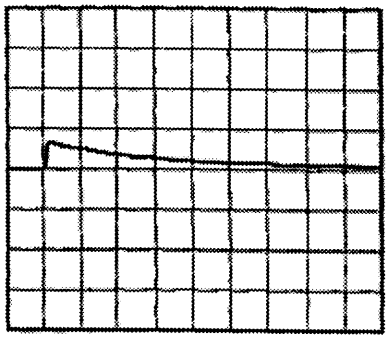
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 mS

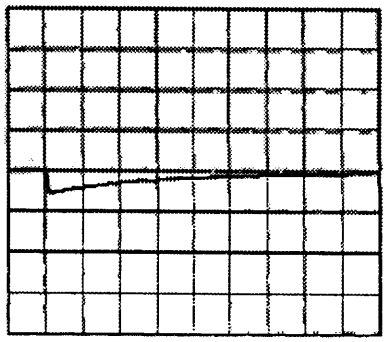
Load Current

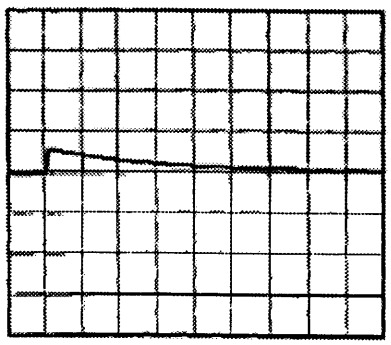
Min. Load (0A) ⟷ Load 100% (10A)





Min. Load (0A) ⟷ Load 50% (5A)





* The characteristic of AC200V is equal.

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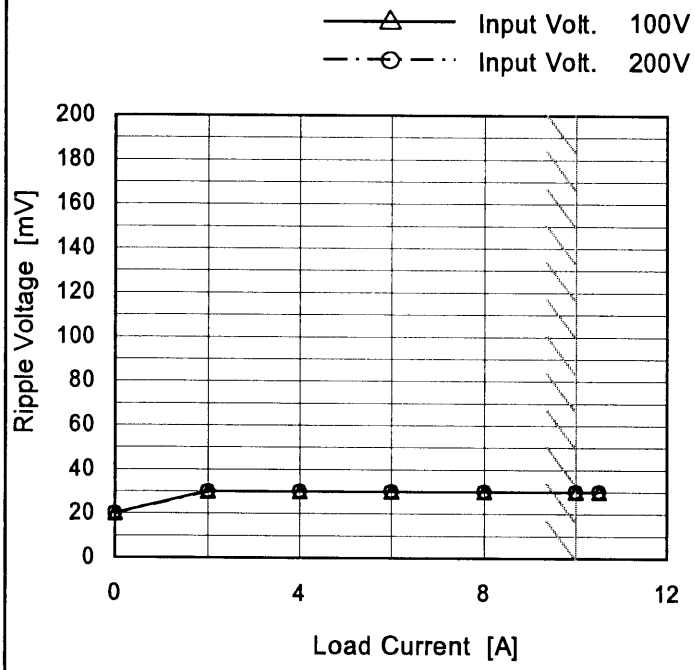
Model	MODULE M
Item	Ripple Voltage (by Load Current)
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	20	20
2.0	30	30
4.0	30	30
6.0	30	30
8.0	30	30
10.0	30	30
10.5	30	30
--	-	-
--	-	-
--	-	-
--	-	-

T1: Due to AC Input Line
T2: Due to Switching

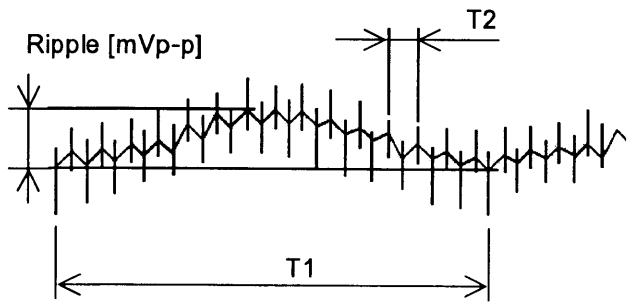


Fig. Complex Ripple Wave Form

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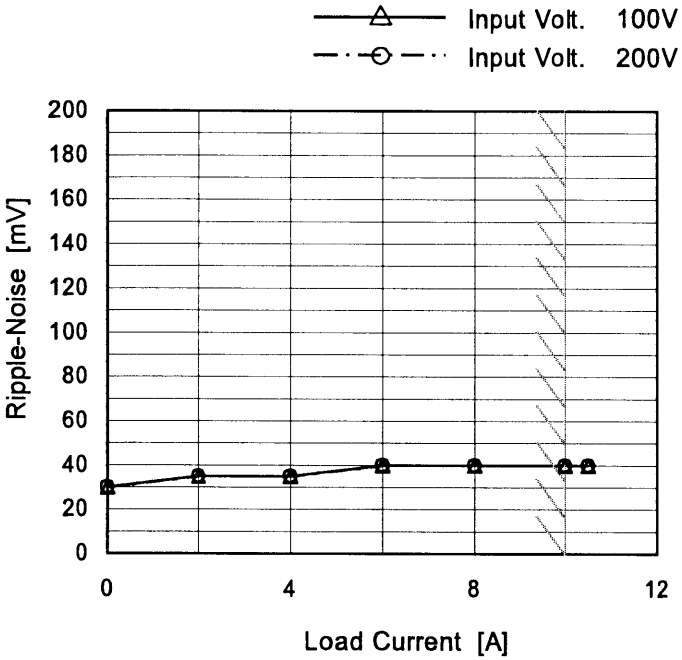
Model	MODULE M
Item	Ripple-Noise
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

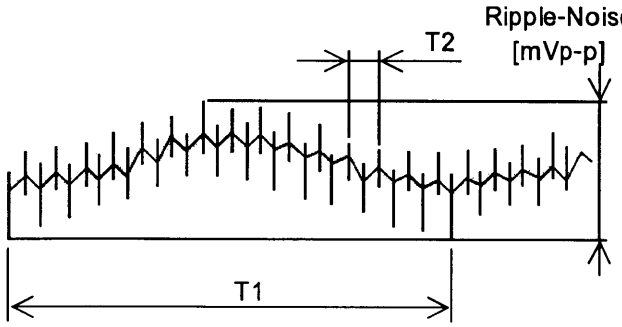


Fig. Complex Ripple Wave Form

2.Values

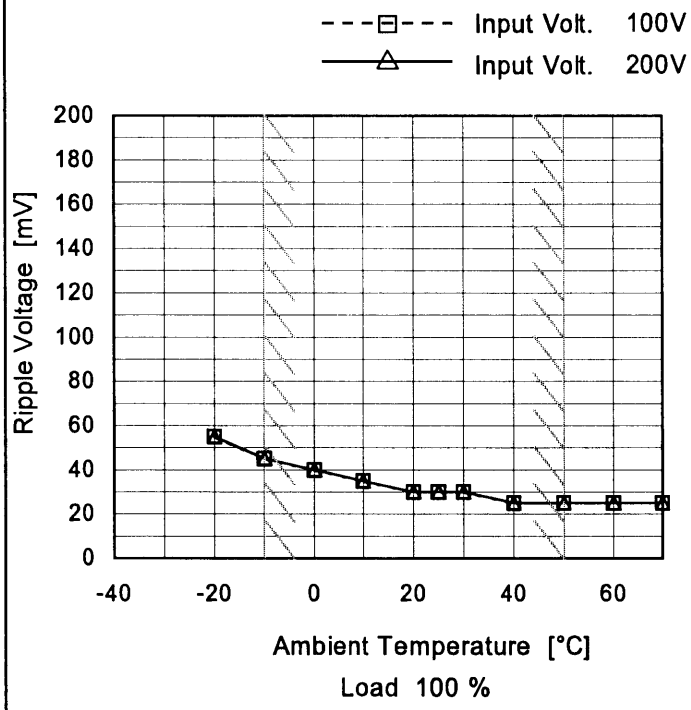
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	30	30
2.0	35	35
4.0	35	35
6.0	40	40
8.0	40	40
10.0	40	40
10.5	40	40
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MODULE M
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V10A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-20	55	55
-10	45	45
0	40	40
10	35	35
20	30	30
25	30	30
30	30	30
40	25	25
50	25	25
60	25	25
70	25	25

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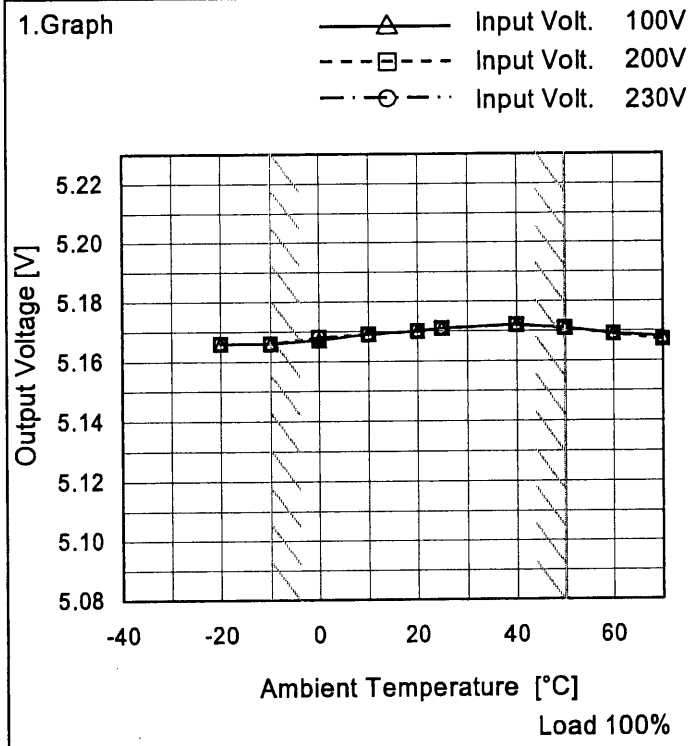
Model	MODULE M
Item	Ambient Temperature Drift
Object	+5V10A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	5.166	5.166	5.166
-10	5.166	5.166	5.166
0	5.167	5.168	5.168
10	5.169	5.169	5.169
20	5.170	5.170	5.170
25	5.171	5.171	5.171
40	5.172	5.172	5.172
50	5.171	5.171	5.171
60	5.169	5.169	5.169
70	5.168	5.167	5.167
--	-	-	-

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Model	MODULE M	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V10A	

1.Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10 - 50°C
Input Voltage : 85 - 264V
Load Current : 0 - 10A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	264	0	5.179	±7	±0.1
Minimum Voltage	-20	85	10	5.166		

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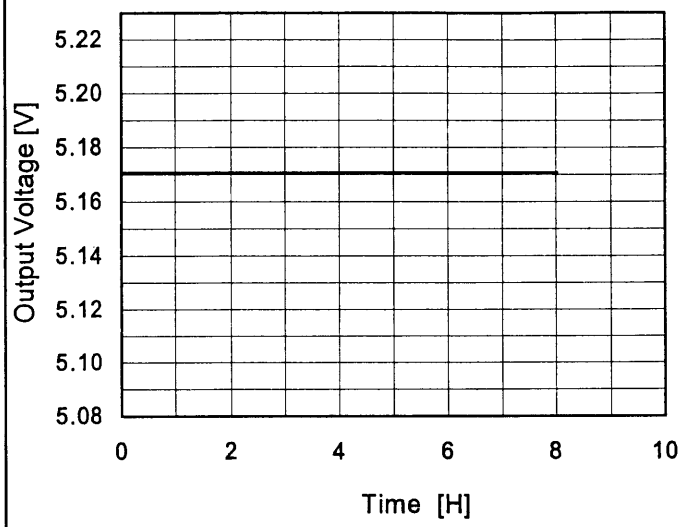
Model	MODULE M
Item	Time Lapse Drift
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

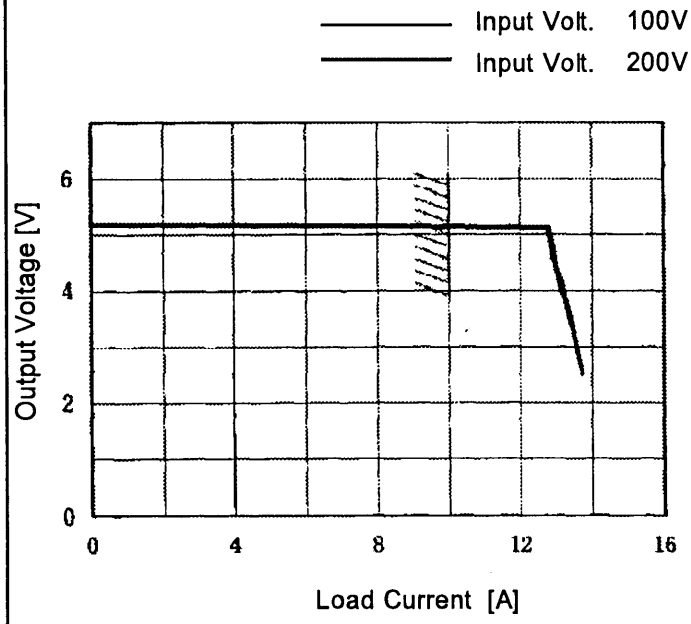
Time since start [H]	Output Voltage [V]
0.0	5.172
0.5	5.171
1.0	5.171
2.0	5.171
3.0	5.171
4.0	5.171
5.0	5.171
6.0	5.171
7.0	5.170
8.0	5.170

COSEL

Model	MODULE M
Item	Overcurrent Protection
Object	+5V10A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

Intermittent operation occurs when the output voltage is from 2.4V to 0V.

2.Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
5.00	10.00	10.00
4.75	12.88	12.91
4.50	12.94	12.98
4.00	13.12	13.17
3.50	13.35	13.38
3.00	13.52	13.54
2.50	13.69	13.70
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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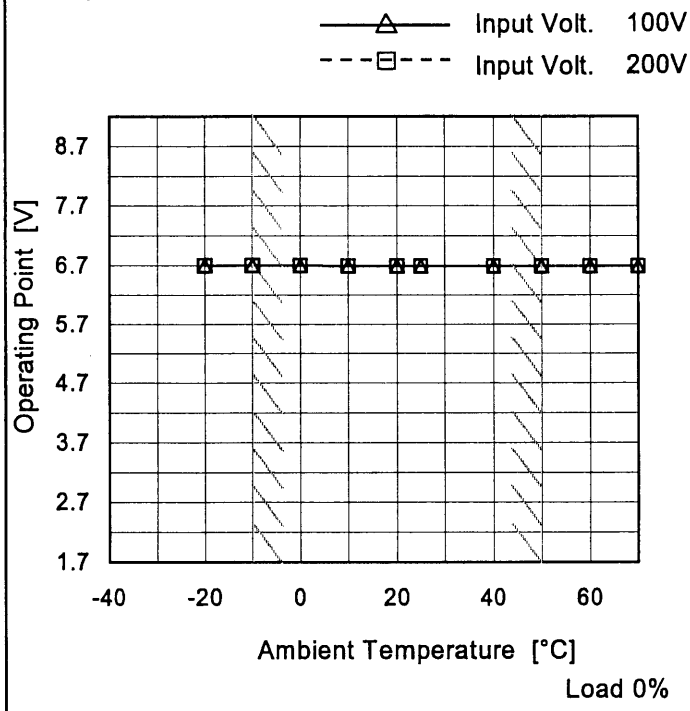
Model	MODULE M
Item	Overvoltage Protection
Object	+5V10A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 200[V]
-20	6.66	6.66
-10	6.66	6.66
0	6.66	6.66
10	6.65	6.65
20	6.65	6.65
25	6.65	6.65
40	6.65	6.65
50	6.65	6.65
60	6.65	6.65
70	6.65	6.65
--	-	-

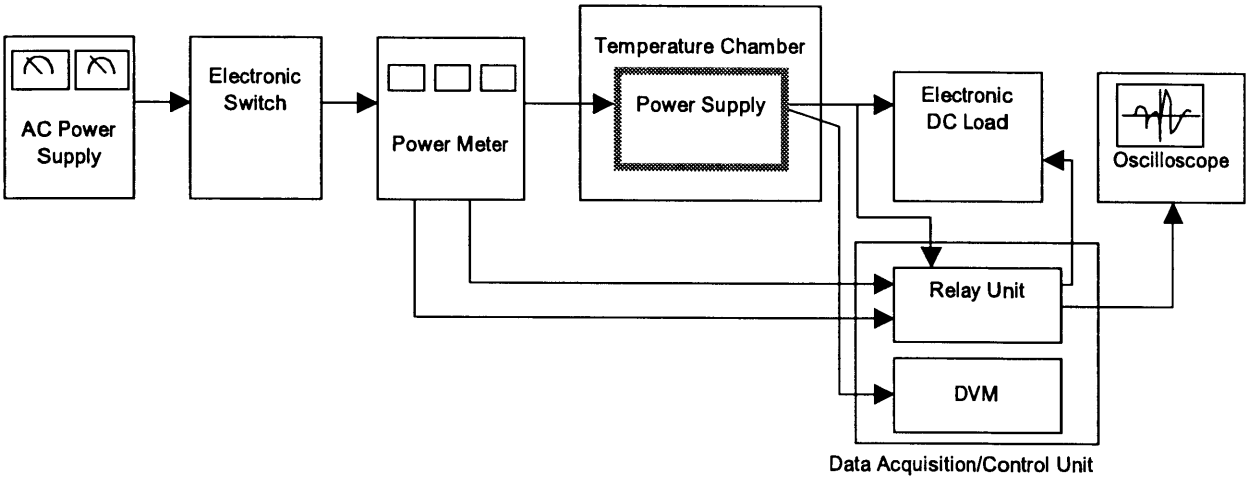


Figure A

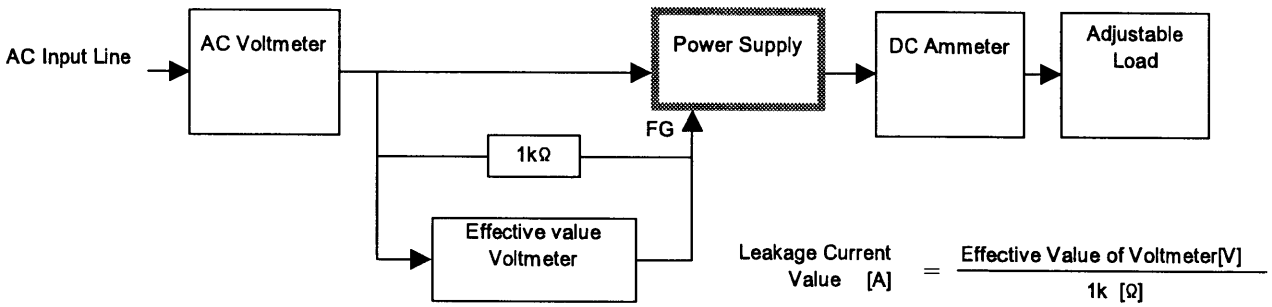


Figure B (DEN-AN)

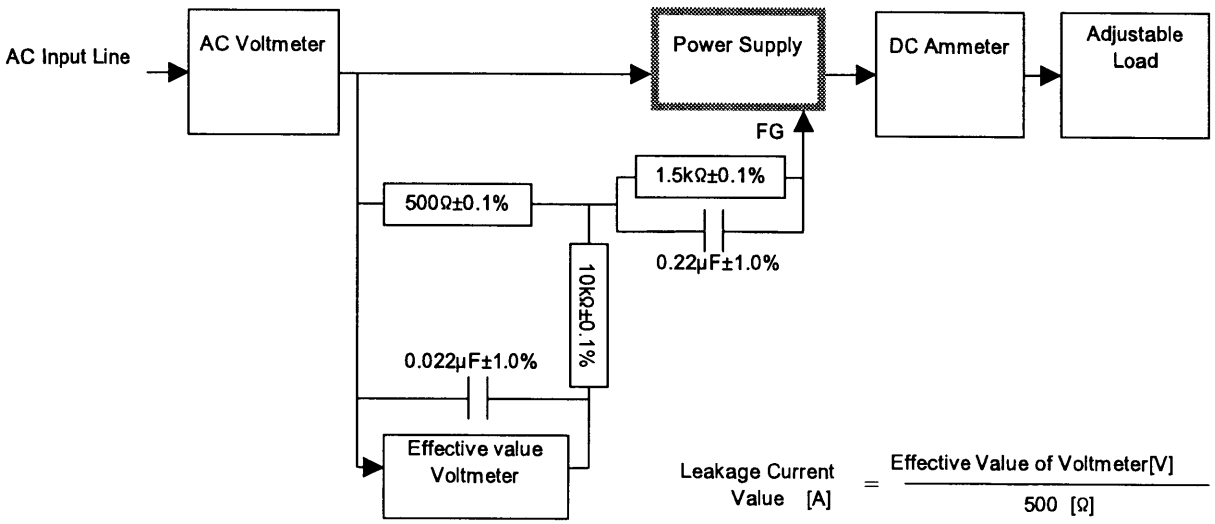


Figure B (IEC60950)