



TEST DATA OF PAA100F-12  
(200V INPUT)

Regulated DC Power Supply

Date : Apr.17. 1996

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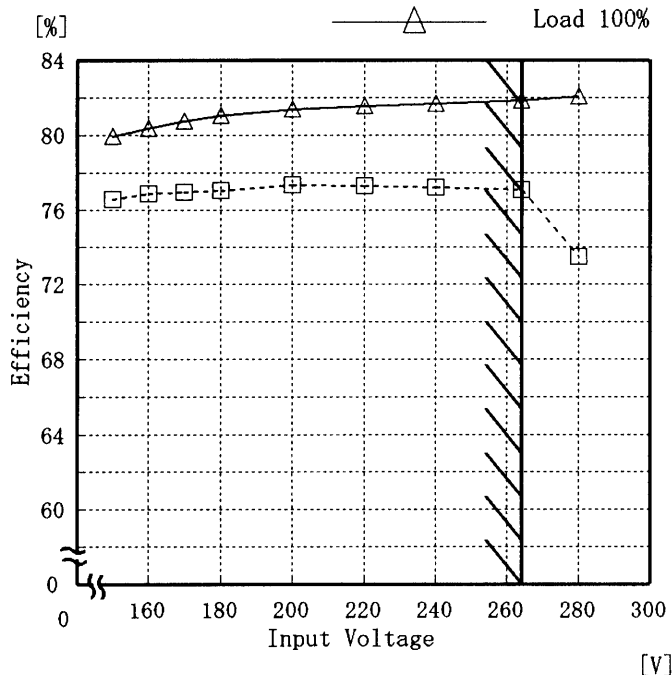
Model		PAA100F-12		Temperature	25°C																																
Item		Line Regulation 静的入力変動		Testing Circuitry	Figure A																																
Object		+12V8.5A																																			
1. Graph			-----□----- Load 50% -----△----- Load 100%	2. Values																																	
[V] Output Voltage  Input Voltage [V]			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th>Load 50%</th> <th>Load 100%</th> </tr> <tr> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>150</td><td>12.054</td><td>12.053</td></tr> <tr><td>160</td><td>12.054</td><td>12.053</td></tr> <tr><td>170</td><td>12.054</td><td>12.053</td></tr> <tr><td>180</td><td>12.054</td><td>12.053</td></tr> <tr><td>200</td><td>12.054</td><td>12.053</td></tr> <tr><td>220</td><td>12.054</td><td>12.053</td></tr> <tr><td>240</td><td>12.054</td><td>12.053</td></tr> <tr><td>264</td><td>12.054</td><td>12.053</td></tr> <tr><td>280</td><td>12.054</td><td>12.053</td></tr> </tbody> </table>			Input Voltage [V]	Load 50%	Load 100%	Output Volt. [V]	Output Volt. [V]	150	12.054	12.053	160	12.054	12.053	170	12.054	12.053	180	12.054	12.053	200	12.054	12.053	220	12.054	12.053	240	12.054	12.053	264	12.054	12.053	280	12.054	12.053
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Model	PAA100F-12
Item	Efficiency 効率
Object	_____

Temperature 25°C  
Testing Circuitry Figure A

1. Graph



2. Values

Input Voltage [V]	Load 50%	Load 100%
	Efficiency [%]	Efficiency [%]
150	76.6	80.0
160	76.9	80.4
170	77.0	80.8
180	77.1	81.1
200	77.4	81.4
220	77.3	81.6
240	77.2	81.7
264	77.1	81.9
280	73.5	82.1

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

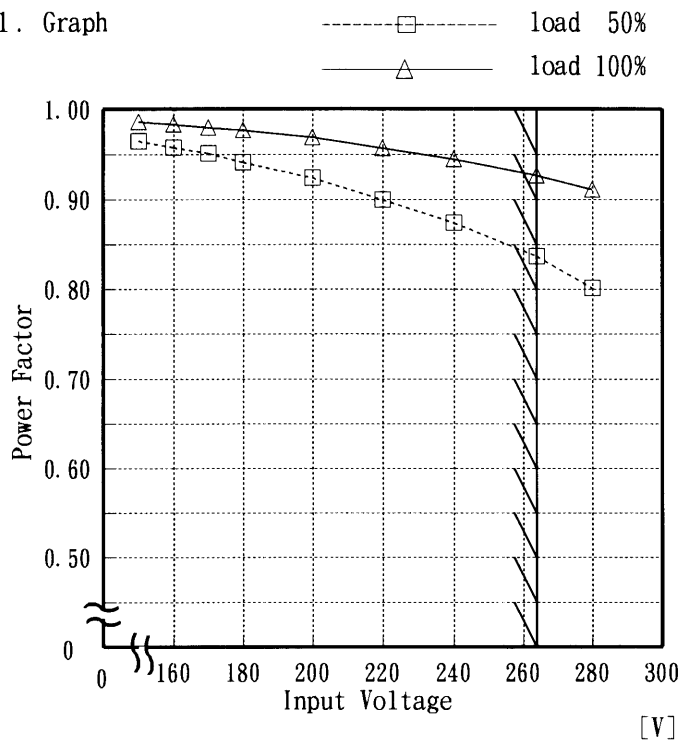
(注)斜線は定格入力電圧範囲を示す。



Model	PAA100F-12
Item	Power Factor 力率
Object	

Temperature 25 °C  
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格入力電圧範囲を示す。

2. Values

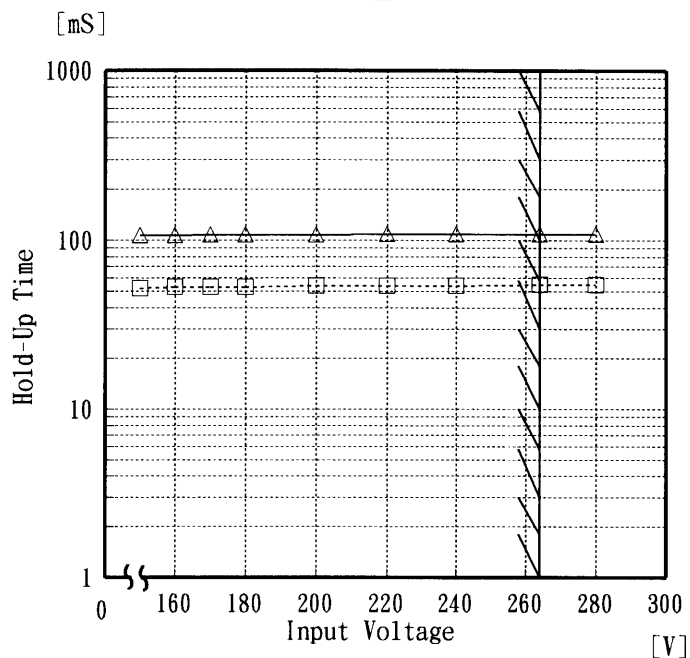
Input Voltage [V]	load 50%	load 100%
	Power Factor	Power Factor
150	0.97	0.99
160	0.96	0.98
170	0.95	0.98
180	0.94	0.98
200	0.92	0.97
220	0.90	0.96
240	0.87	0.95
264	0.84	0.93
280	0.80	0.91



Model	PAA100F-12
Item	Hold-Up Time 出力保持時間
Object	+12V 8.5A

Temperature 25 °C  
Testing Circuitry Figure A

1. Graph  
 —△— Load 50%  
 - -□- - Load 100%



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

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

出力保持時間とは、AC入力断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。

(注)斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	Load 50%	Load 100%
	Hold-Up Time [mS]	Hold-Up Time [mS]
150	107	52
160	107	53
170	108	53
180	108	53
200	108	54
220	109	54
240	109	54
264	109	55
280	109	55

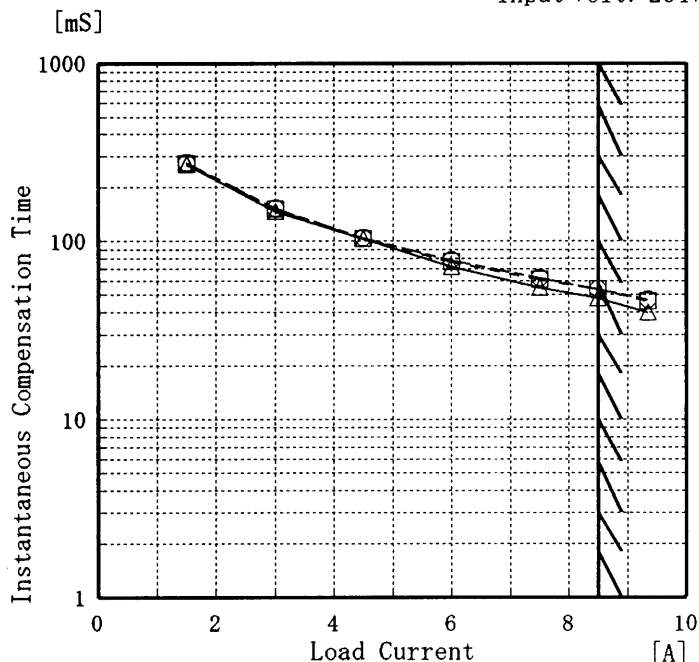


Model	PAA100F-12
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+12V8.5A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 170V  
 - - -□- - - Input Volt. 200V  
 - - -○- - - Input Volt. 264V



This duration covers from Shut-off of AC-IN to the moment when output voltage descends to its 95% of the rated.

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

瞬時停電保障時間とは、出力電圧が定格値の95%になる時の瞬時停電時間をいう。

(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
	Time [mS]		
0.0	—	—	—
1.5	271	272	276
3.0	147	152	154
4.5	103	103	105
6.0	72	77	78
7.5	55	61	62
8.5	48	54	54
9.4	40	46	47
—	—	—	—
—	—	—	—
—	—	—	—



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<p>Model PAA100F-12</p> <p>Item Ripple Voltage (by Load Current) リップル電圧 (負荷電流特性)</p> <p>Object +12V 8.5A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																						
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<p>Model PAA100F-12</p> <p>Item Ripple-Noise リップルノイズ</p> <p>Object +12V8.5A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																						
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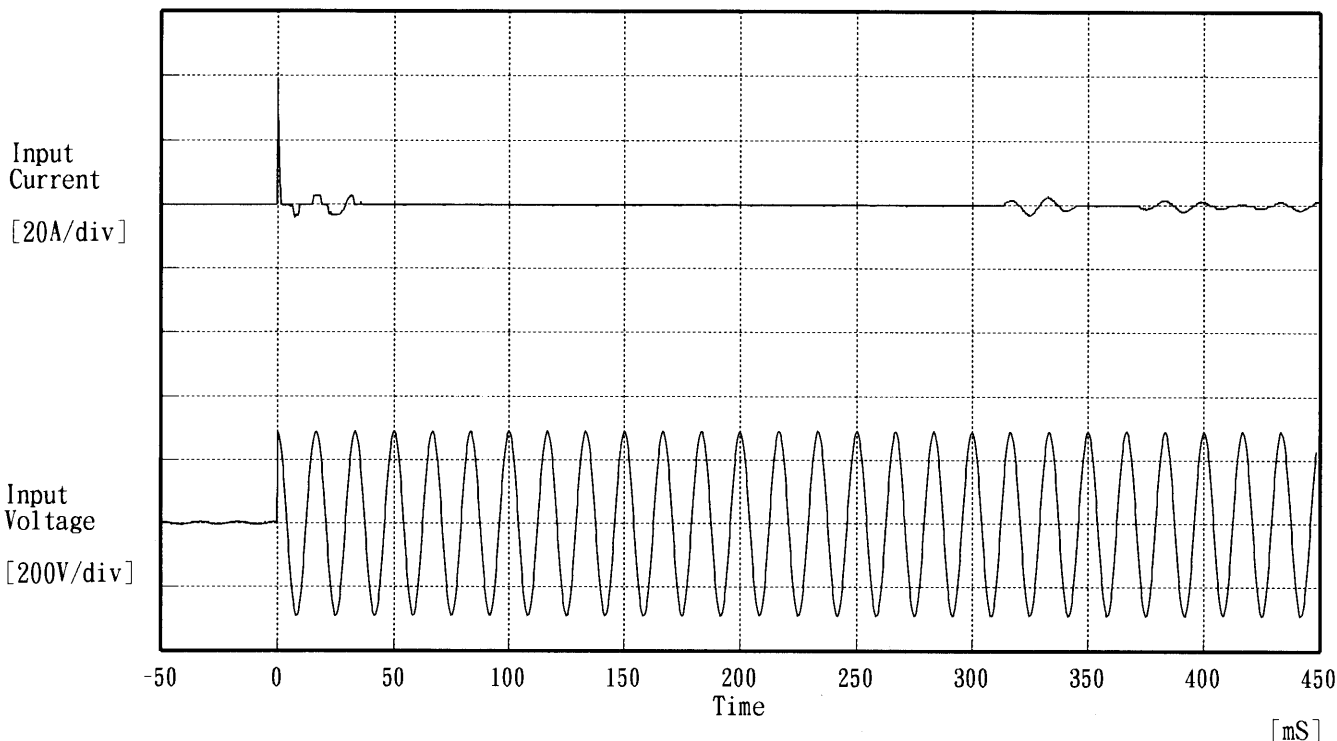
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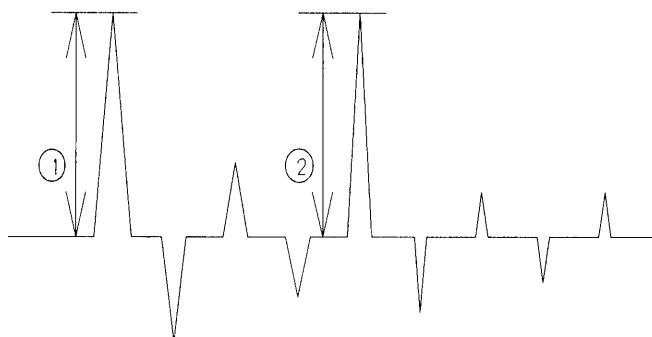
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<b>Item</b> Overvoltage Protection 過電圧保護																																																				
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<p>1. Graph</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>—△— Input Volt. 170 V</p> <p>- - -□- - - Input Volt. 200 V</p> <p>- - -○- - - Input Volt. 264 V</p> </div> <div> <p>2. Values</p> </div> </div> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> <p>(注)斜線は定格周囲温度範囲を示す。</p>	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Ambient Temp. [°C]</th> <th>Input Volt. 170[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 264[V]</th> </tr> <tr> <th colspan="3">Operating Point [V]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>15.43</td><td>15.43</td><td>15.43</td></tr> <tr><td>-10</td><td>15.49</td><td>15.49</td><td>15.49</td></tr> <tr><td>0</td><td>15.55</td><td>15.55</td><td>15.55</td></tr> <tr><td>10</td><td>15.67</td><td>15.67</td><td>15.67</td></tr> <tr><td>20</td><td>15.76</td><td>15.76</td><td>15.76</td></tr> <tr><td>25</td><td>15.81</td><td>15.81</td><td>15.81</td></tr> <tr><td>30</td><td>15.86</td><td>15.86</td><td>15.86</td></tr> <tr><td>40</td><td>15.95</td><td>15.95</td><td>15.95</td></tr> <tr><td>50</td><td>16.03</td><td>16.03</td><td>16.03</td></tr> <tr><td>60</td><td>16.12</td><td>16.12</td><td>16.12</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Ambient Temp. [°C]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	Operating Point [V]			-20	15.43	15.43	15.43	-10	15.49	15.49	15.49	0	15.55	15.55	15.55	10	15.67	15.67	15.67	20	15.76	15.76	15.76	25	15.81	15.81	15.81	30	15.86	15.86	15.86	40	15.95	15.95	15.95	50	16.03	16.03	16.03	60	16.12	16.12	16.12	—	—	—	—
Ambient Temp. [°C]	Input Volt. 170[V]		Input Volt. 200[V]	Input Volt. 264[V]																																																
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0	15.55	15.55	15.55																																																	
10	15.67	15.67	15.67																																																	
20	15.76	15.76	15.76																																																	
25	15.81	15.81	15.81																																																	
30	15.86	15.86	15.86																																																	
40	15.95	15.95	15.95																																																	
50	16.03	16.03	16.03																																																	
60	16.12	16.12	16.12																																																	
—	—	—	—																																																	



Model	PAA100F-12	Temperature 25 °C Testing Circuitry Figure A
Item	Inrush Current 突入電流	
Object	_____	



Input Voltage 200 V  
 Frequency 60 Hz  
 Load 100 %  
 Inrush Current  
 ① 39.21 [A]  
 ② 3.00 [A]

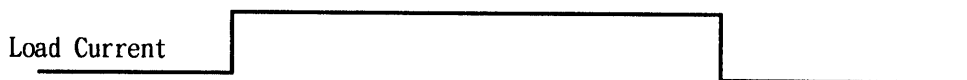




Model	PAA100F-12	Temperature	25 °C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+12V 8.5A		

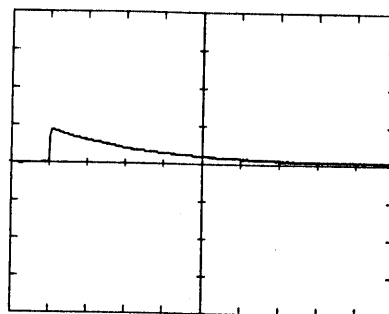
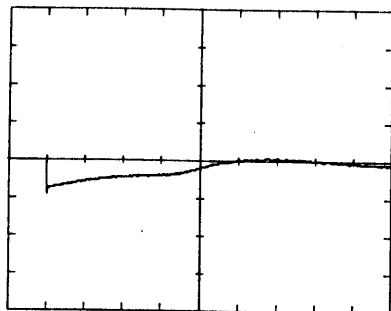
Input Volt. 200 V

Cycle 1000 mS



Min. Load ↔

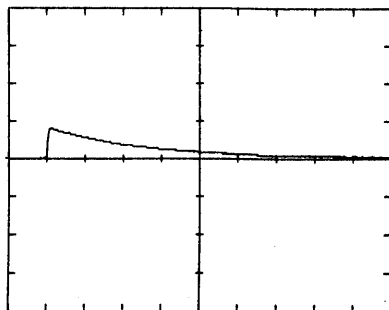
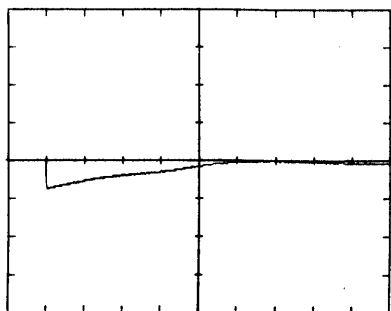
Load 100 %



Min. Load ↔

Load 50 %

100 mV/div



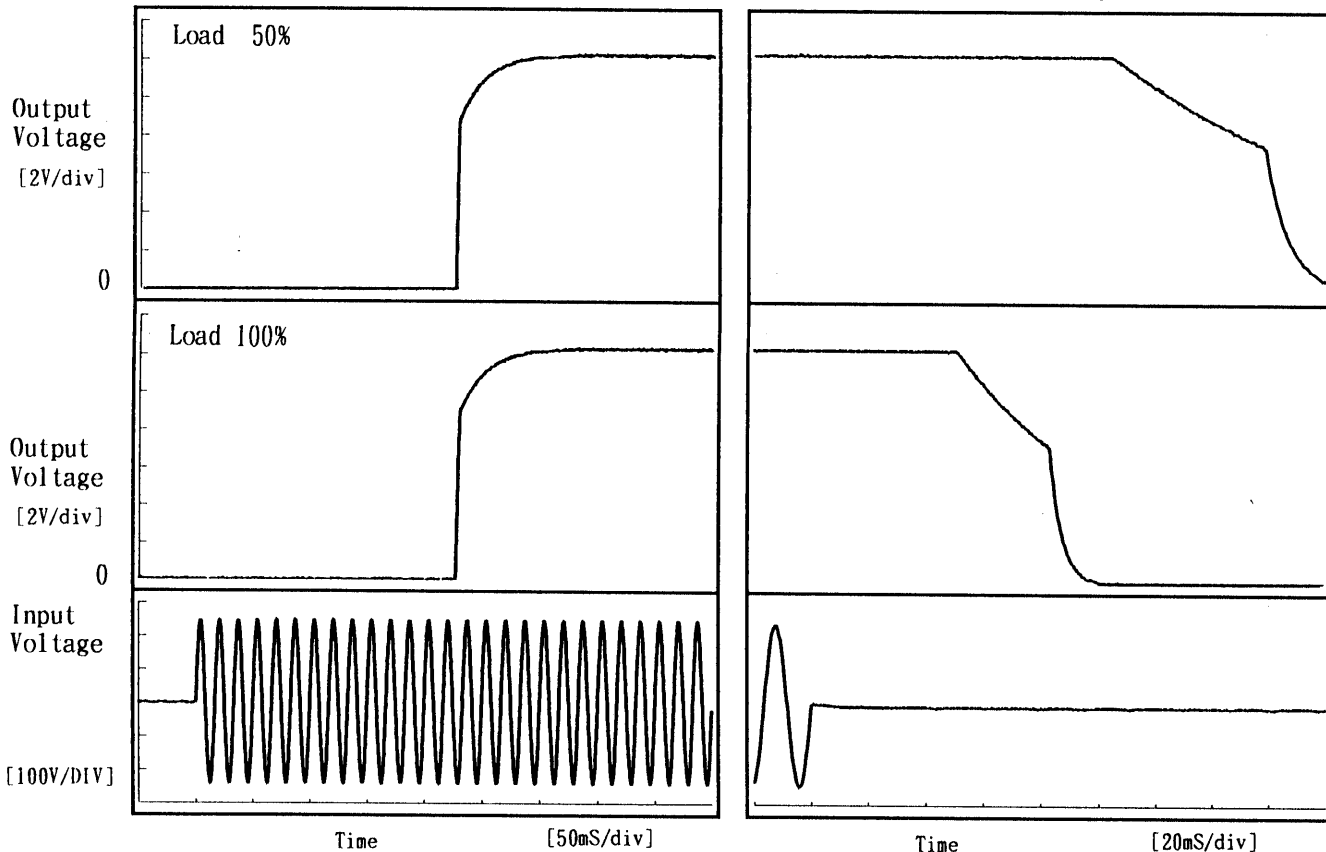
10 mS/div

# COSEL

Model	PAA100F-12	Temperature	25 °C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12V 8.5 A		

1. Graph

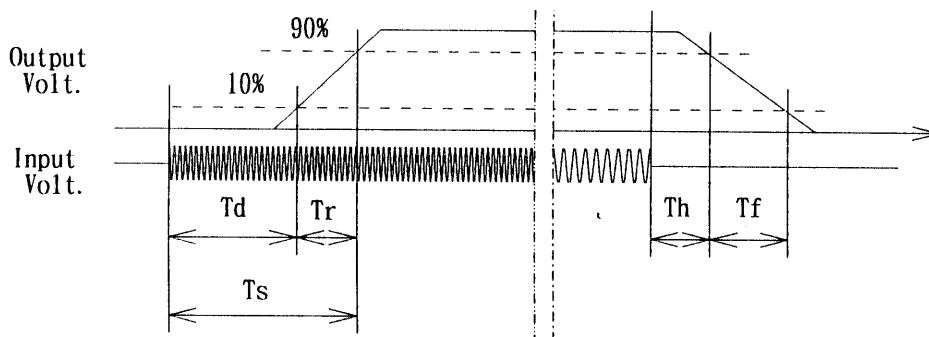
Input Volt. 170 V



2. Values

[mS]

Load \ Time	T <sub>d</sub>	T <sub>r</sub>	T <sub>s</sub>	T <sub>h</sub>	T <sub>f</sub>
50 %	226.5	22.5	249.0	118.5	55.8
100 %	227.3	21.8	249.0	58.5	32.8



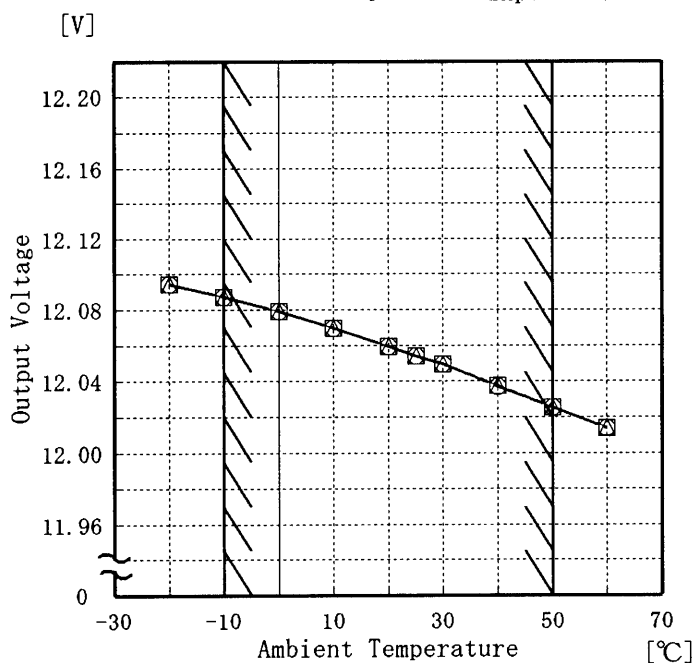


Model	PAA100F-12
Item	Ambient Temperature Drift 周囲温度変動
Object	+12V8.5A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 170V  
 - - -□- - - Input Volt. 200V  
 - - -○- - - Input Volt. 264V



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

(注)斜線は定格周囲温度範囲を示す。

2. Values

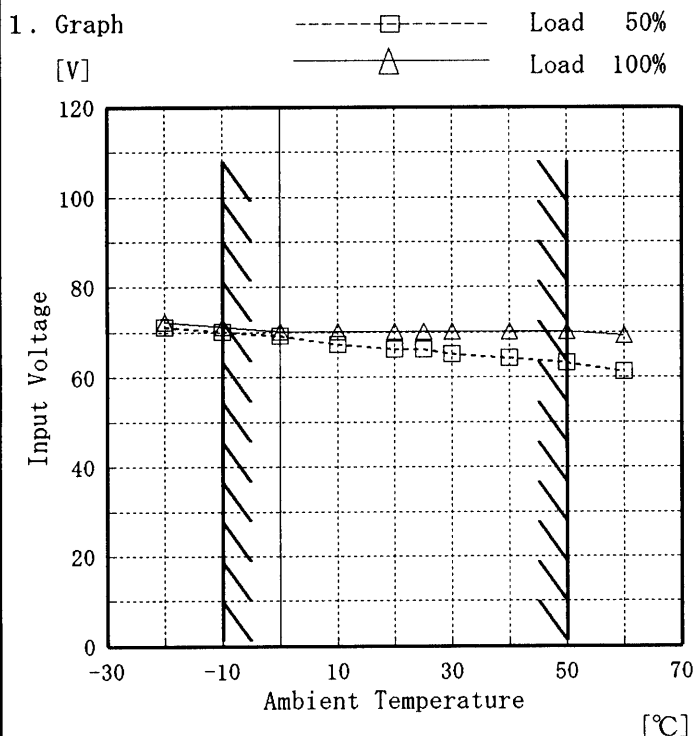
Temperature [°C]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]
-20	12.094	12.094	12.094
-10	12.087	12.087	12.087
0	12.079	12.079	12.079
10	12.070	12.070	12.070
20	12.060	12.059	12.059
25	12.054	12.054	12.054
30	12.050	12.050	12.050
40	12.037	12.037	12.037
50	12.025	12.025	12.025
60	12.014	12.014	12.014
-	-	-	-





Model	PAA100F-12
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12V8.5A

Testing Circuitry Figure A



2. Values

Ambient Temp. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-20	71	72
-10	70	71
0	69	70
10	67	70
20	66	70
25	66	70
30	65	70
40	64	70
50	63	70
60	61	69
—	—	—

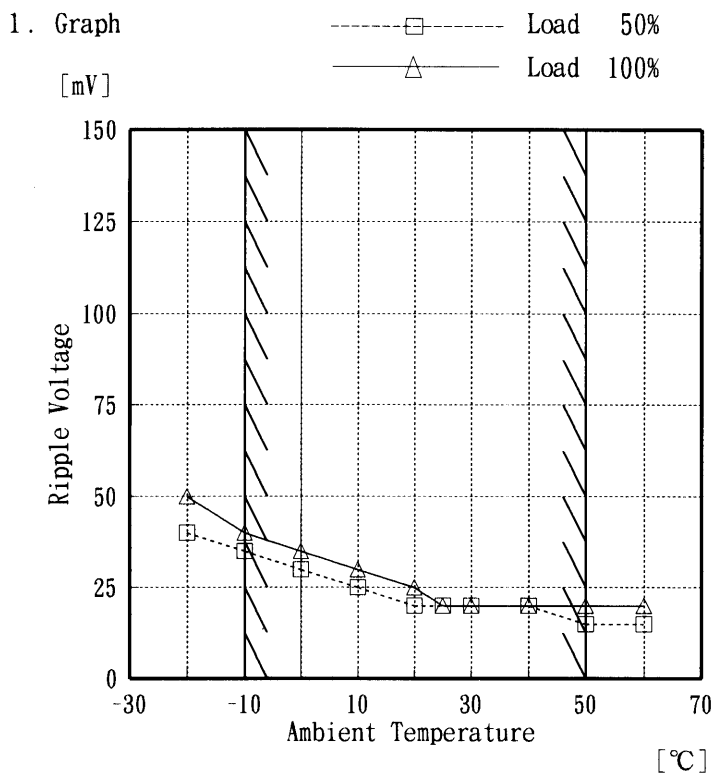
Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。



Model	PAA100F-12
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+12V 8.5A

Testing Circuitry Figure A



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

(注)斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temp. [°C]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-20	40	50
-10	35	40
0	30	35
10	25	30
20	20	25
25	20	20
30	20	20
40	20	20
50	15	20
60	15	20
—	—	—



Model		PAA100F-12		Temperature		25 °C																							
Item		Time Lapse Drift 経時ドリフト		Testing Circuitry		Figure A																							
Object		+12V8.5A																											
1. Graph				2. Values																									
<p>[V]</p> <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 200V Load 100%</p>				<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>12.067</td></tr> <tr><td>0.5</td><td>12.054</td></tr> <tr><td>1.0</td><td>12.054</td></tr> <tr><td>2.0</td><td>12.054</td></tr> <tr><td>3.0</td><td>12.053</td></tr> <tr><td>4.0</td><td>12.053</td></tr> <tr><td>5.0</td><td>12.053</td></tr> <tr><td>6.0</td><td>12.053</td></tr> <tr><td>7.0</td><td>12.053</td></tr> <tr><td>8.0</td><td>12.053</td></tr> </tbody> </table>				Time since start [H]	Output Voltage [V]	0.0	12.067	0.5	12.054	1.0	12.054	2.0	12.054	3.0	12.053	4.0	12.053	5.0	12.053	6.0	12.053	7.0	12.053	8.0	12.053
Time since start [H]	Output Voltage [V]																												
0.0	12.067																												
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5.0	12.053																												
6.0	12.053																												
7.0	12.053																												
8.0	12.053																												



Model		PAA100F-12	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+12V 8.5A	

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 : 170~264 V

Load Current : 0.0~8.5 A

\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 : -10~50 °C

入力電圧 : 170~264 V

負荷電流 : 0.0~8.5 A

\* 定電圧精度(変動値) =  $\pm(\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

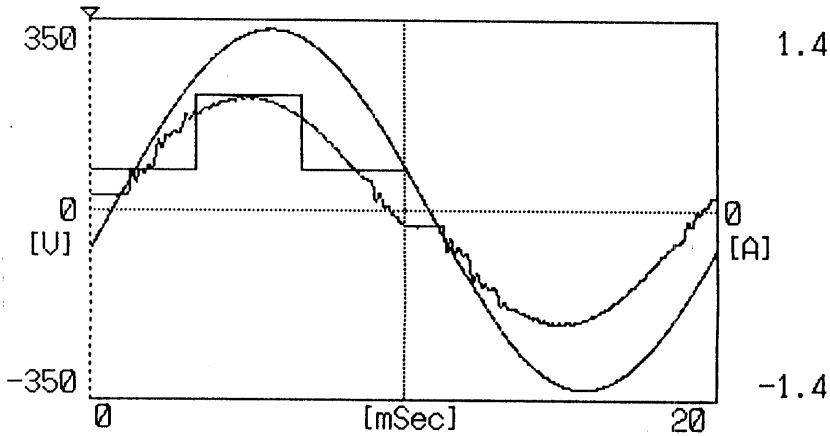
$$* \text{定電圧精度(変動率)} = \left( \frac{\text{変動値}}{\text{定格出力電圧}} \right) \times 100$$

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	170	0.0	12.088	±32	±0.3
Minimum Voltage	50	264	8.5	12.025		



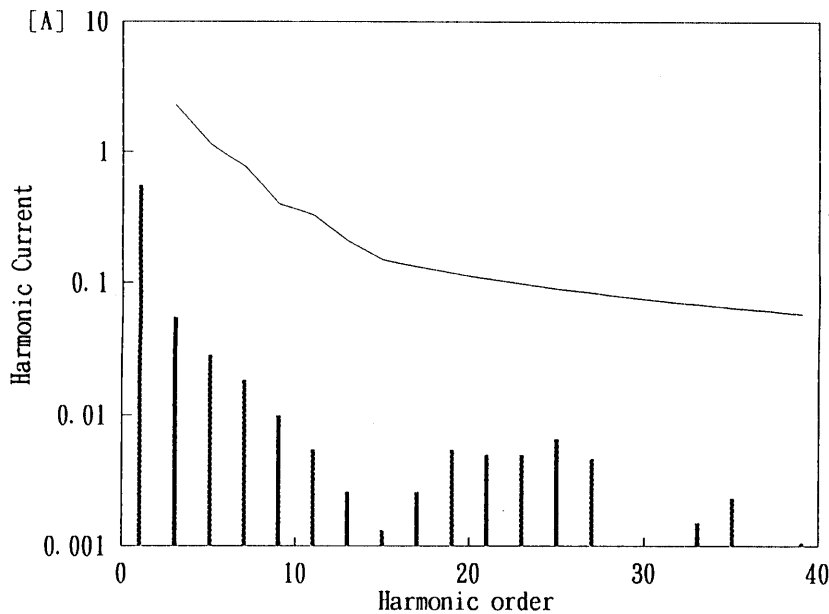
Model		PAA100F-12	Temperature		25°C
Item		Harmonic Current 高調波電流	Testing Circuitry		Figure E
Object					

1. Input Current Waveform



Conditions	Values
Input Voltage [V]	230.8
Input Current [A]	0.55
Active Power [W]	123.1
Apparent Power [VA]	127.4
Frequency [Hz]	50
Power Factor	0.966
Output Power [W]	100

2. Harmonic Current



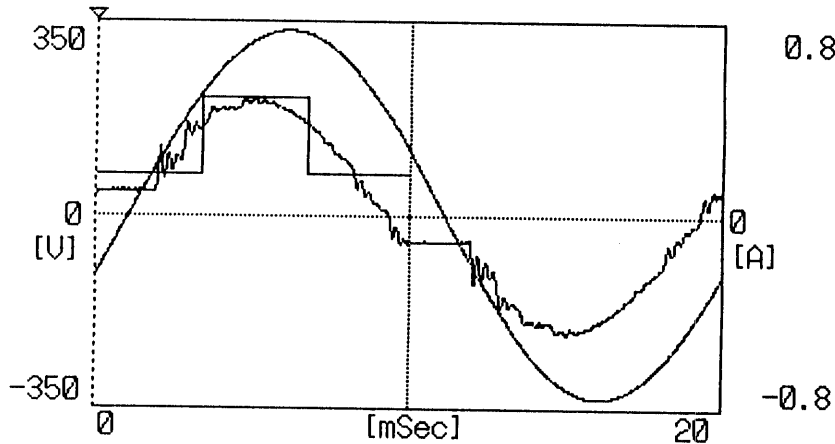
Harmonic Current  
 高調波電流  
 Limits for Class A equipment of odd harmonics  
 クラスAの機器に対する高調波奇数次限度値

Harmonics order 高調波次数	Limits 限度値 [A]	Values 測定値 [A]
1	—	0.55278
2	—	0.00016
3	2.30000	0.05491
4	—	0.00002
5	1.14000	0.02857
6	—	0.00007
7	0.77000	0.01839
8	—	0.00003
9	0.40000	0.00991
10	—	0.00004
11	0.33000	0.00541
12	—	0.00006
13	0.21000	0.00258
14	—	0.00001
15	0.15000	0.00132
16	—	0.00001
17	0.13235	0.00260
18	—	0.00004
19	0.11842	0.00544
20	—	0.00002
21	0.10714	0.00494
22	—	0.00002
23	0.09783	0.00496
24	—	0.00002
25	0.09000	0.00661
26	—	0.00002
27	0.08333	0.00466
28	—	0.00003
29	0.07759	0.00091
30	—	0.00003
31	0.07258	0.00022
32	—	0.00002
33	0.06818	0.00151
34	—	0.00002
35	0.06429	0.00232
36	—	0.00002
37	0.06081	0.00077
38	—	0.00003
39	0.05769	0.00106
40	—	0.00004



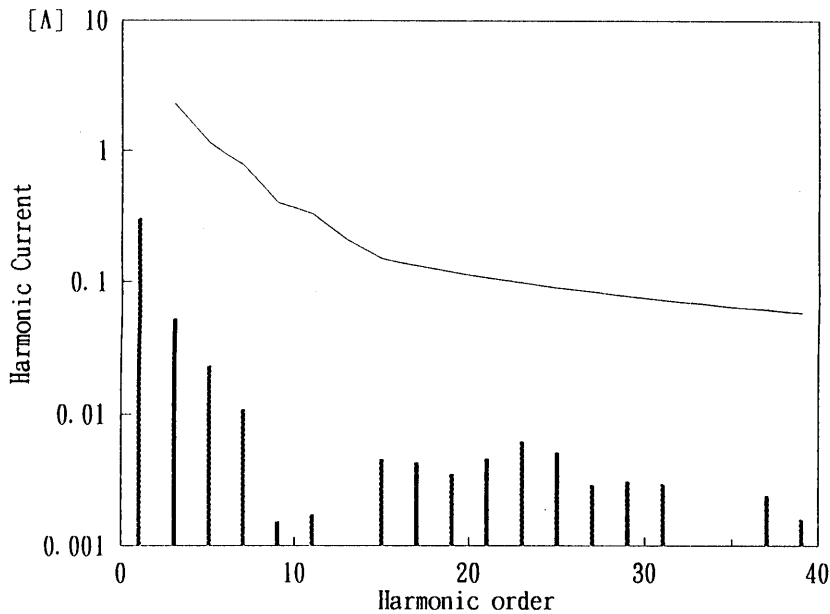
Model	PAA100F-12	Temperature	25°C
Item	Harmonic Current 高調波電流	Testing Circuitry	Figure E
Object			

1. Input Current Waveform



Conditions	Values
Input Voltage [V]	231
Input Current [A]	0.31
Active Power [W]	64.5
Apparent Power [VA]	71
Frequency [Hz]	50
Power Factor	0.908
Output Power [W]	50

2. Harmonic Current



— Harmonic Current  
 高調波電流  
 - - - Limits for Class A equipment of odd harmonics  
 クラスAの機器に対する高調波奇数次限度値

Harmonics order 高調波次数	Limits 限度値 [A]	Values 測定値 [A]
1	-	0.30477
2	-	0.00010
3	2.30000	0.05222
4	-	0.00001
5	1.14000	0.02339
6	-	0.00009
7	0.77000	0.01085
8	-	0.00003
9	0.40000	0.00152
10	-	0.00004
11	0.33000	0.00173
12	-	0.00005
13	0.21000	0.00029
14	-	0.00001
15	0.15000	0.00455
16	-	0.00002
17	0.13235	0.00429
18	-	0.00005
19	0.11842	0.00352
20	-	0.00002
21	0.10714	0.00457
22	-	0.00002
23	0.09783	0.00625
24	-	0.00003
25	0.09000	0.00511
26	-	0.00003
27	0.08333	0.00291
28	-	0.00002
29	0.07759	0.00310
30	-	0.00005
31	0.07258	0.00297
32	-	0.00005
33	0.06818	0.00070
34	-	0.00007
35	0.06429	0.00072
36	-	0.00011
37	0.06081	0.00243
38	-	0.00015
39	0.05769	0.00159
40	-	0.00010



Model		PAA100F-12	Testing Circuitry	Figure A
Item		Condensation 結露特性		
Object		+12V8.5A		

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C for an hour with the input off.
- ② Taking it out of the tank and dewing itself in a room where the temperature is 25°C and the humidity is 40%RH.
- ③ Testing electrical characteristics of the unit to confirm there be no fault.
- ④ Repeating ①, ② and ③ three times.

1. 結露特性試験

入力を切った状態で、恒温槽で-10°Cに冷却しておき、約1時間後に恒温槽から取り出し、室温25°C、湿度40%RHの状態におき結露させ、その電気的特性の測定を3度行い、異常のないことを確認する。

2. Values

	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load 50 %	1	12.096	20	40
	2	12.103	20	40
	3	12.103	20	40
Load 100 %	1	12.095	25	60
	2	12.102	25	60
	3	12.105	25	60

Input Volt. 200 V



Model		PAA100F-12	Testing Circuitry Figure A
Item		Leakage Current 漏洩電流	
Object		_____	

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	—	—	—
(B) U L	—	—	—
(C) C S A	—	—	—

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 220 [V]	Input Volt. 264 [V]
(D) V D E	0.35	0.46	0.57

2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

交流入力 of 両相について測定し、その大きい方を漏洩電流測定値とする。

Load 100 %

- (A) Input Resistance :1K Ω
- (B) Input Resistance :1.5K Ω  
Input Capacitance :0.15 μF
- (C) Input Resistance :1.5K Ω  
Input Capacitance :0.15 μF
- (D) Input Resistance :2K Ω  
Input Capacitance :0.1 μF





Model		PAA100F-12	Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+12V8.5A	

1. Results

Pulse Width [n S]	MODE	Operating Point of Overvoltage Protection [V] 過電圧保護動作値	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	15.90	no regulation
	NORMAL	15.90	no regulation
1000	COMMON	15.80	no regulation
	NORMAL	15.80	no regulation

Conditions

Input Voltage :200 V  
 Pulse Voltage :2000 V  
 Pulse Cycle :10 mS  
 Pulse Input Duration:1 min. or more  
 Load :100 %

# COSEL

Model		PAA100F-12	Testing Circuitry	Figure D
Item		Conducted Emission 雑音端子電圧		
Object		_____		

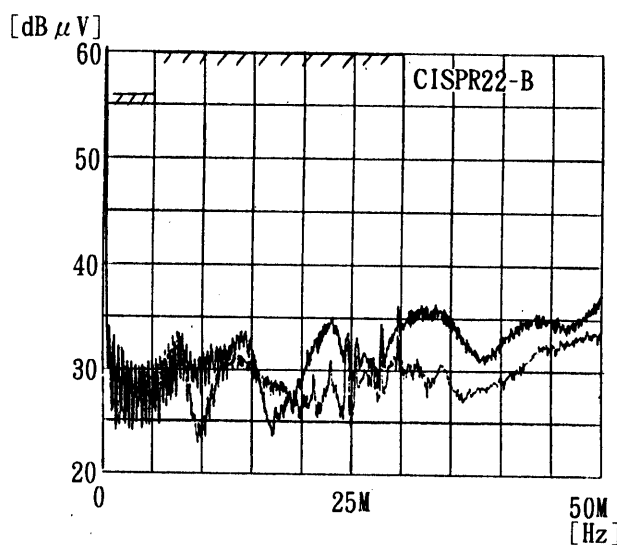
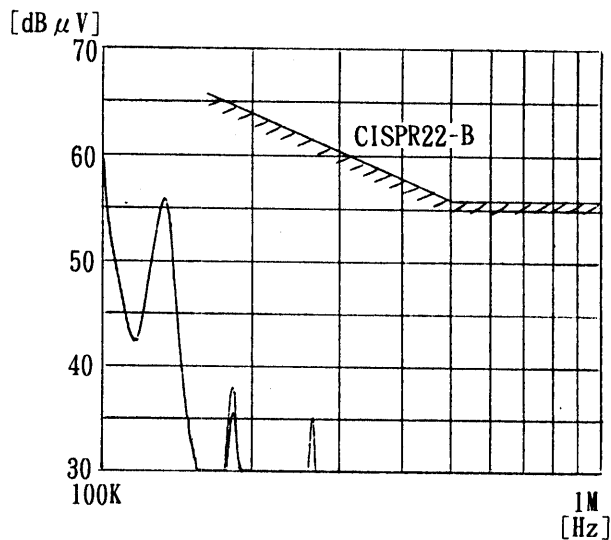
1. Graph

Remarks

Input Volt.    230 V  
Load            100 %

Note: Slanted line shows the range of Tolerance.  
(注)斜線は許容値を示す。

NO	Standards	Standards Complied	Frequency [MHz]	Tolerance [dB/μV]
1	FCC class A		0.45~1.6	60
			1.6~30	69.5
2	FCC class B		0.45~30	48
3	VCCI -1		0.15~0.5	79
			0.5~30	73
4	VCCI -2		0.15~0.5	66-56
			0.5~5	56
			5~30	60
5	VDE class A		0.01~0.15	91-69.5
			0.15~0.5	66
			0.5~30	60
6	CISPR 22 class B	○	0.15~0.5	66-56
			0.5~5	56
			5~30	60



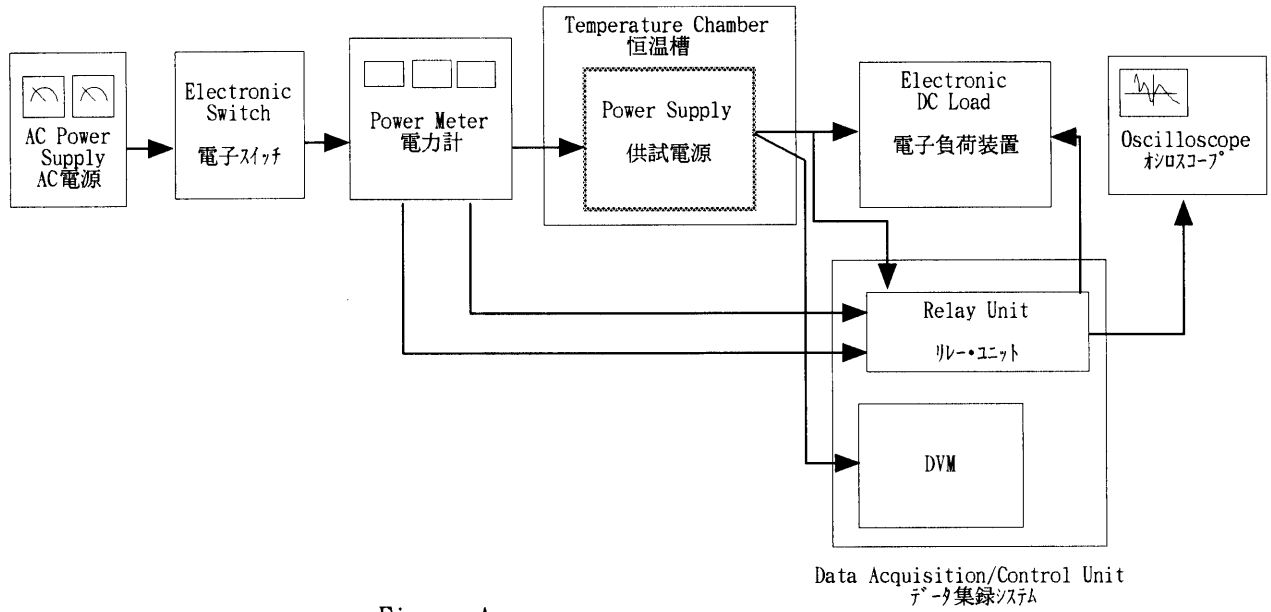


Figure A

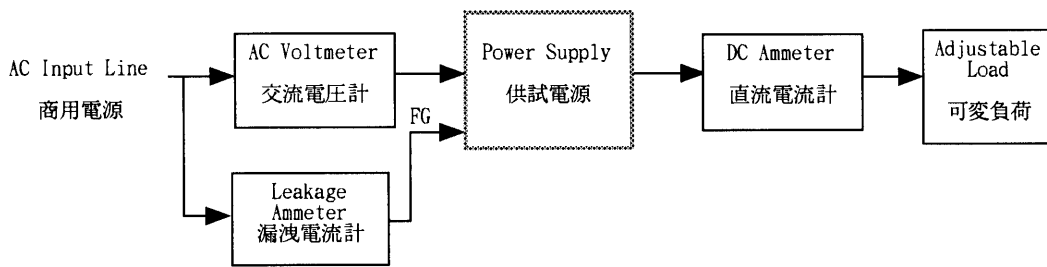


Figure B

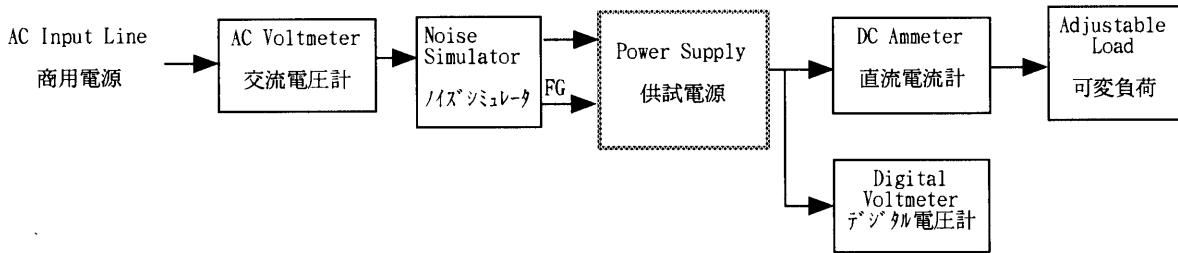


Figure C

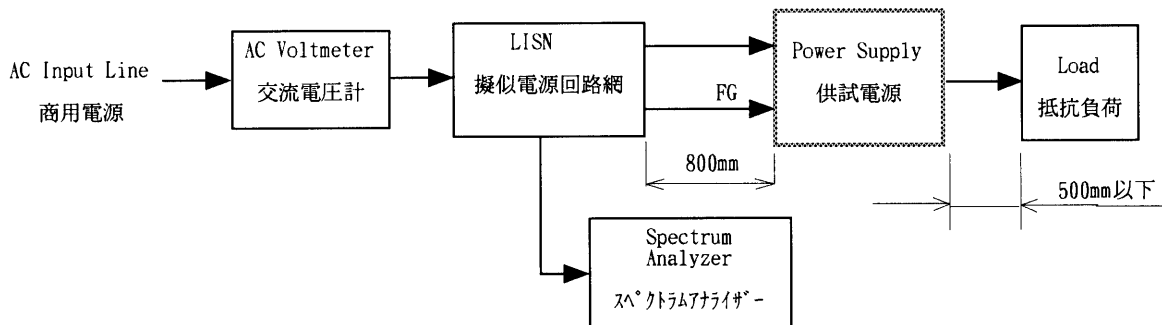
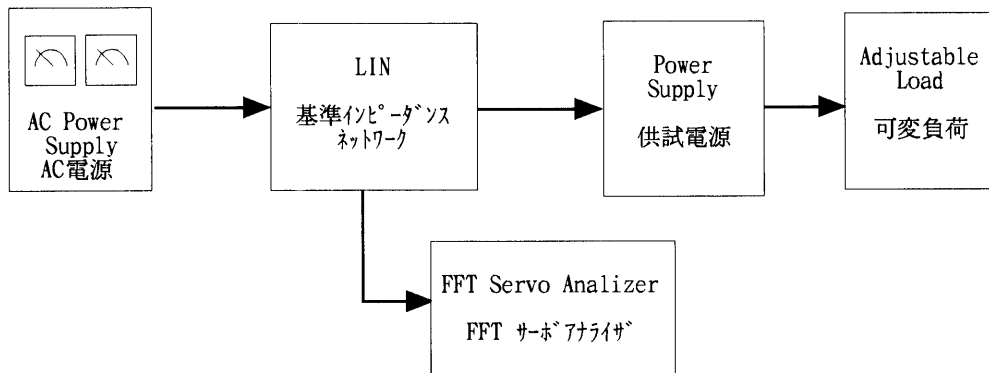


Figure D



Testing Circuitry Figure E