



TEST DATA OF LDA100W-24

(200V INPUT)

Regulated DC Power Supply

Aug. 13, 1999

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Design Manager

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Design Engineer

コーセル株式会社
COSEL CO., LTD.



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Model	LDA100W-24	Temperature Testing Circuitry	25°C Figure A																																
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Object	+24.0V 4.3A																																		
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Note: Slanted line shows the range of the rated input voltage.

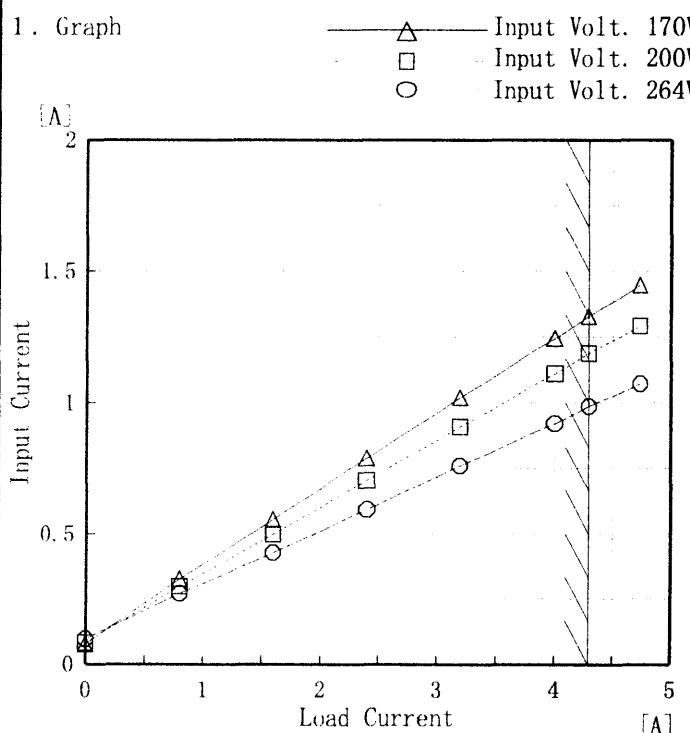
(注)斜線は定格入力電圧範囲を示す。

COSSEL

Model	LDA100W-24
Item	Input Current (by Load Current) 入力電流 (負荷特性)
Output	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	0.075	0.081	0.096
0.80	0.327	0.298	0.270
1.60	0.555	0.498	0.428
2.40	0.789	0.704	0.592
3.20	1.020	0.909	0.759
4.00	1.243	1.110	0.923
4.30	1.329	1.187	0.987
4.73	1.446	1.292	1.074
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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

(注)斜線は定格負荷電流範囲を示す。

COSSEL

Model	LDA100W-24																																																									
Item	Input Power (by Load Current) 入力電力（負荷特性）	Temperature 25°C	Testing Circuitry Figure A																																																							
Output	—	—	—																																																							
1. Graph	<p>Graph showing Input Power [W] vs Load Current [A]. The Y-axis ranges from 0 to 200 W, and the X-axis ranges from 0 to 5 A. Three data series are plotted: Input Volt. 170V (triangles), Input Volt. 200V (squares), and Input Volt. 264V (circles). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 170V [W]</th> <th>Input Volt. 200V [W]</th> <th>Input Volt. 264V [W]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>3.80</td><td>4.90</td><td>6.70</td></tr> <tr><td>0.80</td><td>27.20</td><td>27.80</td><td>30.80</td></tr> <tr><td>1.60</td><td>48.40</td><td>49.10</td><td>52.10</td></tr> <tr><td>2.40</td><td>69.60</td><td>70.30</td><td>73.20</td></tr> <tr><td>3.20</td><td>91.40</td><td>92.00</td><td>94.70</td></tr> <tr><td>4.00</td><td>113.10</td><td>113.70</td><td>116.10</td></tr> <tr><td>4.30</td><td>121.40</td><td>121.90</td><td>124.30</td></tr> <tr><td>4.73</td><td>133.30</td><td>133.50</td><td>135.90</td></tr> </tbody> </table>			Load Current [A]	Input Volt. 170V [W]	Input Volt. 200V [W]	Input Volt. 264V [W]	0.00	3.80	4.90	6.70	0.80	27.20	27.80	30.80	1.60	48.40	49.10	52.10	2.40	69.60	70.30	73.20	3.20	91.40	92.00	94.70	4.00	113.10	113.70	116.10	4.30	121.40	121.90	124.30	4.73	133.30	133.50	135.90																			
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Note: Slanted line shows the range of the rated load current

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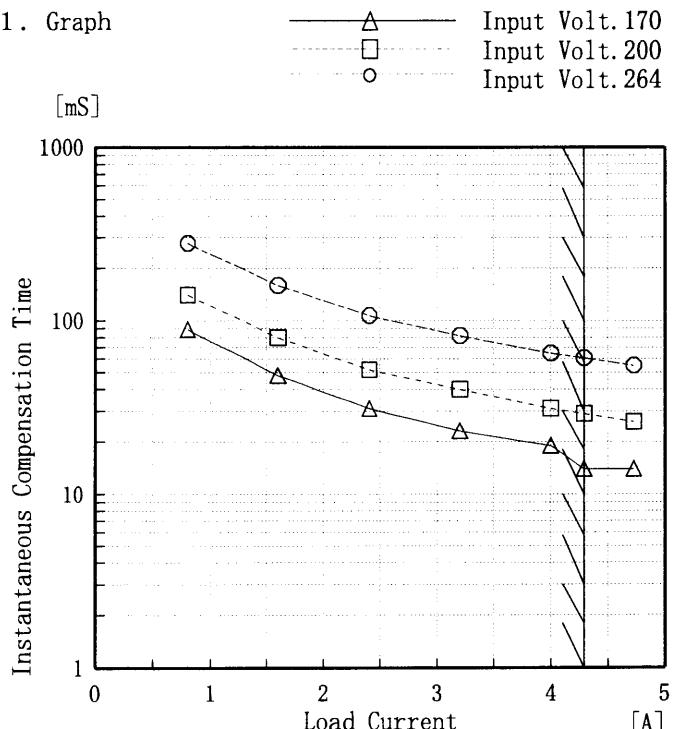
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Model	LDA100W-24
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+24.0V 4.3A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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 load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している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]	Time [mS]		
	170[V]	200[V]	264[V]
0.00	—	—	—
0.80	89	140	278
1.60	48	80	160
2.40	31	52	107
3.20	23	40	82
4.00	19	31	65
4.30	14	29	61
4.73	14	26	55
—	—	—	—
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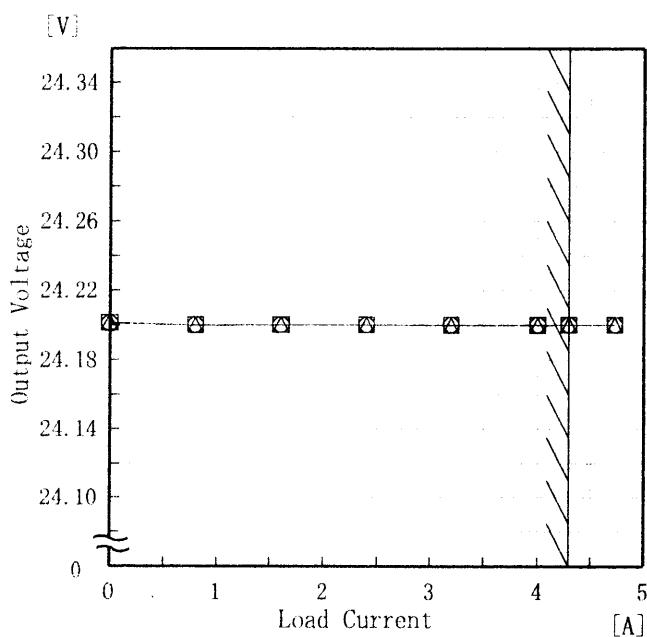
Model LDA100W-24

Item Load Regulation 静的負荷変動

Object +24.0V 4.3A

1. Graph

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



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

(注) 斜線は定格負荷電流範囲を示す。

Temperature 25°C
 Testing Circuitry Figure A

2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.00	24.202	24.201	24.201
0.80	24.200	24.200	24.200
1.60	24.200	24.200	24.200
2.40	24.200	24.200	24.200
3.20	24.200	24.200	24.200
4.00	24.200	24.200	24.200
4.30	24.200	24.200	24.200
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Model	LDA100W-24	Temperature Testing Circuitry	25°C Figure A																																					
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<p>Fig. Complex Ripple Wave Form 図 リップル波形詳細図</p>																																								

COSEL

Model	LDA100W-24	Temperature Testing Circuitry	25°C																																						
Item	Ripple-Noise リップルノイズ		Figure A																																						
Object	+24.0V 4.3A																																								
1. Graph			2. Values																																						
<p>Graph showing Ripple-Noise [mV] vs Load Current [A]. The Y-axis ranges from 0 to 200 mV, and the X-axis ranges from 0 to 5 A. Two sets of data points are shown: one for Input Volt. 170V (squares) and one for Input Volt. 264V (triangles). Both sets show an increase in Ripple-Noise with Load Current, with a slight dip around 4.3A. A solid diagonal line represents the rated load current range.</p>			<table border="1"> <thead> <tr> <th rowspan="2">Load current [A]</th> <th>Input Volt. 170 [V]</th> <th>Input Volt. 264 [V]</th> </tr> <tr> <th>Ripple-Noise [mV]</th> <th>Ripple-Noise [mV]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>20</td><td>25</td></tr> <tr><td>0.50</td><td>25</td><td>30</td></tr> <tr><td>1.00</td><td>30</td><td>35</td></tr> <tr><td>1.50</td><td>35</td><td>35</td></tr> <tr><td>2.00</td><td>35</td><td>40</td></tr> <tr><td>2.50</td><td>40</td><td>40</td></tr> <tr><td>3.00</td><td>45</td><td>40</td></tr> <tr><td>3.50</td><td>50</td><td>45</td></tr> <tr><td>4.00</td><td>50</td><td>45</td></tr> <tr><td>4.30</td><td>55</td><td>45</td></tr> <tr><td>4.73</td><td>55</td><td>45</td></tr> </tbody> </table>	Load current [A]	Input Volt. 170 [V]	Input Volt. 264 [V]	Ripple-Noise [mV]	Ripple-Noise [mV]	0.00	20	25	0.50	25	30	1.00	30	35	1.50	35	35	2.00	35	40	2.50	40	40	3.00	45	40	3.50	50	45	4.00	50	45	4.30	55	45	4.73	55	45
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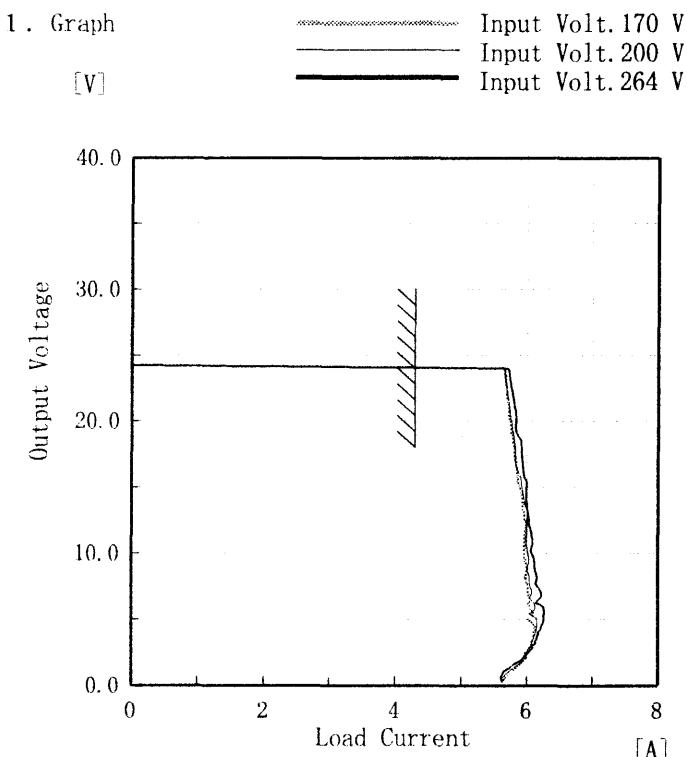
Fig. Complex Ripple Wave Form
図 リップル波形詳細図

COSEL

Model LDA100W-24

Item Overcurrent Protection
過電流保護

Object +24.0 V 4.3 A

Temperature 25°C
Testing Circuitry Figure A

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
24.00	5.68	5.66	5.72
22.80	5.69	5.69	5.76
21.60	5.71	5.71	5.79
19.20	5.77	5.78	5.83
16.80	5.84	5.83	5.94
14.40	5.92	5.94	5.98
12.00	5.99	5.99	6.04
9.60	5.97	6.04	6.11
7.20	6.02	6.06	6.18
4.80	6.02	6.15	6.26
2.40	6.03	5.97	6.03
0.00	5.66	5.62	5.65

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

(注)斜線は定格負荷電流範囲を示す。

COSEL

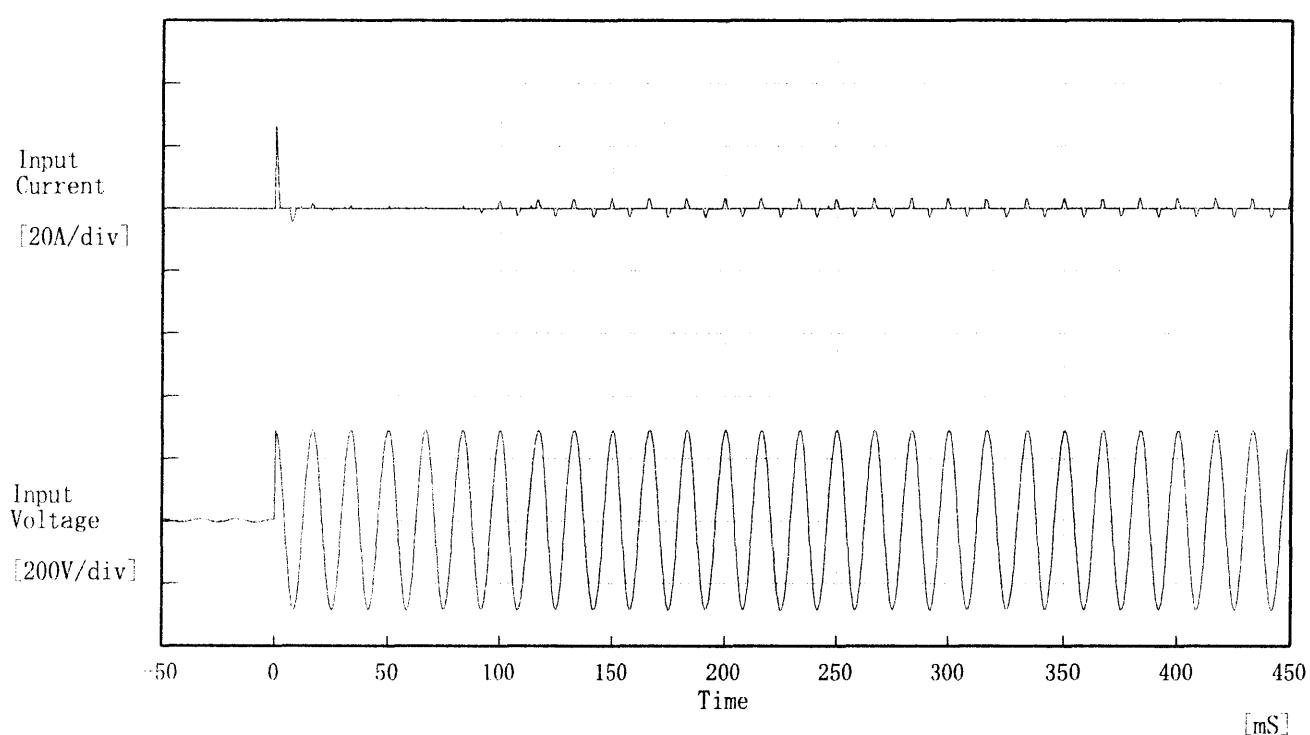
Model	LDA100W-24	Testing Circuitry Figure A																																																				
Item	Overvoltage Protection 過電圧保護																																																					
Object	+ 24.0V 4.3A																																																					
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COSEL

Model LDA100W-24

Item Inrush Current 突入電流

Object _____

Temperature 25°C
Testing Circuitry Figure A

Input Voltage 200 V

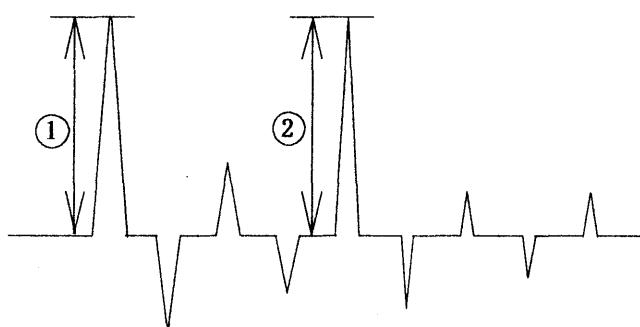
Frequency 60 Hz

Load 100 %

Inrush Current

① 26.39 [A]

② 3.19 [A]

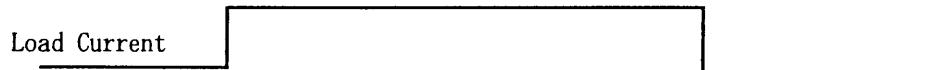


COSEL

Model	LDA100W-24	Temperature	25°C
Item	Dynamic Load Response 動的負荷變動	Testing Circuitry	Figure A
Object	+ 24.0 V 4.3 A		

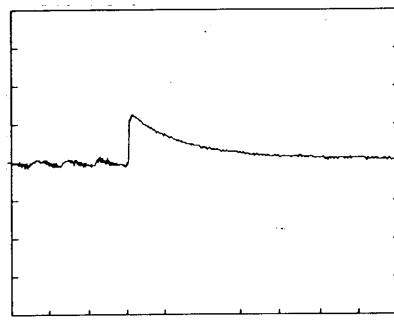
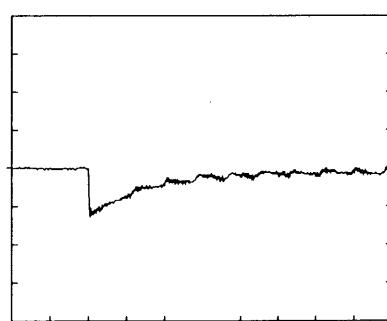
Input Volt. 200 V

Cycle 1000 mS



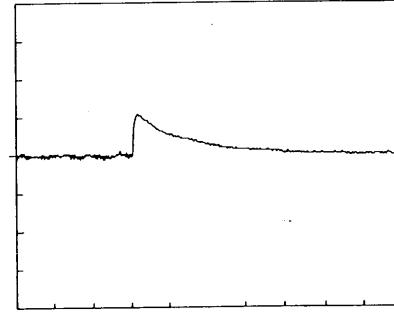
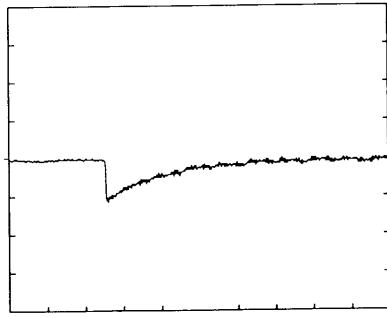
Load 0% ↔

Load 100 %



Load 0% ↔

Load 50 %



100 mV/div

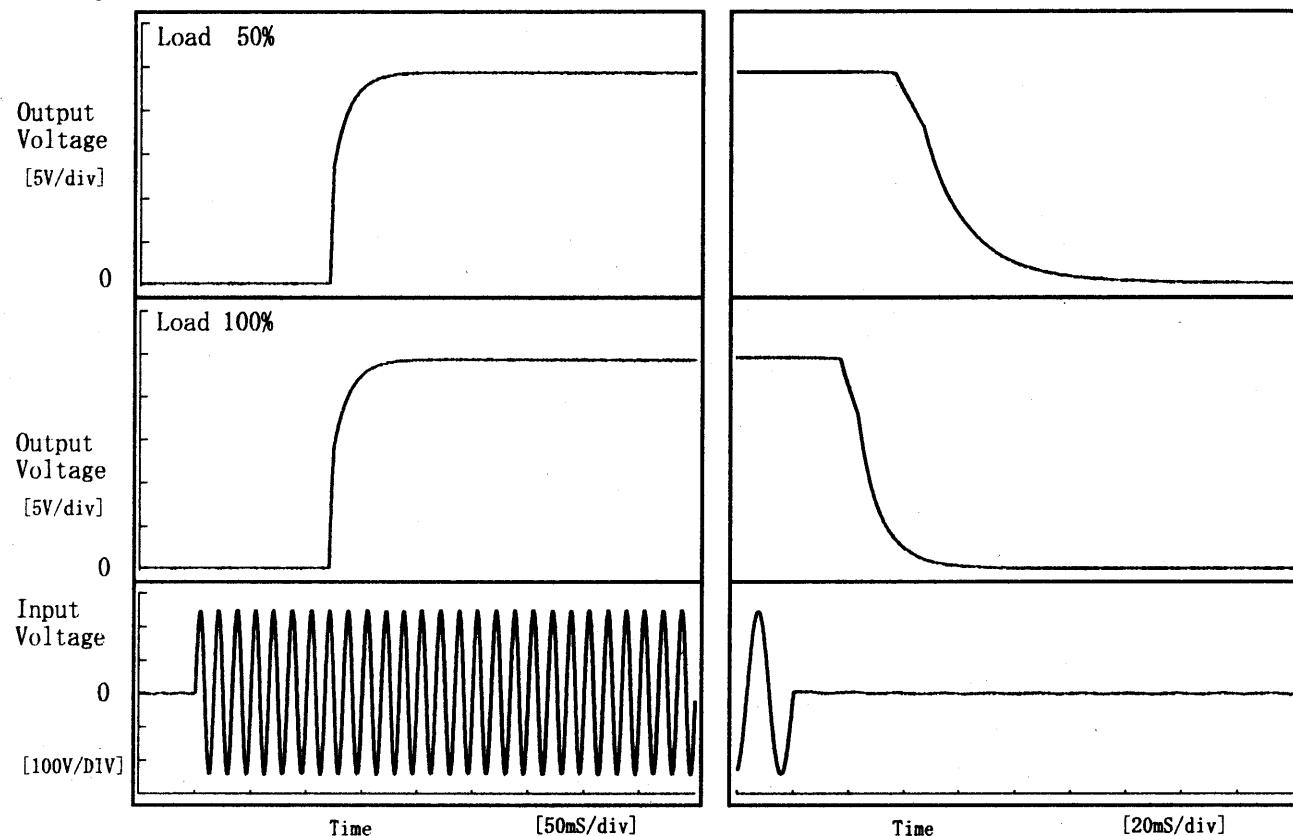
10 mS/div

COSEL

Model	LDA100W-24
Item	Rise and Fall Time 立上り、立下り時間
Object	+24.0V 4.3A

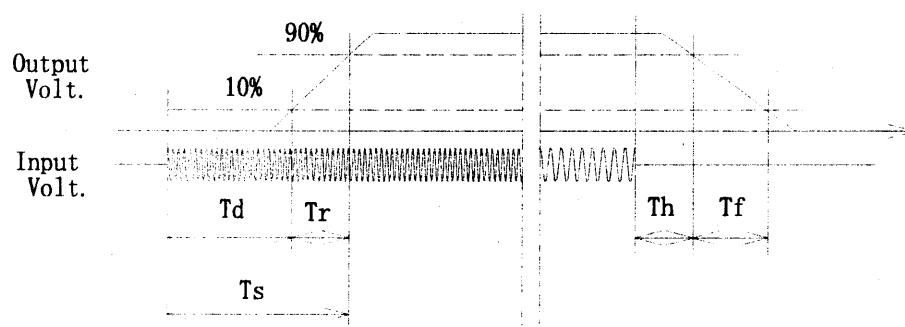
Temperature 25°C
Testing Circuitry Figure A

1. Graph



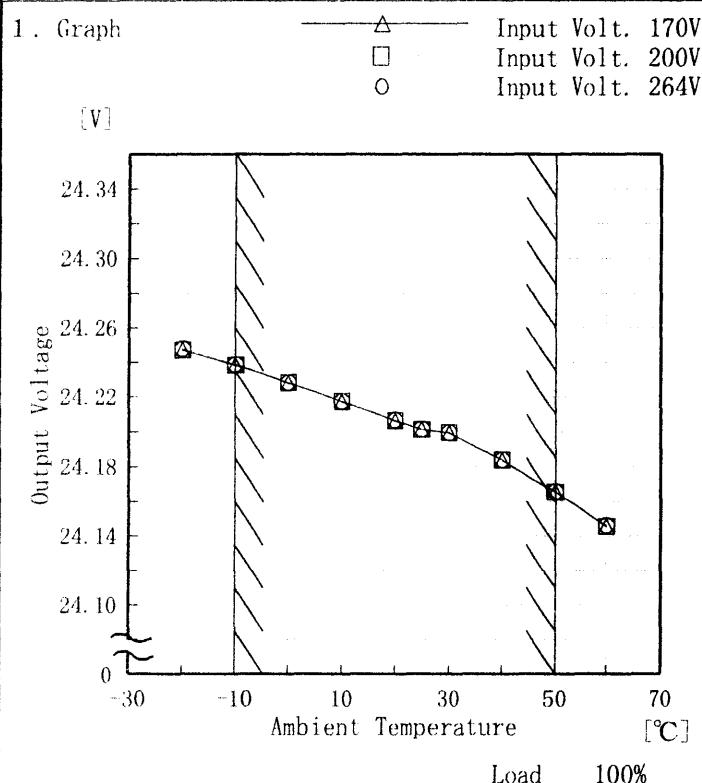
2. Values

Load \ Time	T d	T r	T s	T h	T f
50 %	120.3	23.8	144.0	40.5	40.1
100 %	120.3	23.8	144.0	19.6	20.5



COSEL

Model	LDA100W-24
Item	Ambient Temperature Drift 周囲温度変動
Object	+24.0V 4.3A



Testing Circuitry Figure A

2. Values

Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	24.247	24.247	24.248
-10	24.238	24.238	24.239
0	24.228	24.228	24.228
10	24.217	24.218	24.218
20	24.206	24.207	24.207
25	24.201	24.201	24.202
30	24.199	24.200	24.200
40	24.184	24.184	24.184
50	24.165	24.165	24.166
60	24.146	24.146	24.146
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Note: Slanted line shows the range of the rated ambient temperature.

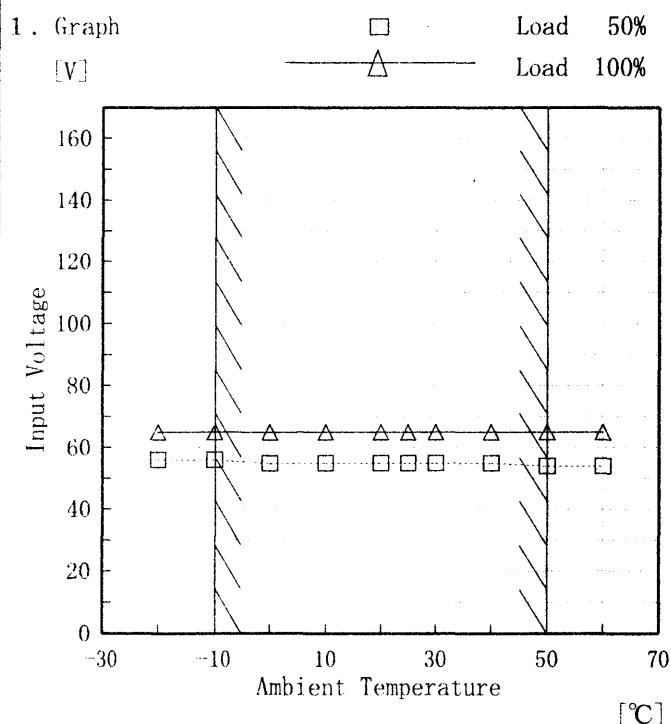
(注)斜線は定格周囲温度範囲を示す。

COSEL

Model LDA100W-24

Item Minimum Input Voltage for Regulated Output Voltage
最低レギュレーション電圧

Object +24.0V 4.3A



Testing Circuitry Figure A

2. Values

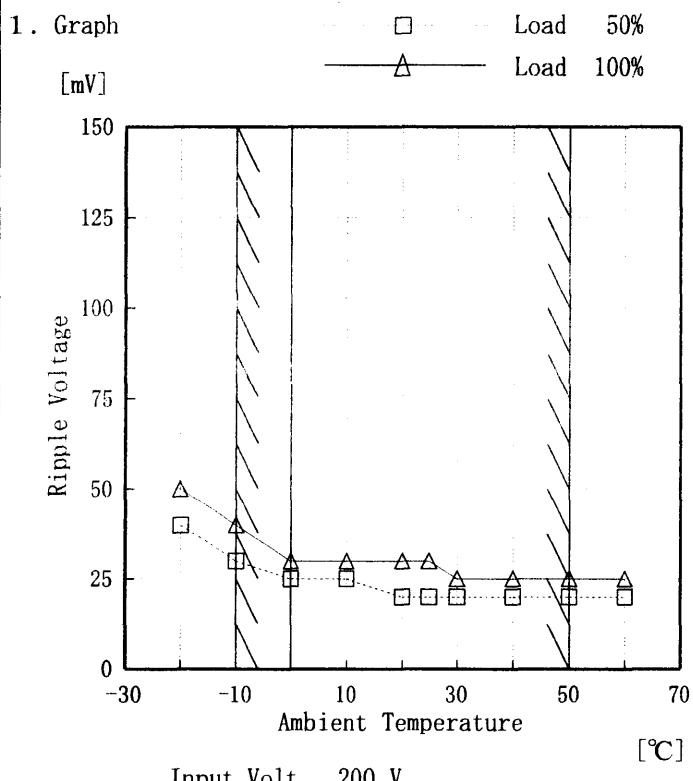
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	56	65
-10	56	65
0	55	65
10	55	65
20	55	65
25	55	65
30	55	65
40	55	65
50	54	65
60	54	65
--	--	--

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。

COSSEL

Model	LDA100W-24
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+24.0V 4.3A



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。

Testing Circuitry Figure A

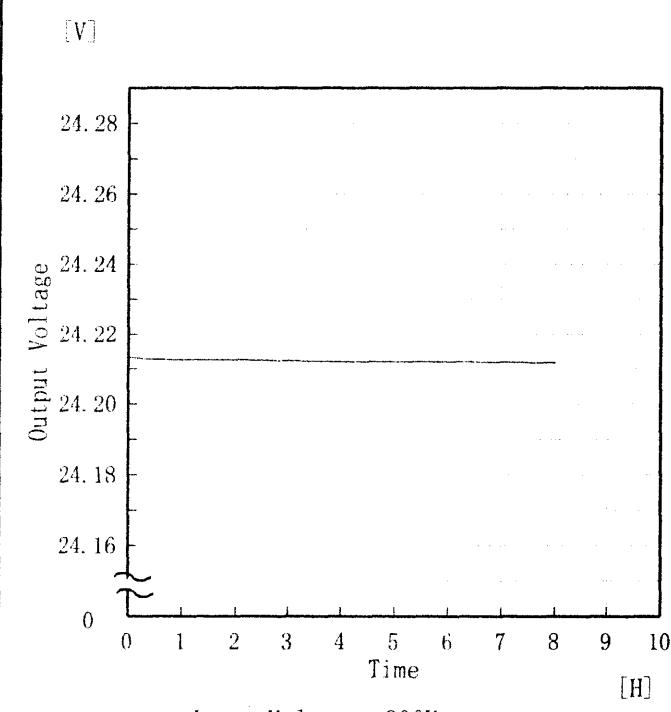
2. Values

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

COSEL

Model	LDA100W-24
Item	Time Lapse Drift 経時ドリフト
Object	+24.0V 4.3A

1. Graph



Temperature 25°C
Testing Circuitry Figure A

2. Values

Time since start [H]	Output Voltage [V]
0.0	24.214
0.5	24.213
1.0	24.213
2.0	24.213
3.0	24.212
4.0	24.212
5.0	24.212
6.0	24.212
7.0	24.212
8.0	24.212



Model	LDA100W-24
Item	Output Voltage Accuracy 定電圧精度
Object	+24.0V 4.3A

Testing Circuitry Figure A

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 : 0~4.3 A

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

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

定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、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 0~4.3 A

* 定電圧精度(変動値) = ±(出力電圧の最高値—出力電圧の最低値) / 2

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

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	264	0.0	24.240	±38	±0.2
Minimum Voltage	50	264	4.3	24.164		



Model	LDA100W-24		
Item	Condensation 結露特性	Testing Circuitry	Figure A
Object	+24.0V 4.3A		

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.

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行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	24.202	Input Volt.: 200V, Load Current: 4.3A
Line Regulation [mV]	3	Input Volt.: 170~264V, Load Current: 4.3A
Load Regulation [mV]	4	Input Volt.: 200V, Load Current: 0~4.3A



Model	LDA100W-24	Temperature	25°C
Item	Leakage Current 漏洩電流	Testing Circuitry	Figure B
Object	<hr/>		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	—	—	—
(B) IEC60950	—	—	—

2. Condition

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

交流入力の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。

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	0.41	0.54	0.64



Model	LDA100W-24	Temperature	25°C
Item	Line Noise Tolerance 入力雑音耐量	Testing Circuitry	Figure C
Object	+24.0V 4.3A		

1. Results

Pulse Width [nS]	MODE	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

2. Conditions

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

COSEL

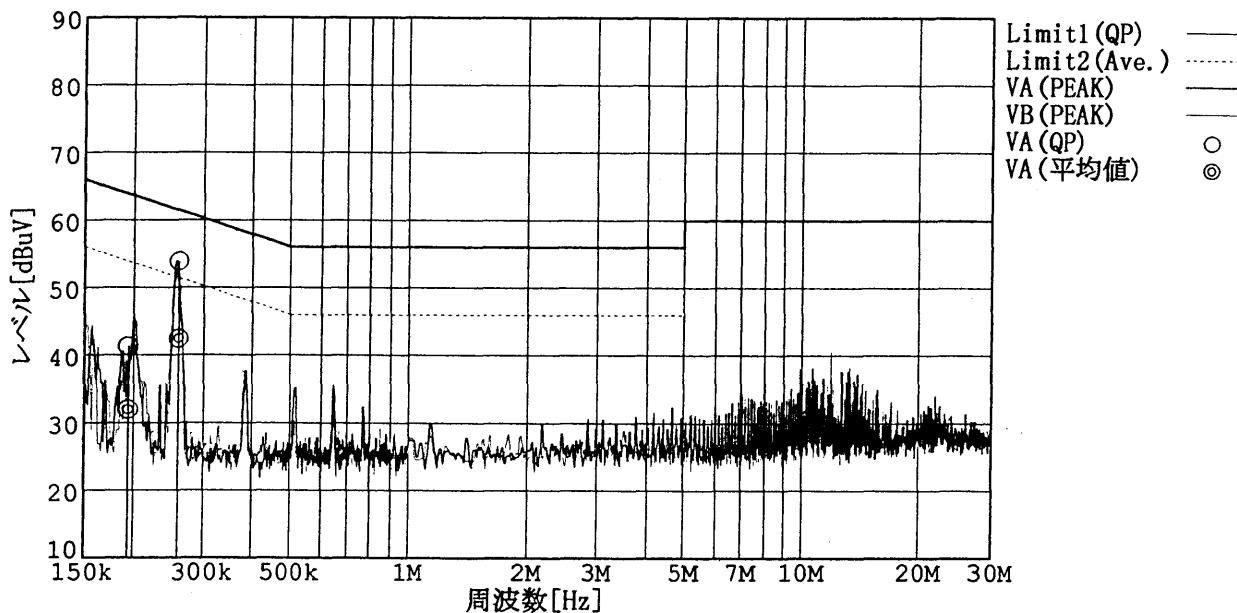
Model	LDA100W-24	Temperature Testing Circuitry	25°C Figure D
Item	Conducted Emission 雜音端子電圧		
Object	<hr/>		

1. Graph

Remarks

Input Volt. 230 V
 Load 100 %

規格 1: [EN 55022] Class B(QP)
 規格 2: [EN 55022] Class B(平均値)



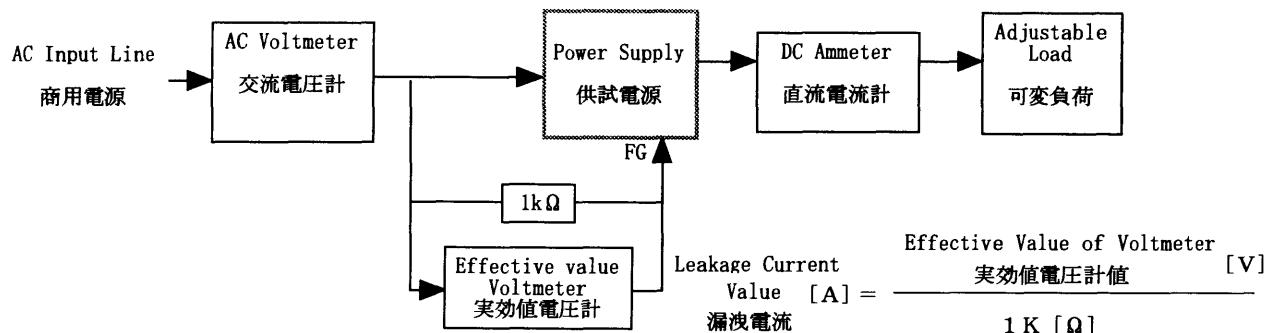
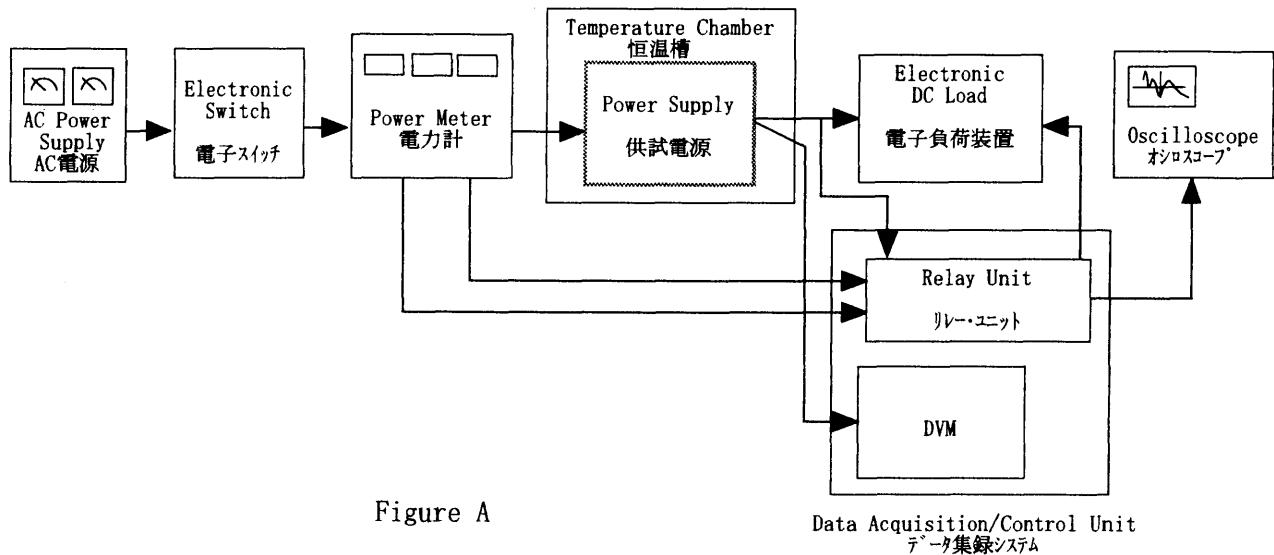


Figure B (DENTORI)

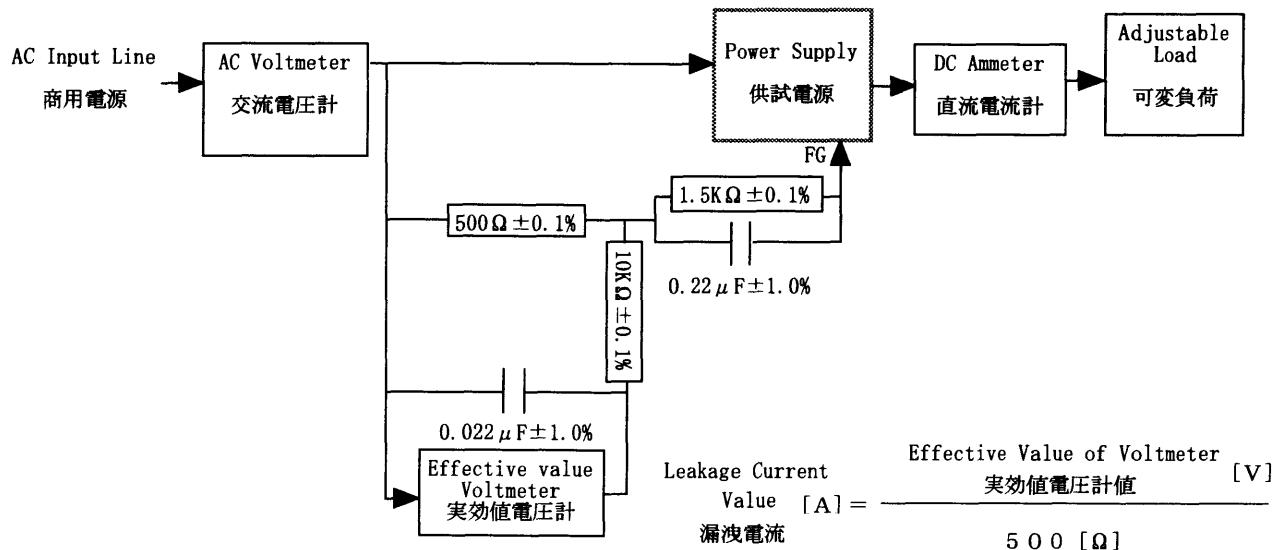


Figure B (IEC 60950)

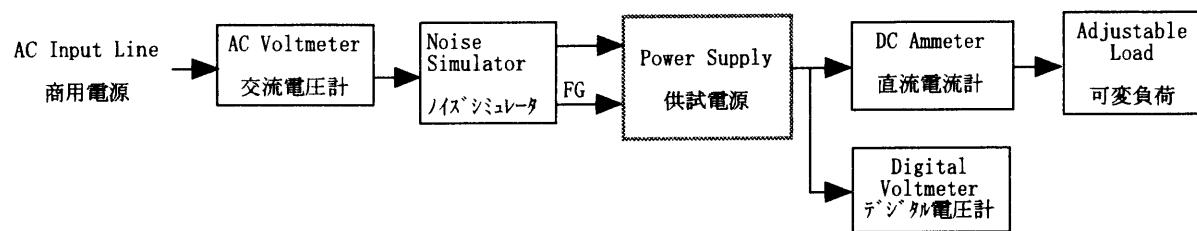


Figure C

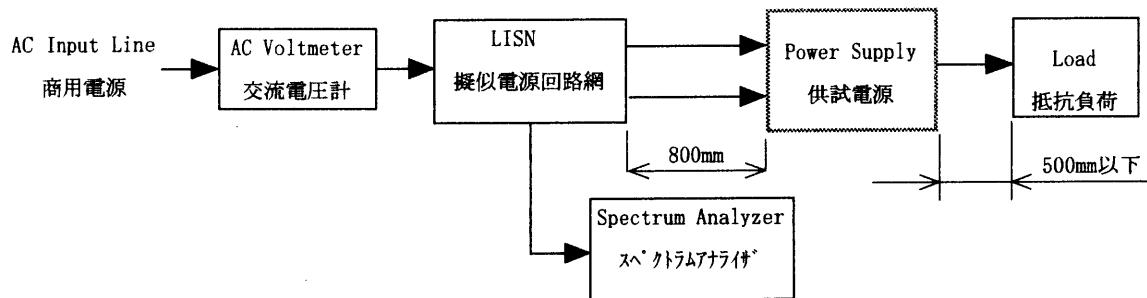


Figure D

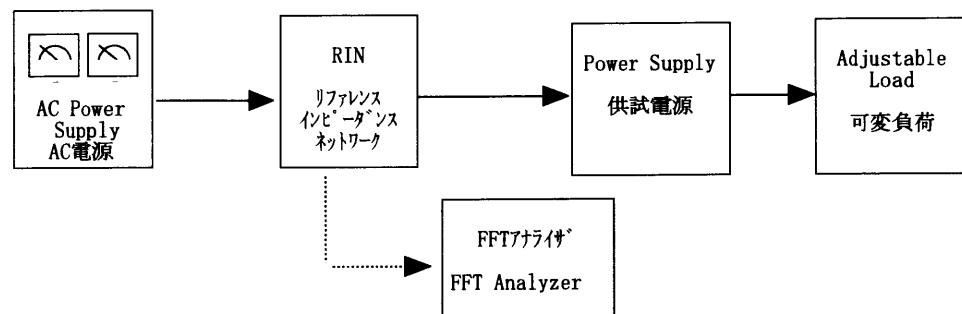


Figure E