



TEST DATA OF LDA100W-12 (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-12		Temperature		25°C																																	
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Item		Efficiency 効率
Object		_____
1. Graph		
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Temperature	25°C	
Testing Circuitry	Figure A	
2. Values		
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
150	81.4	83.0
160	81.5	83.2
170	82.0	83.5
180	81.8	83.8
200	81.5	83.7
220	80.6	83.4
240	79.1	82.7
264	78.0	82.1
280	77.0	81.0



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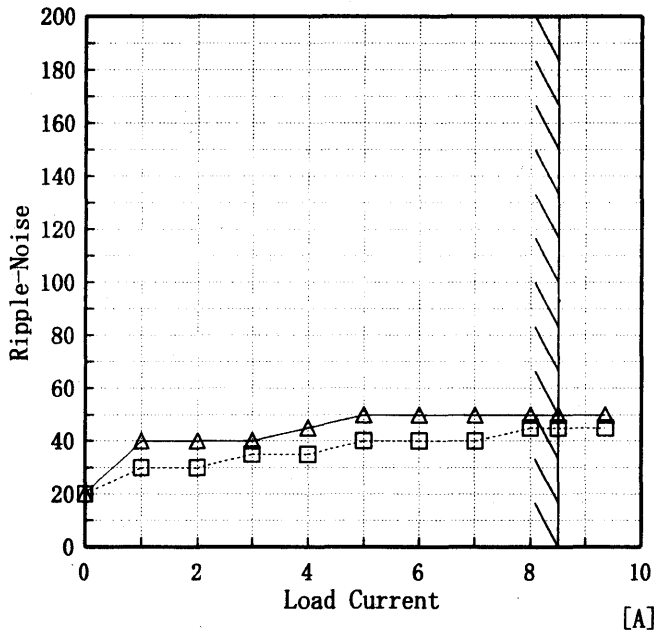
COSEL

Model		LDA100W-12	Temperature		25°C																																						
Item		Ripple Voltage (by Load Current) リップル電圧(負荷電流特性)	Testing Circuitry		Figure A																																						
Object		+12.0V 8.5A																																									
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Load Current [A]	Input Volt. 170 [V]	Input Volt. 264 [V]																																									
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		<p>Fig. Complex Ripple Wave Form</p> <p>図 リップル波形詳細図</p>																																									



Model	LDA100W-12	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	+12.0V8.5A		

1. Graph
 [mV]
 -----□----- Input Volt. 170V
 -----△----- Input Volt. 264V



2. Values

Load current [A]	Input Volt. 170 [V]	Input Volt. 264 [V]
	Ripple-Noise [mV]	Ripple-Noise [mV]
0.00	20	20
1.00	30	40
2.00	30	40
3.00	35	40
4.00	35	45
5.00	40	50
6.00	40	50
7.00	40	50
8.00	45	50
8.50	45	50
9.35	45	50

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

リップルノイズは、下図 p-p 値で示される。
 (注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
 入力商用周期
 T2: Due to Switching
 スイッチング周期

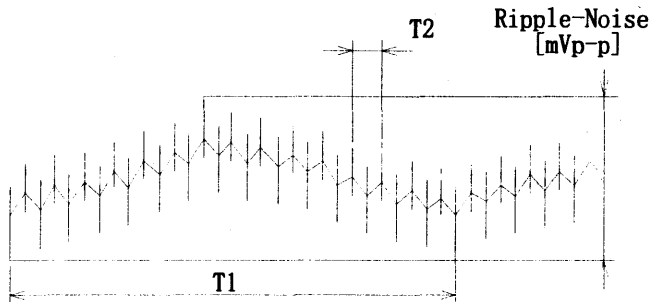


Fig. Complex Ripple Wave Form
 図 リップル波形詳細図



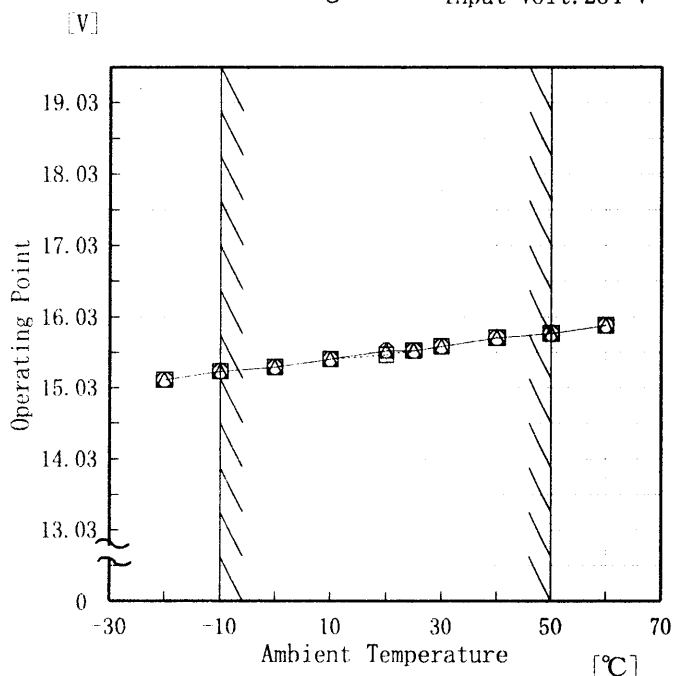
Model		LDA100W-12	Temperature		25°C																																																						
Item		Overcurrent Protection 過電流保護	Testing Circuitry		Figure A																																																						
Object		+ 12.0V8.5A																																																									
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<p>[V]</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p>		<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 170[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr><td>12.00</td><td>11.03</td><td>11.02</td><td>11.14</td></tr> <tr><td>11.40</td><td>11.07</td><td>11.08</td><td>11.21</td></tr> <tr><td>10.80</td><td>11.11</td><td>11.13</td><td>11.28</td></tr> <tr><td>9.60</td><td>11.22</td><td>11.26</td><td>11.41</td></tr> <tr><td>8.40</td><td>11.36</td><td>11.38</td><td>11.50</td></tr> <tr><td>7.20</td><td>11.48</td><td>11.53</td><td>11.59</td></tr> <tr><td>6.00</td><td>11.61</td><td>11.65</td><td>11.79</td></tr> <tr><td>4.80</td><td>11.66</td><td>11.76</td><td>11.99</td></tr> <tr><td>3.60</td><td>11.79</td><td>11.81</td><td>12.14</td></tr> <tr><td>2.40</td><td>11.77</td><td>11.98</td><td>12.20</td></tr> <tr><td>1.20</td><td>11.84</td><td>11.85</td><td>11.97</td></tr> <tr><td>0.00</td><td>11.25</td><td>11.18</td><td>11.07</td></tr> </tbody> </table>			Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	12.00	11.03	11.02	11.14	11.40	11.07	11.08	11.21	10.80	11.11	11.13	11.28	9.60	11.22	11.26	11.41	8.40	11.36	11.38	11.50	7.20	11.48	11.53	11.59	6.00	11.61	11.65	11.79	4.80	11.66	11.76	11.99	3.60	11.79	11.81	12.14	2.40	11.77	11.98	12.20	1.20	11.84	11.85	11.97	0.00	11.25	11.18	11.07
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Model	LDA100W-12
Item	Overvoltage Protection 過電圧保護
Object	+12.0V8.5A

Testing Circuitry Figure A

1. Graph
- △ Input Volt. 170 V
 - Input Volt. 200 V
 - Input Volt. 264 V



Load 0%

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

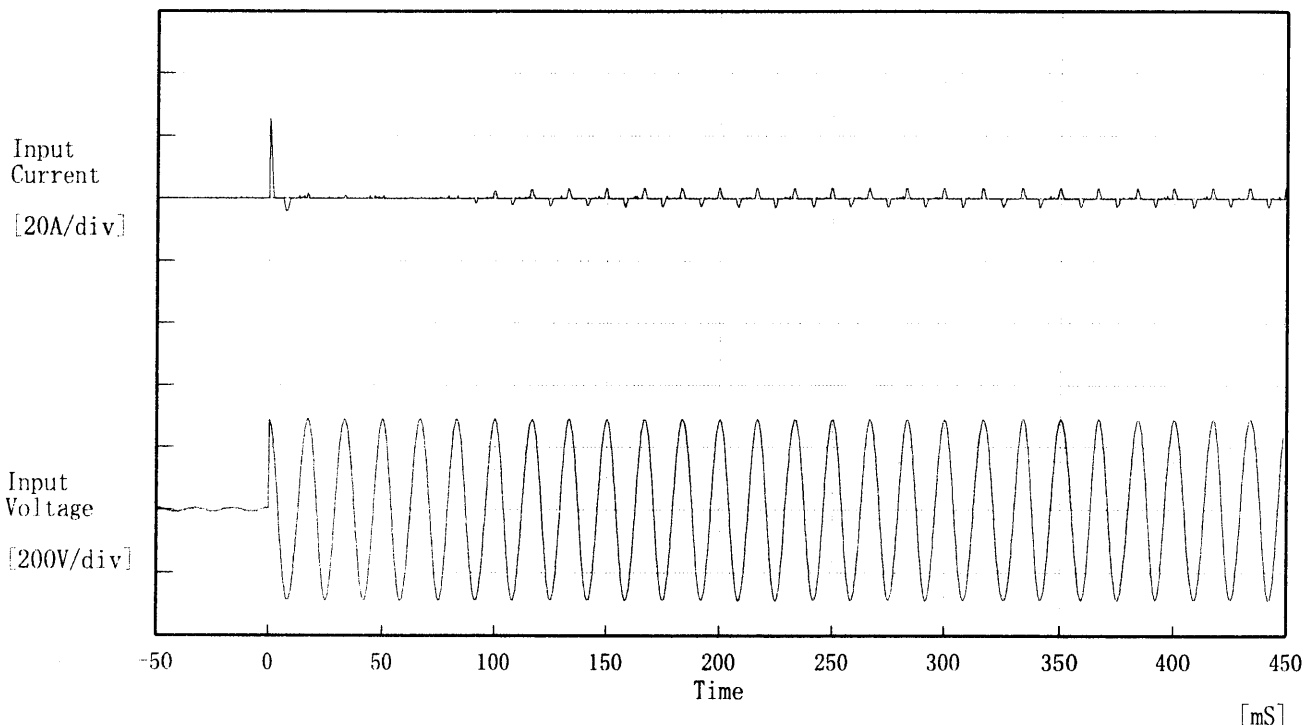
(注)斜線は定格周囲温度範囲を示す。

2. Values

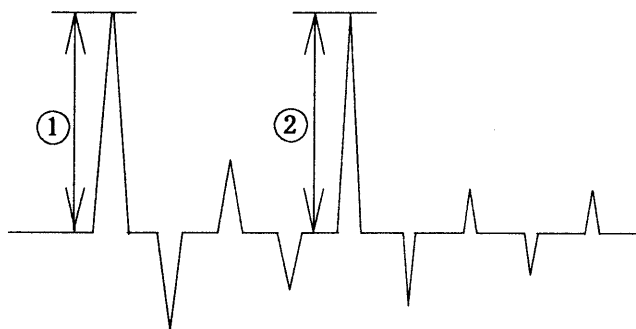
Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	15.14	15.14	15.14
-10	15.26	15.26	15.26
0	15.32	15.32	15.32
10	15.44	15.44	15.44
20	15.56	15.50	15.56
25	15.56	15.56	15.56
30	15.62	15.62	15.62
40	15.74	15.74	15.74
50	15.80	15.80	15.80
60	15.91	15.91	15.91
—	—	—	—



Model		LDA100W-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 25.58 [A]
 ② 3.18 [A]



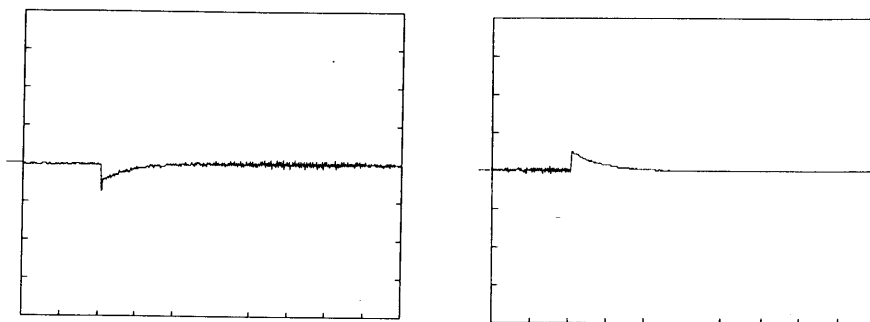
COSEL

Model	LDA100W-12	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Responce 動的負荷變動	
Object	+12.0V8.5A	

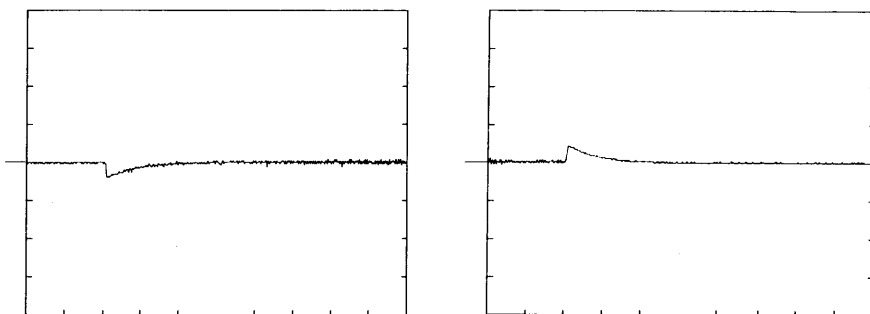
Input Volt. 200 V
Cycle 1000 mS



Load 0% ↔
Load 100 %



Load 0% ↔
Load 50 %



100 mV/div

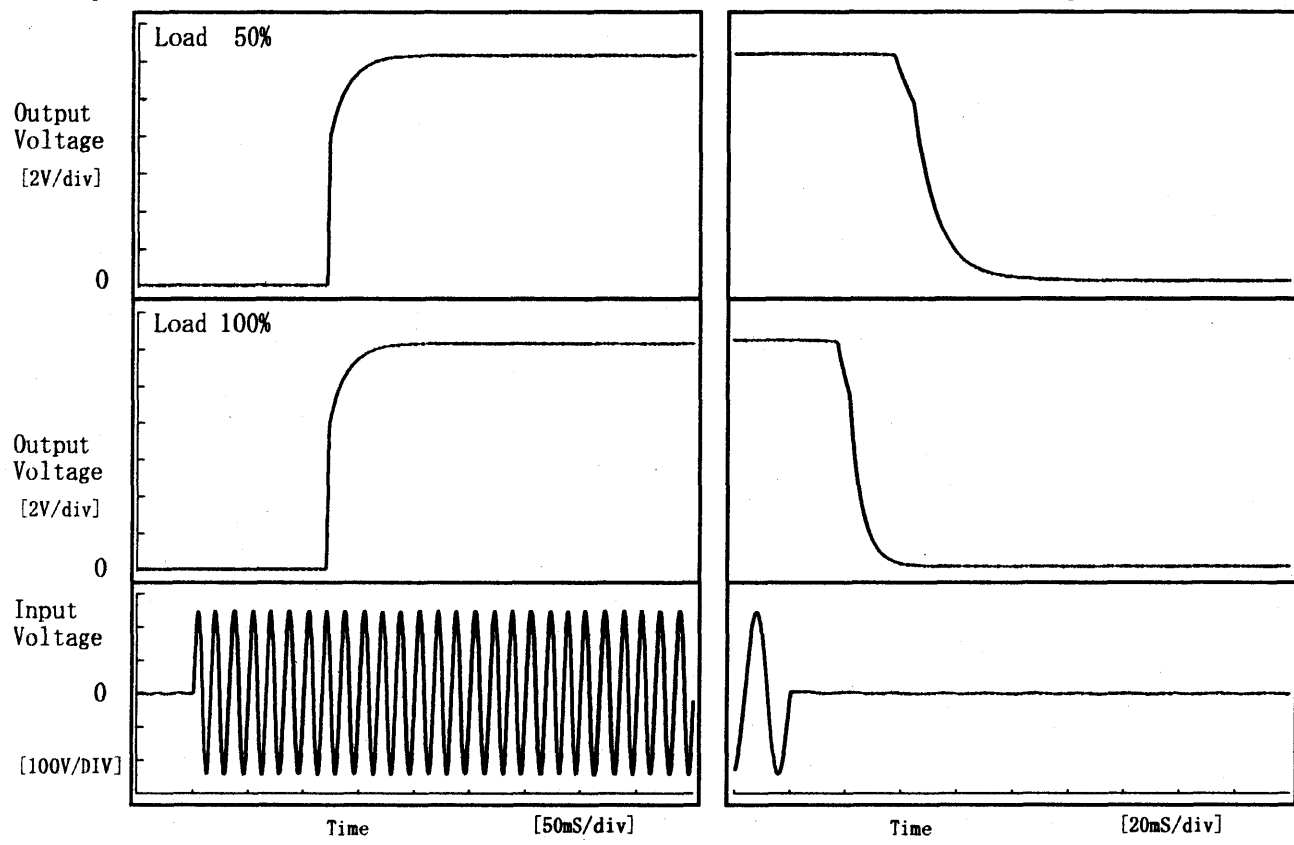
10 mS/div



Model	LDA100W-12	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12.0V8.5A		

1. Graph

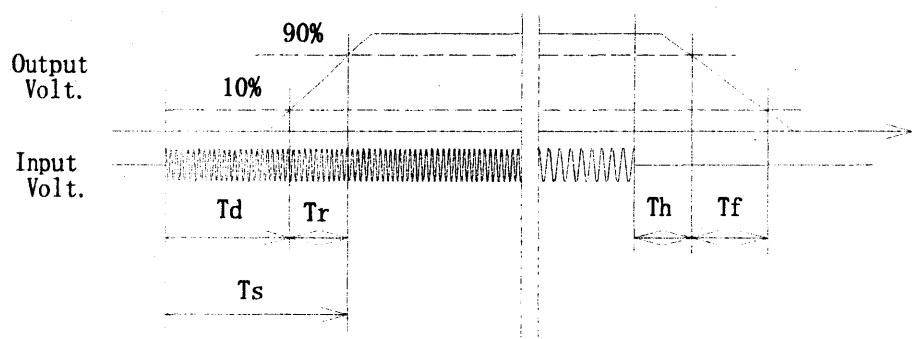
Input Volt. 170 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	120.8	19.3	140.0	41.3	23.4
100 %	120.5	19.3	139.8	19.5	12.0





Model	LDA100W-12
Item	Ambient Temperature Drift 周囲温度変動
Object	+12.0V8.5A
1. Graph	<p> △ Input Volt. 170V □ Input Volt. 200V ○ Input Volt. 264V </p> <p style="text-align: right;">Load 100%</p>
<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>	

Testing Circuitry Figure A

2. Values

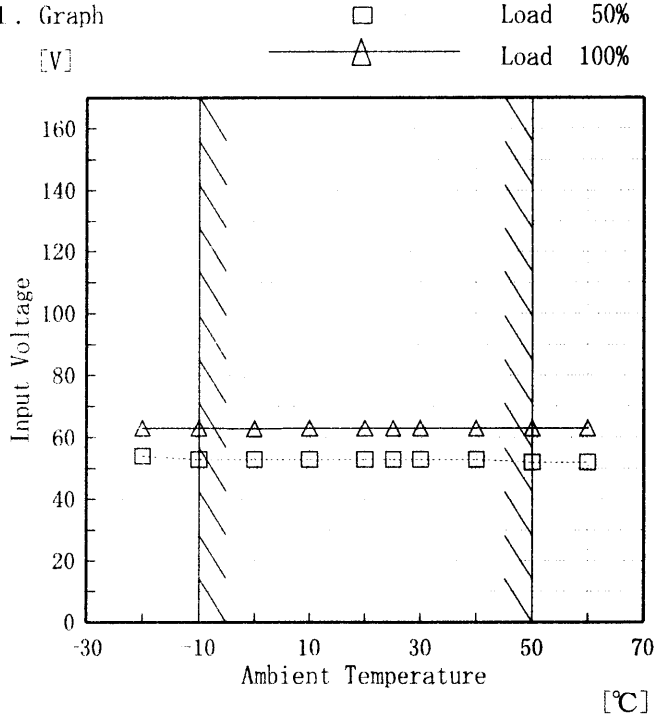
Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	12.220	12.220	12.220
-10	12.214	12.214	12.214
0	12.208	12.208	12.208
10	12.202	12.202	12.202
20	12.197	12.197	12.197
25	12.195	12.195	12.195
30	12.195	12.195	12.195
40	12.187	12.187	12.187
50	12.179	12.179	12.179
60	12.170	12.170	12.171
--	--	--	--



Model	LDA100W-12
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+12.0V8.5A

Testing Circuitry Figure A

1. Graph



2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	54	63
-10	53	63
0	53	63
10	53	63
20	53	63
25	53	63
30	53	63
40	53	63
50	52	63
60	52	63
—	—	—

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

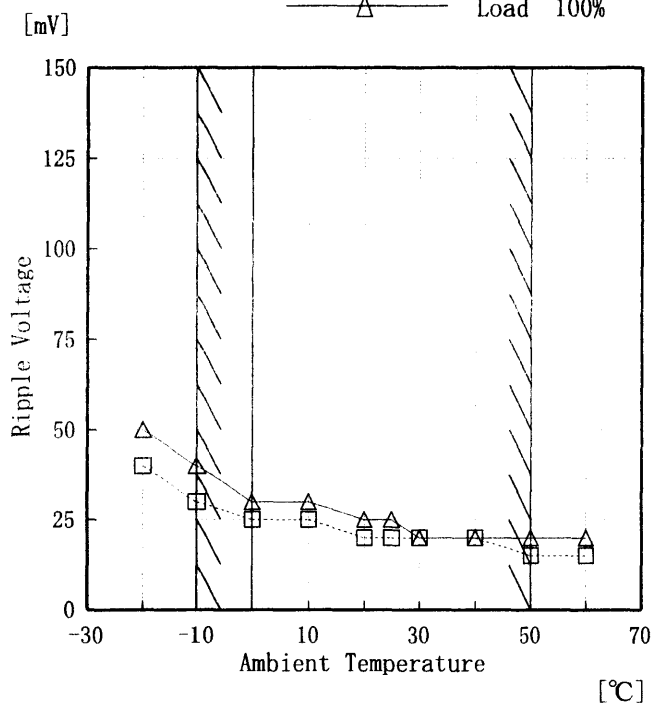
(注) 斜線は定格周囲温度範囲を示す。



Model	LDA100W-12
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+12.0V8.5A

Testing Circuitry Figure A

1. Graph □ Load 50% △ Load 100%



Input Volt. 200 V

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

COSEL

Model		LDA100W-12	Temperature		25°C																						
Item		Time Lapse Drift 経時ドリフト	Testing Circuitry		Figure A																						
Object		+12.0V8.5A																									
1. Graph			2. Values																								
<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>12.201</td></tr> <tr><td>0.5</td><td>12.201</td></tr> <tr><td>1.0</td><td>12.201</td></tr> <tr><td>2.0</td><td>12.201</td></tr> <tr><td>3.0</td><td>12.201</td></tr> <tr><td>4.0</td><td>12.201</td></tr> <tr><td>5.0</td><td>12.201</td></tr> <tr><td>6.0</td><td>12.201</td></tr> <tr><td>7.0</td><td>12.201</td></tr> <tr><td>8.0</td><td>12.201</td></tr> </tbody> </table>			Time since start [H]	Output Voltage [V]	0.0	12.201	0.5	12.201	1.0	12.201	2.0	12.201	3.0	12.201	4.0	12.201	5.0	12.201	6.0	12.201	7.0	12.201	8.0	12.201
Time since start [H]	Output Voltage [V]																										
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4.0	12.201																										
5.0	12.201																										
6.0	12.201																										
7.0	12.201																										
8.0	12.201																										



Model		LDA100W-12	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+12.0V8.5A	

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 : 0~8.5 A

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

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

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 0~8.5 A

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

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

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	12.215	±18	±0.2
Minimum Voltage	50	170	0	12.179		



COSEL		
Model	LDA100W-12	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+12.0V8.5A	

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.

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]	12.2	Input Volt.: 200V, Load Current:8.5A
Line Regulation [mV]	2	Input Volt.: 170~264V, Load Current:8.5A
Load Regulation [mV]	4	Input Volt.: 200V, Load Current:0~8.5A



Model		LDA100W-12	Temperature	25°C
Item		Leakage Current 漏洩電流	Testing Circuitry	Figure B
Object				

1. Results

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

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	0.41	0.55	0.65

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。



Model		LDA100W-12	Temperature 25°C Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+12.0V8.5A	

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

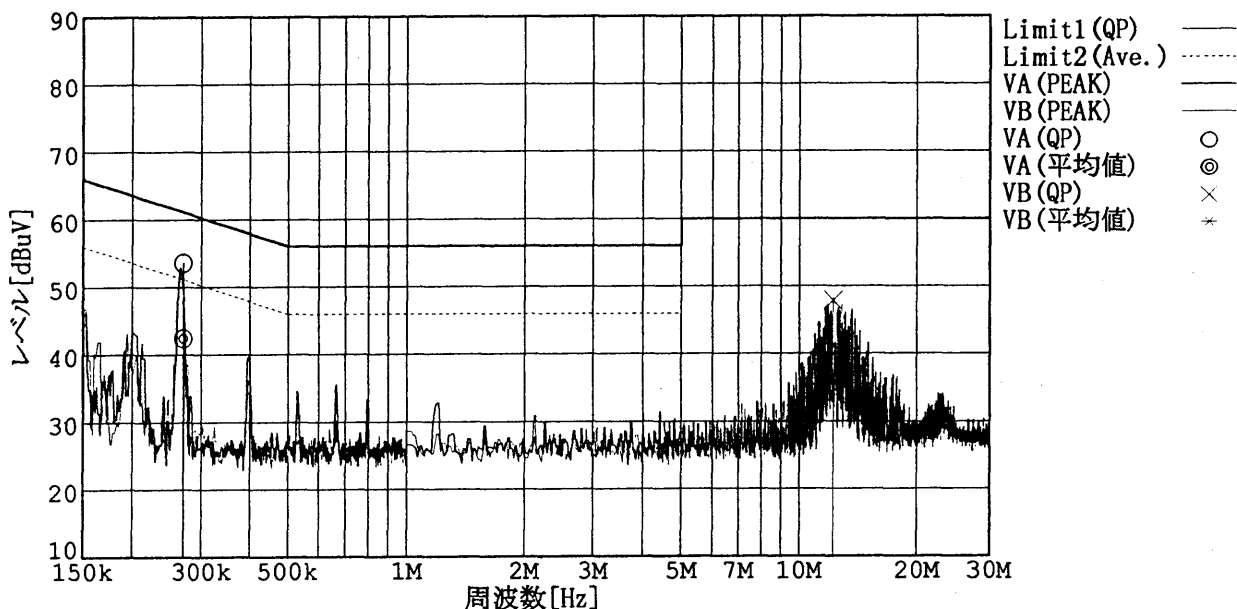
Model	LDA100W-12	Temperature	25°C
Item	Conducted Emission 雑音端子電圧	Testing Circuitry	Figure D
Object	_____		

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)



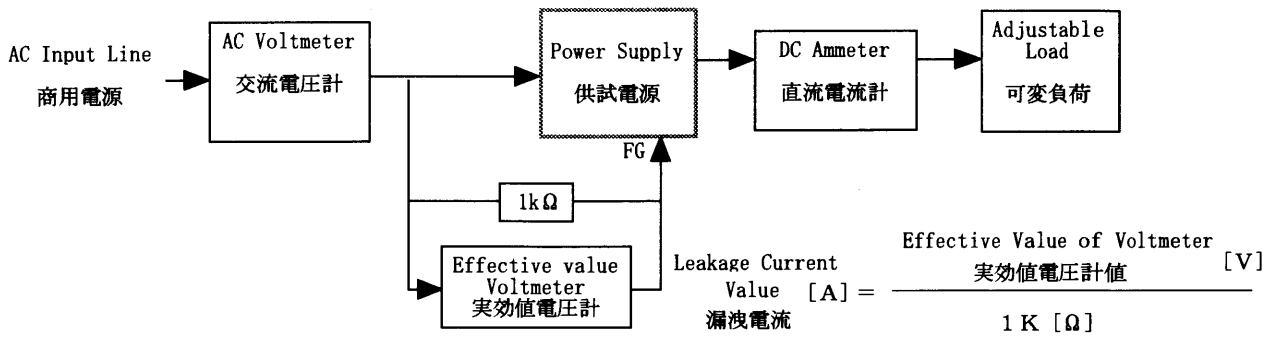
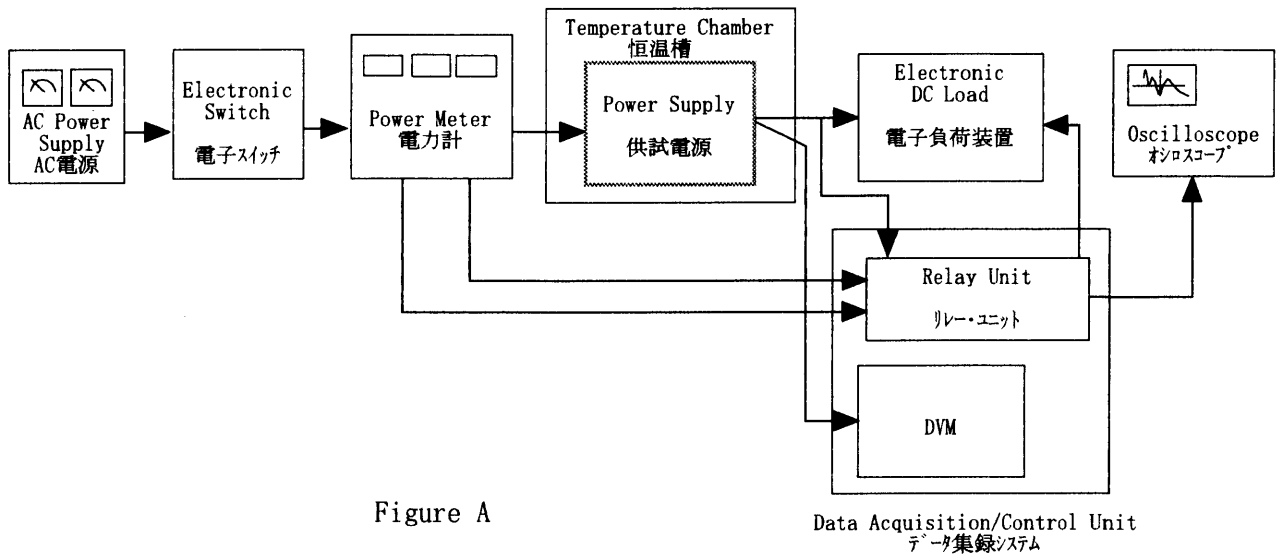


Figure B (DENTORI)

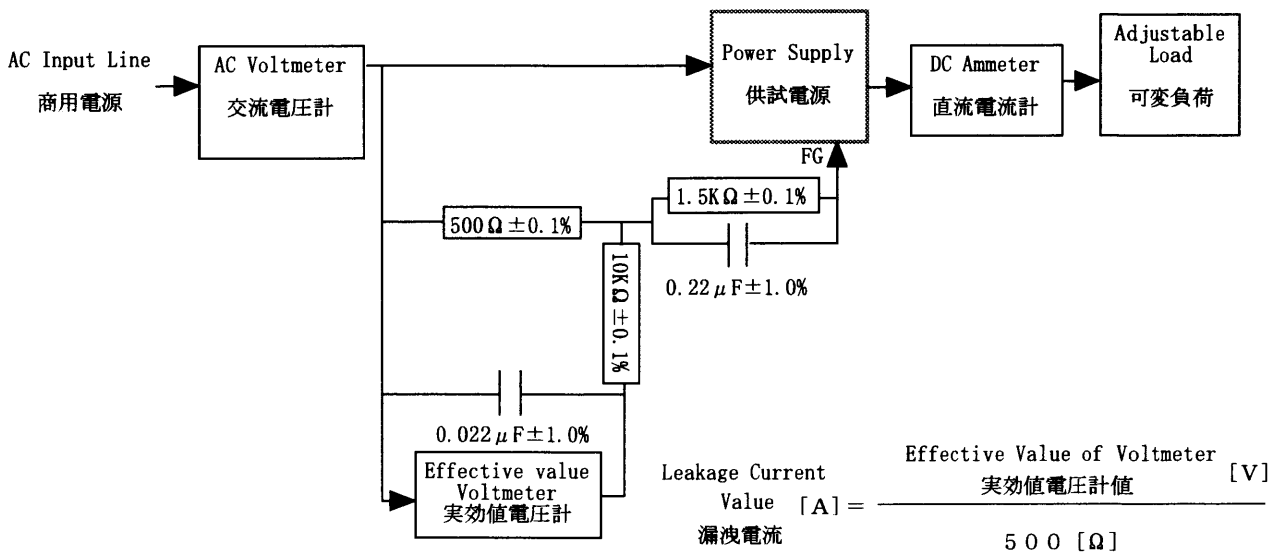


Figure B (IEC 60950)

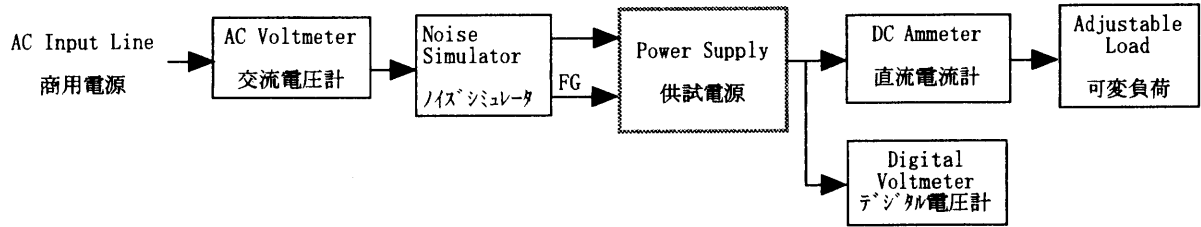


Figure C

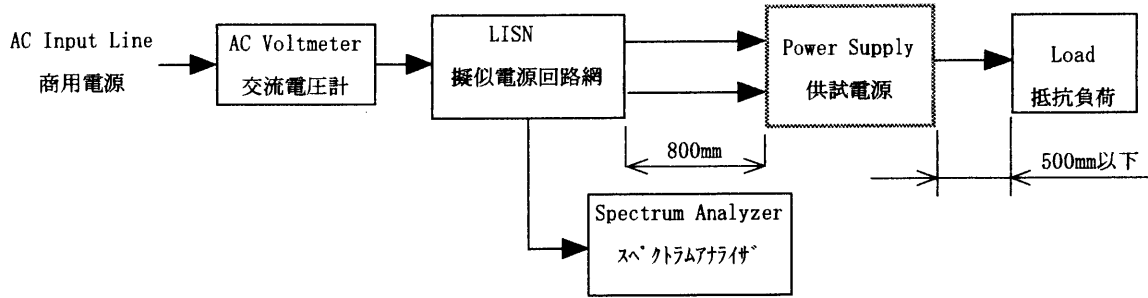


Figure D

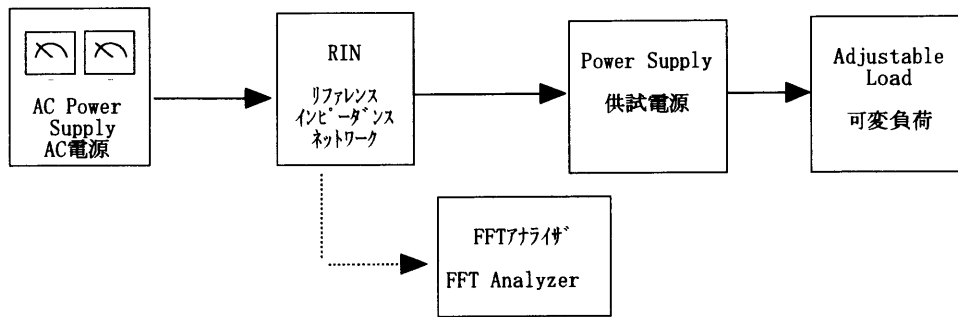


Figure E