



TEST DATA OF LDA75F-5
(200V INPUT)

Regulated DC Power Supply

Aug. 20. 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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COSEL

Model		LDA75F-5	Temperature	25°C																																
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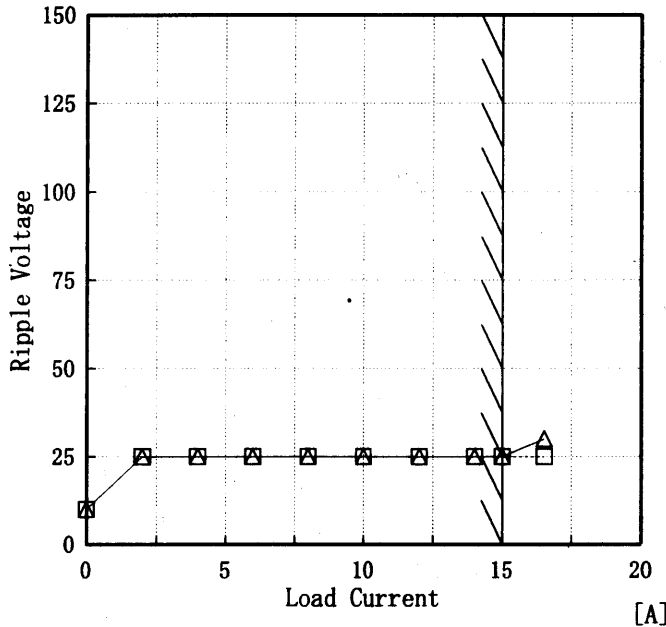


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<p>1. Graph</p> <p> Input Volt. 170 V Input Volt. 200 V Input Volt. 264 V </p> <p> [V] 5.220 5.180 5.140 5.100 5.060 5.020 4.980 0 </p> <p> Output Voltage 0 5 10 15 20 Load Current [A] </p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</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>0.0</td><td>5.095</td><td>5.094</td><td>5.094</td></tr> <tr><td>3.0</td><td>5.091</td><td>5.091</td><td>5.091</td></tr> <tr><td>6.0</td><td>5.088</td><td>5.088</td><td>5.088</td></tr> <tr><td>9.0</td><td>5.084</td><td>5.084</td><td>5.085</td></tr> <tr><td>12.0</td><td>5.081</td><td>5.081</td><td>5.081</td></tr> <tr><td>15.0</td><td>5.078</td><td>5.078</td><td>5.078</td></tr> <tr><td>16.5</td><td>5.076</td><td>5.076</td><td>5.076</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>		Load Current [A]	Output Voltage [V]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	0.0	5.095	5.094	5.094	3.0	5.091	5.091	5.091	6.0	5.088	5.088	5.088	9.0	5.084	5.084	5.085	12.0	5.081	5.081	5.081	15.0	5.078	5.078	5.078	16.5	5.076	5.076	5.076	—	—	—	—	—	—	—	—	—	—	—	—
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Model	LDA75F-5	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	+5.0V15A		

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



Ripple Voltage is shown as p-p in the figure below.

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

リップル電圧は、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

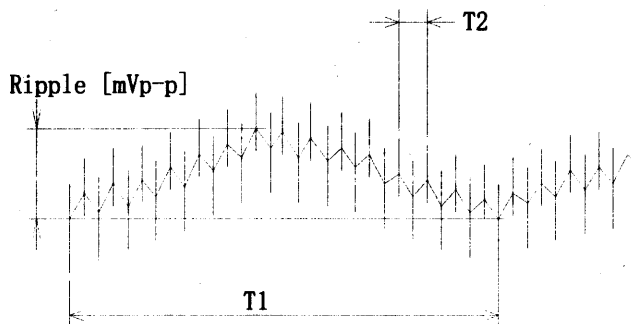


Fig. Complex Ripple Wave Form
 図 リップル波形詳細図

2. Values

Load Current [A]	Input Volt. 170 [V]	Input Volt. 264 [V]
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]
0.00	10	10
2.00	25	25
4.00	25	25
6.00	25	25
8.00	25	25
10.00	25	25
12.00	25	25
14.00	25	25
15.00	25	25
16.50	25	30
—	—	—



<p>Model LDA75F-5</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																						
Item	Ripple-Noise リップルノイズ																																							
Object	+5.0V15A																																							
<p>1. Graph</p> <p>[mV]</p> <p>□ Input Volt. 170V △ Input Volt. 264V</p>		<p>2. Values</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>25</td><td>40</td></tr> <tr><td>2.00</td><td>40</td><td>45</td></tr> <tr><td>4.00</td><td>45</td><td>50</td></tr> <tr><td>6.00</td><td>50</td><td>50</td></tr> <tr><td>8.00</td><td>55</td><td>55</td></tr> <tr><td>10.00</td><td>55</td><td>55</td></tr> <tr><td>12.00</td><td>55</td><td>55</td></tr> <tr><td>14.00</td><td>55</td><td>55</td></tr> <tr><td>15.00</td><td>55</td><td>60</td></tr> <tr><td>16.50</td><td>55</td><td>60</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Load current [A]	Input Volt. 170 [V]	Input Volt. 264 [V]	Ripple-Noise [mV]	Ripple-Noise [mV]	0.00	25	40	2.00	40	45	4.00	45	50	6.00	50	50	8.00	55	55	10.00	55	55	12.00	55	55	14.00	55	55	15.00	55	60	16.50	55	60	—	—	—
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COSEL

Model LDA75F-5 Item Overcurrent Protection 過電流保護 Object +5.0V15A		Temperature 25°C Testing Circuitry Figure A																																																							
1. Graph [V] <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> </div> <div style="text-align: left;"> Input Volt. 170 V Input Volt. 200 V Input Volt. 264 V </div> </div>		2. Values <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <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>5.00</td><td>19.66</td><td>19.70</td><td>19.90</td></tr> <tr><td>4.75</td><td>19.71</td><td>19.75</td><td>19.97</td></tr> <tr><td>4.50</td><td>19.75</td><td>19.92</td><td>20.02</td></tr> <tr><td>4.00</td><td>19.95</td><td>19.92</td><td>20.17</td></tr> <tr><td>3.50</td><td>19.98</td><td>20.04</td><td>20.33</td></tr> <tr><td>3.00</td><td>20.09</td><td>20.15</td><td>20.50</td></tr> <tr><td>2.50</td><td>20.20</td><td>20.28</td><td>20.68</td></tr> <tr><td>2.00</td><td>20.31</td><td>20.40</td><td>20.83</td></tr> <tr><td>1.50</td><td>20.43</td><td>20.51</td><td>20.87</td></tr> <tr><td>1.00</td><td>20.43</td><td>20.43</td><td>20.54</td></tr> <tr><td>0.50</td><td>20.07</td><td>19.85</td><td>19.46</td></tr> <tr><td>0.00</td><td>19.16</td><td>18.82</td><td>18.37</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	5.00	19.66	19.70	19.90	4.75	19.71	19.75	19.97	4.50	19.75	19.92	20.02	4.00	19.95	19.92	20.17	3.50	19.98	20.04	20.33	3.00	20.09	20.15	20.50	2.50	20.20	20.28	20.68	2.00	20.31	20.40	20.83	1.50	20.43	20.51	20.87	1.00	20.43	20.43	20.54	0.50	20.07	19.85	19.46	0.00	19.16	18.82	18.37
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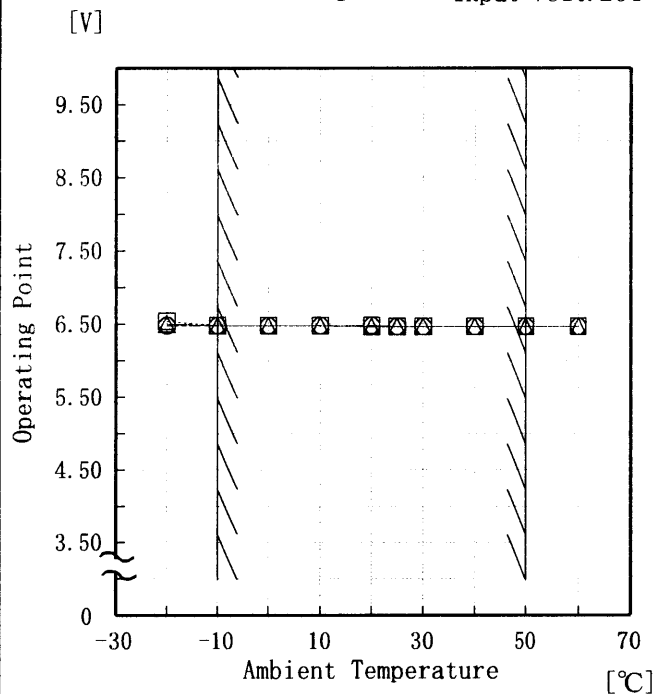


Model	LDA75F-5
Item	Overvoltage Protection 過電圧保護
Object	+5.0V15A

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.

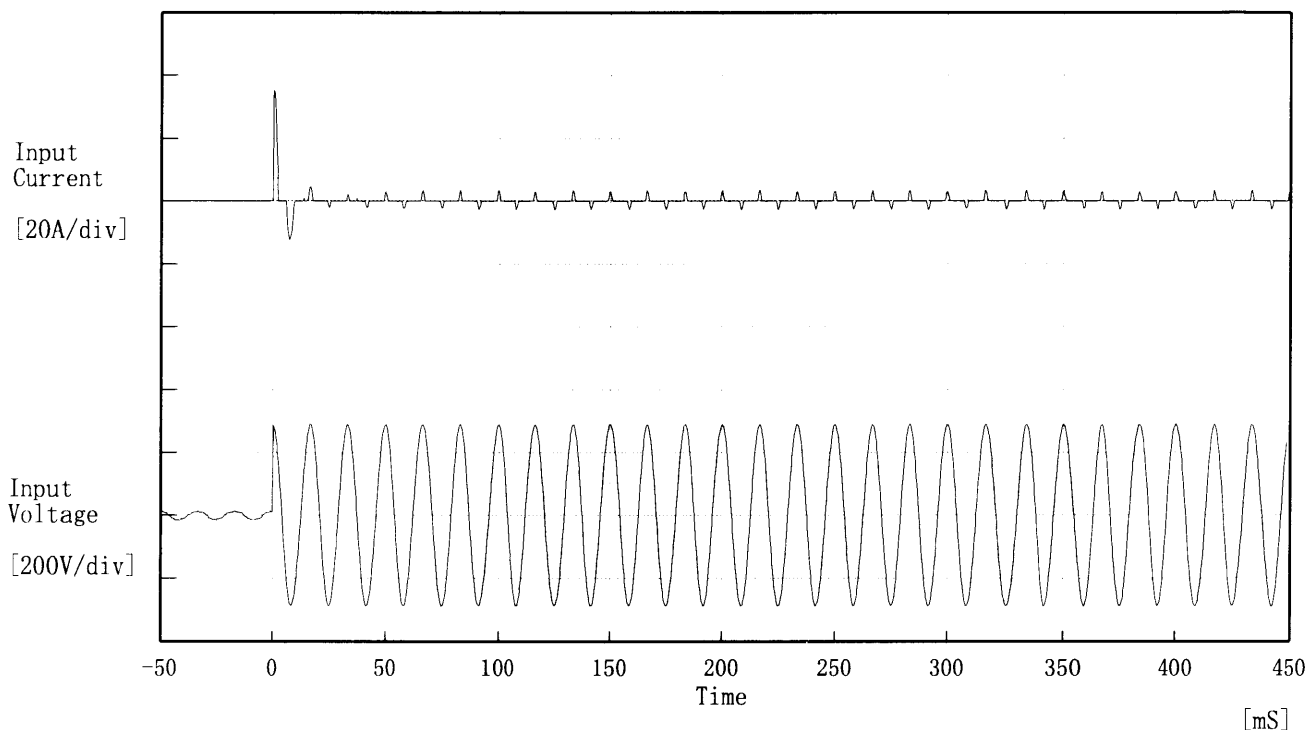
(注)斜線は定格周囲温度範囲を示す。

2. Values

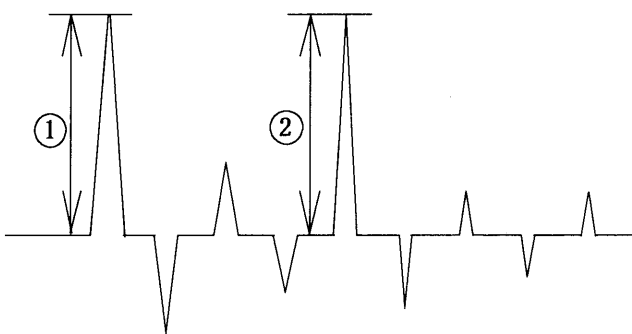
Ambient Temp. [°C]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
	Operating Point [V]		
-20	6.50	6.54	6.48
-10	6.48	6.48	6.48
0	6.48	6.48	6.48
10	6.48	6.48	6.48
20	6.47	6.48	6.48
25	6.47	6.47	6.47
30	6.47	6.47	6.47
40	6.47	6.47	6.47
50	6.47	6.47	6.47
60	6.47	6.47	6.47
—	—	—	—



Model		LDA75F-5	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 35.19 [A]
 ② 3.19 [A]

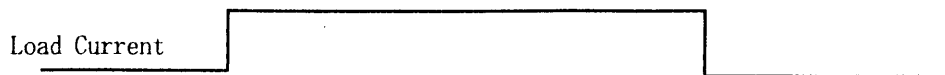


COSEL

Model	LDA75F-5	Temperature	25°C
Item	Dynamic Load Responce 動的負荷變動	Testing Circuitry	Figure A
Object	+5.0V15A		

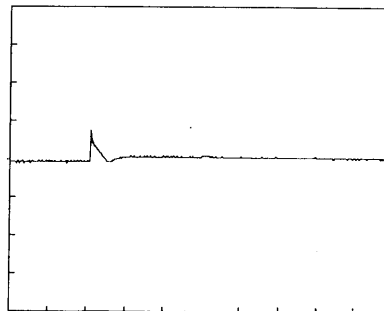
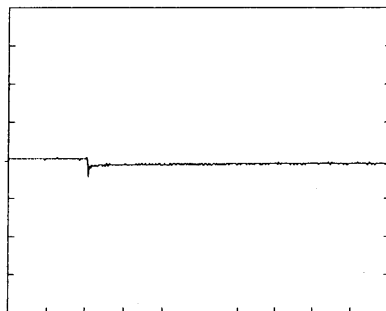
Input Volt. 200 V

Cycle 1000 mS



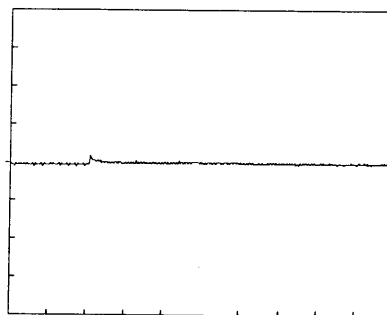
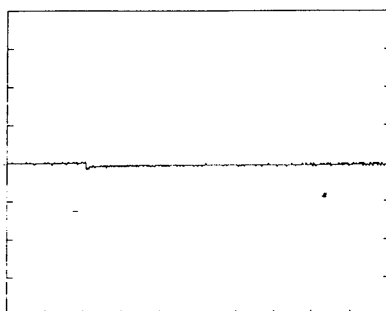
Load 0% ↔

Load 100 %



Load 0% ↔

Load 50 %



100 mV/div

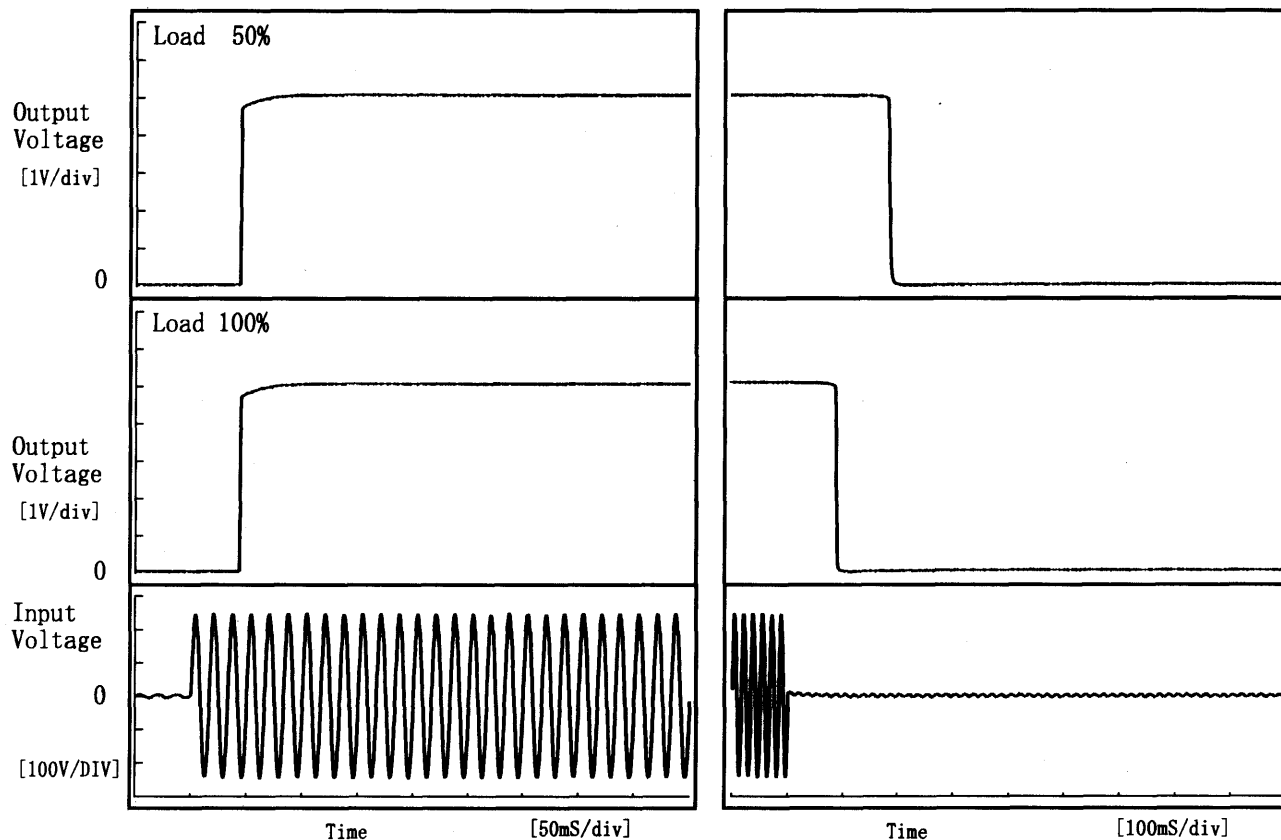
10 mS/div

COSEL

Model	LDA75F-5	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+5.0V15A		

1. Graph

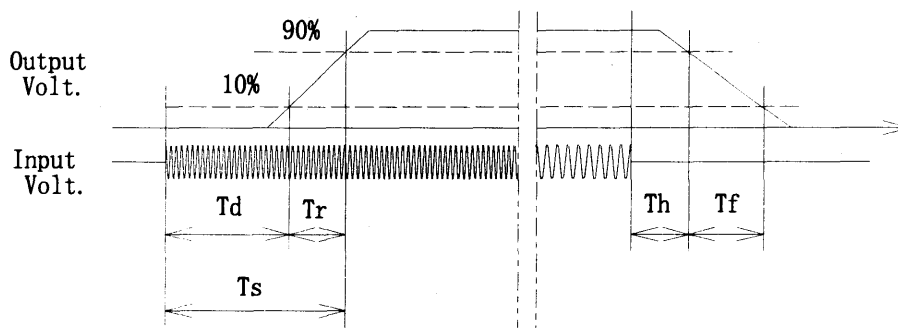
Input Volt. 170 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	43.3	1.0	44.3	186.0	5.0
100 %	43.3	1.3	44.5	90.0	3.0





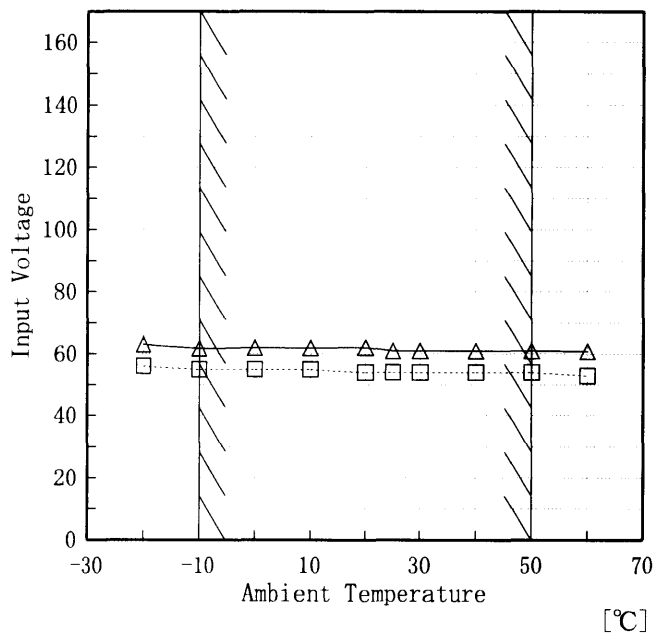
Model		LDA75F-5		Testing Circuitry Figure A																																																			
Item		Ambient Temperature Drift 周囲温度変動																																																					
Object		+5.0V15A																																																					
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Note: 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。			Load 100%																																																				



Model	LDA75F-5
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5.0V15A

Testing Circuitry Figure A

1. Graph □ Load 50%
△ Load 100%



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

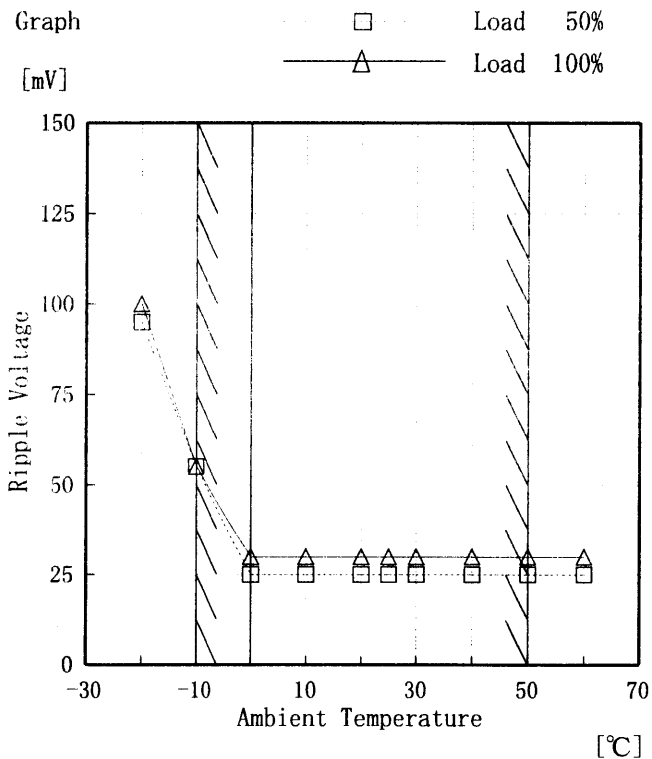
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	56	63
-10	55	62
0	55	62
10	55	62
20	54	62
25	54	61
30	54	61
40	54	61
50	54	61
60	53	61
—	—	—



Model	LDA75F-5
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+5.0V 15A

Testing Circuitry Figure A

1. Graph



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	95	100
-10	55	55
0	25	30
10	25	30
20	25	30
25	25	30
30	25	30
40	25	30
50	25	30
60	25	30
—	—	—



COSEL																									
Model	LDA75F-5	Temperature	25°C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	+5.0V15A																								
<p>1. Graph</p> <p style="text-align: center;">Time [H]</p> <p style="text-align: center;">Input Volt. 200V Load 100%</p>		<p>2. Values</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>5.077</td></tr> <tr><td>0.5</td><td>5.077</td></tr> <tr><td>1.0</td><td>5.077</td></tr> <tr><td>2.0</td><td>5.077</td></tr> <tr><td>3.0</td><td>5.077</td></tr> <tr><td>4.0</td><td>5.077</td></tr> <tr><td>5.0</td><td>5.077</td></tr> <tr><td>6.0</td><td>5.077</td></tr> <tr><td>7.0</td><td>5.077</td></tr> <tr><td>8.0</td><td>5.077</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	5.077	0.5	5.077	1.0	5.077	2.0	5.077	3.0	5.077	4.0	5.077	5.0	5.077	6.0	5.077	7.0	5.077	8.0	5.077
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8.0	5.077																								



Model		LDA75F-5	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度		
Object	+5.0V15A		

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 : 0~15 A

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

* 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 0~15 A

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

* 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	50	170	0	5.098	±15	±0.3
Minimum Voltage	-10	170	15	5.068		



COSEL		
Model	LDA75F-5	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+5.0V15A	

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℃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℃、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]	5.047	Input Volt.: 200V, Load Current:15A
Line Regulation [mV]	10	Input Volt.: 170~264V, Load Current:15A
Load Regulation [mV]	20	Input Volt.: 200V, Load Current:0~15A



Model		LDA75F-5	Temperature 25°C Testing Circuitry Figure B
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) IEC60950	--	--	--

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	0.34	0.41	0.45

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		LDA75F-5	Temperature 25°C Testing Circuitry Figure C
Item		Line Noise Tolerance 入力雑音耐量	
Object		+5.0V15A	

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

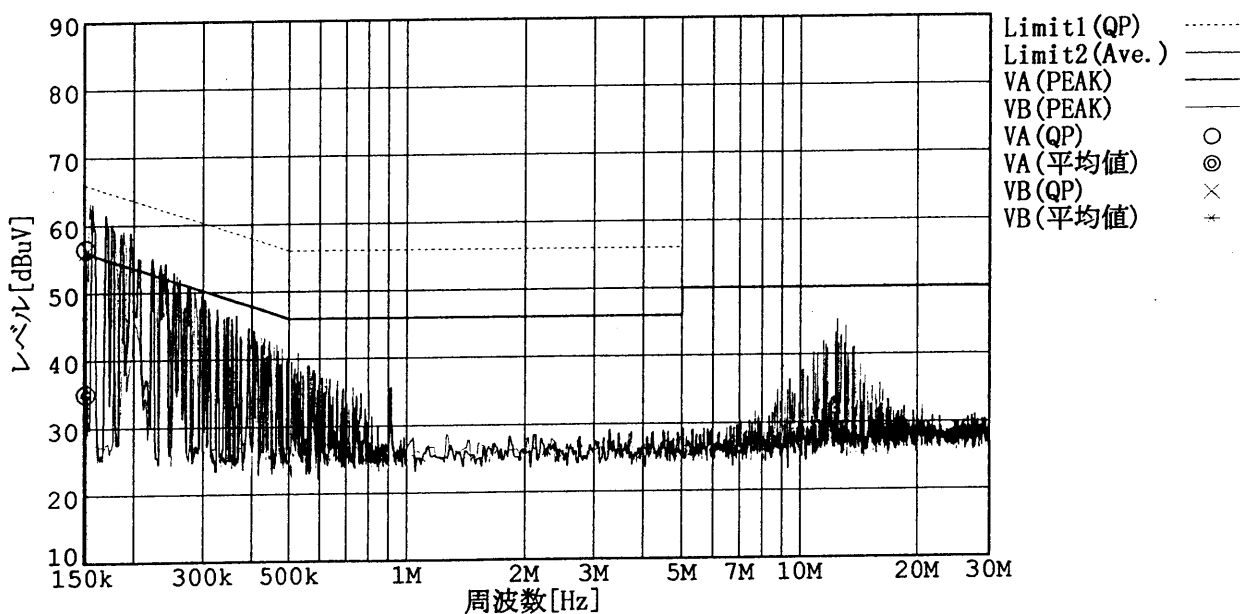
Model	LDA75F-5	Temperature	25°C
Item	Conducted Emission 雑音端子電圧	Testing Circuitry	Figure D
Object			

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)



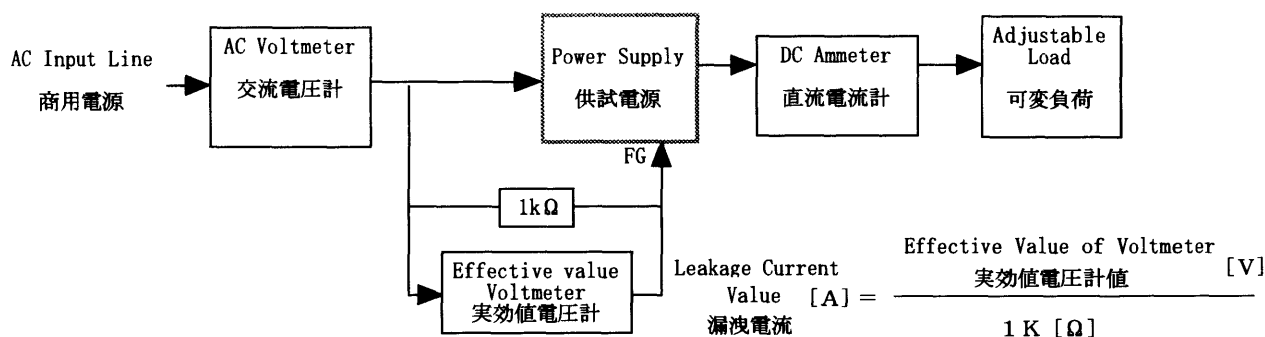
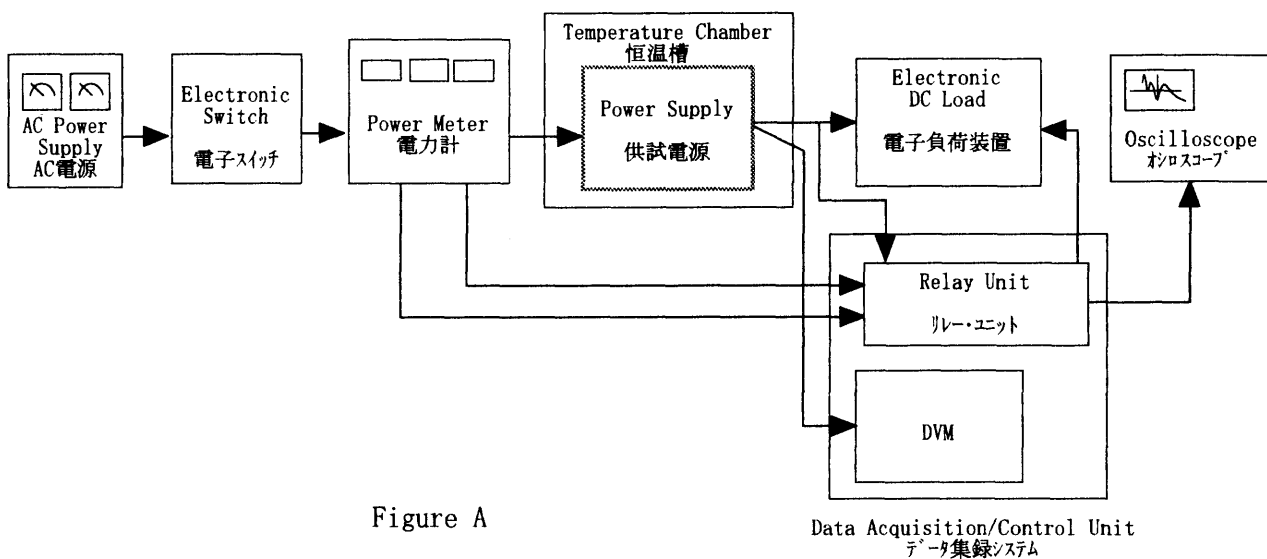


Figure B (DENTORI)

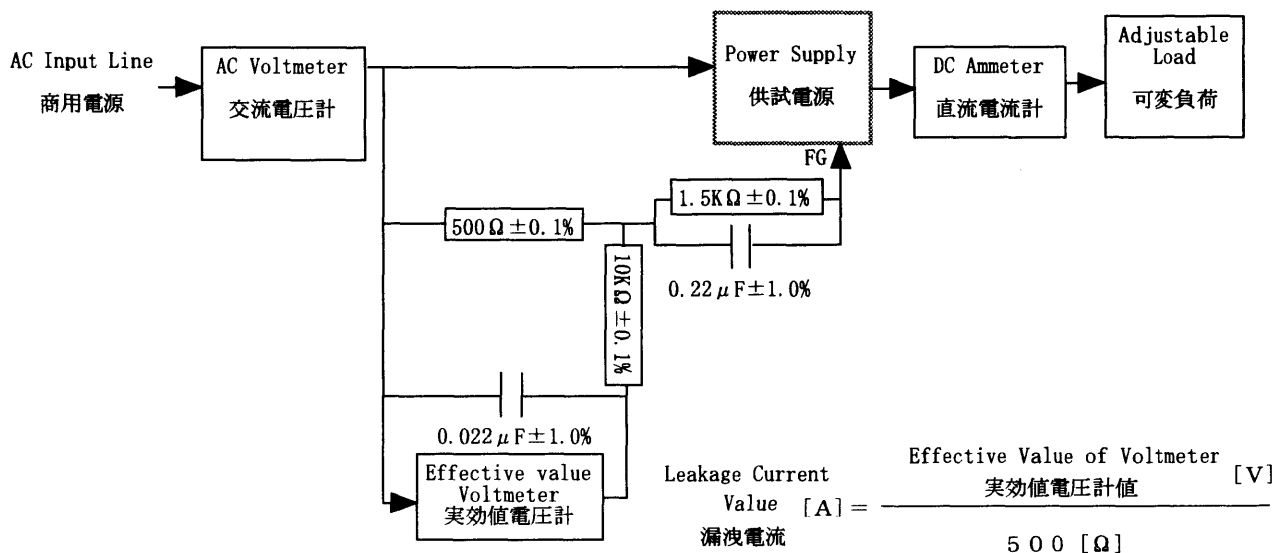


Figure B (IEC 60950)

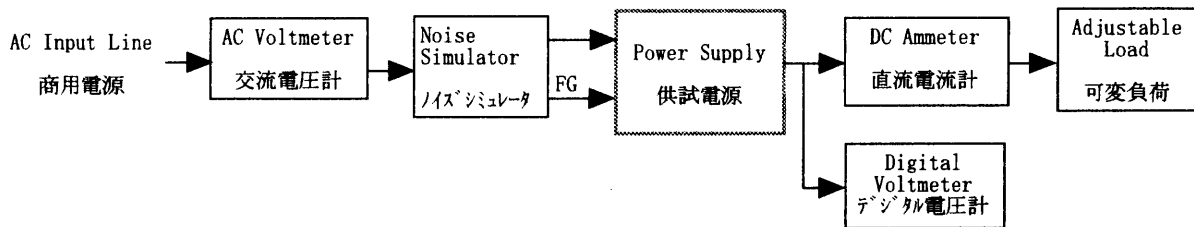


Figure C

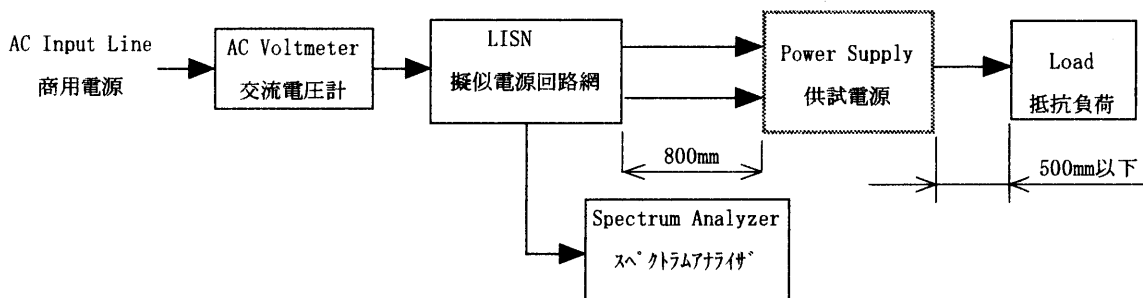


Figure D

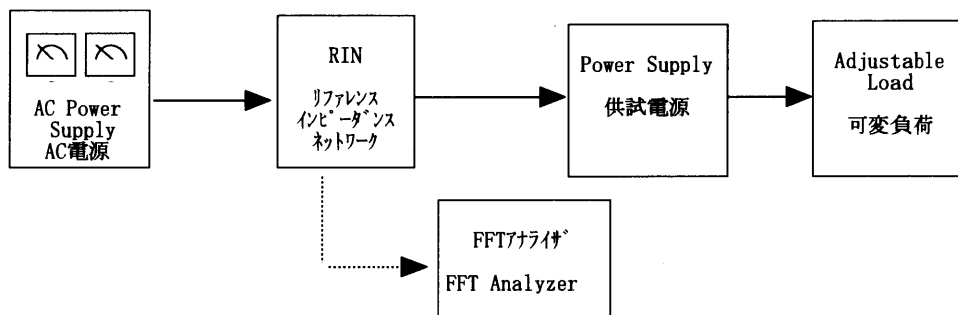


Figure E