



# TEST DATA OF LDA300W-5

(200V INPUT)

Regulated DC Power Supply

Date : Feb. 22. 1997

Approved by : *K. Nagahara*  
Design Manager

Prepared by : *T. Mano*  
Design Engineer

コーセル株式会社

COSEL CO., LTD.

CONTENTS

1. Line Regulation . . . . .	1
静的入力変動	
2. Efficiency . . . . .	2
効率	
3. Hold-Up Time . . . . .	3
出力保持時間	
4. Instantaneous Interruption Compensation . . . . .	4
瞬時停電保障	
5. Load Regulation . . . . .	5
静的負荷変動	
6. Ripple Voltage (by Load Current) . . . . .	6
リップル電圧(負荷電流特性)	
7. Ripple-Noise . . . . .	7
リップルノイズ	
8. Overcurrent Protection . . . . .	8
過電流保護	
9. Overvoltage Protection . . . . .	9
過電圧保護	
10. Inrush Current . . . . .	10
突入電流	
11. Dynamic Load Responce . . . . .	11
動的負荷変動	
12. Rise and Fall Time . . . . .	12
立上り、立下り時間	
13. Ambient Temperature Drift . . . . .	13
周囲温度変動	
14. Minimum Input Voltage for Regulated Output Voltage . . . . .	14
最低レギュレーション電圧	
15. Ripple Voltage (by Ambient Temperature) . . . . .	15
リップル電圧(周囲温度特性)	
16. Time Lapse Drift . . . . .	16
経時ドリフト	
17. Voltage Accuracy . . . . .	17
定電圧精度	
18. Condensation . . . . .	18
結露特性	
19. Leakage Current . . . . .	19
漏洩電流	
20. Line Noise Tolerance . . . . .	20
入力雑音耐量	
21. Conducted Emission . . . . .	21
雑音端子電圧	
22. Figure of Testing Circuitry . . . . .	22
測定回路図	

(Final Page 23 )

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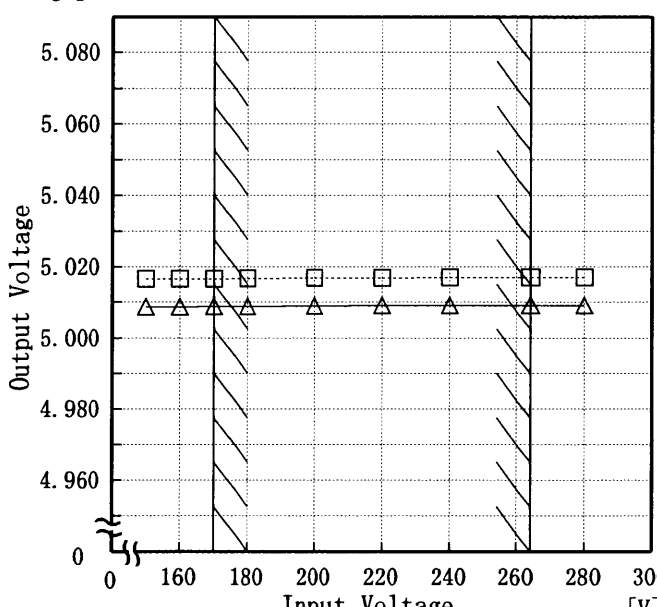
Model		LDA300W-5	Temperature Testing Circuitry	25°C Figure A
Item		Line Regulation 静的入力変動		
Object		+5V60A		

1. Graph

-----□----- Load 50%

-----△----- Load 100%

[V]



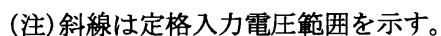
Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

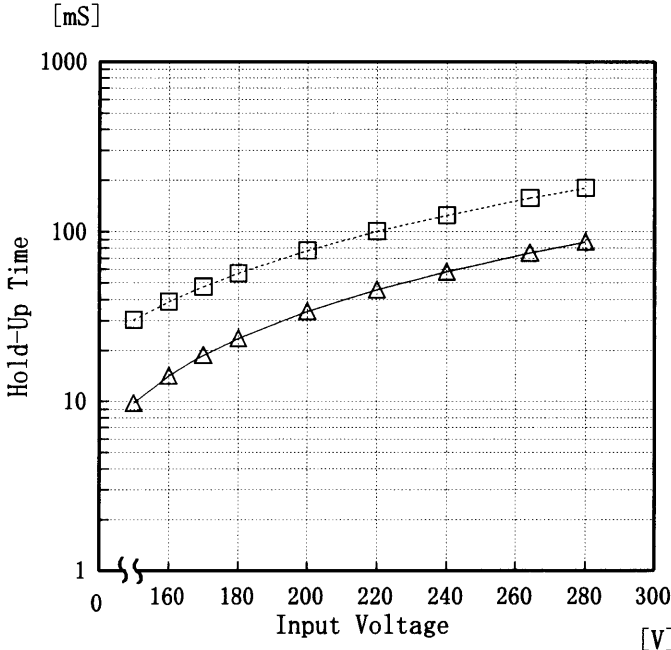
Input Voltage [V]	Load 50%	Load 100%
	Output Volt. [V]	Output Volt. [V]
150	5.017	5.009
160	5.017	5.009
170	5.017	5.009
180	5.017	5.009
200	5.017	5.009
220	5.017	5.009
240	5.017	5.009
264	5.017	5.009
280	5.017	5.009

Temperature 25°C  
Testing Circuitry Figure A

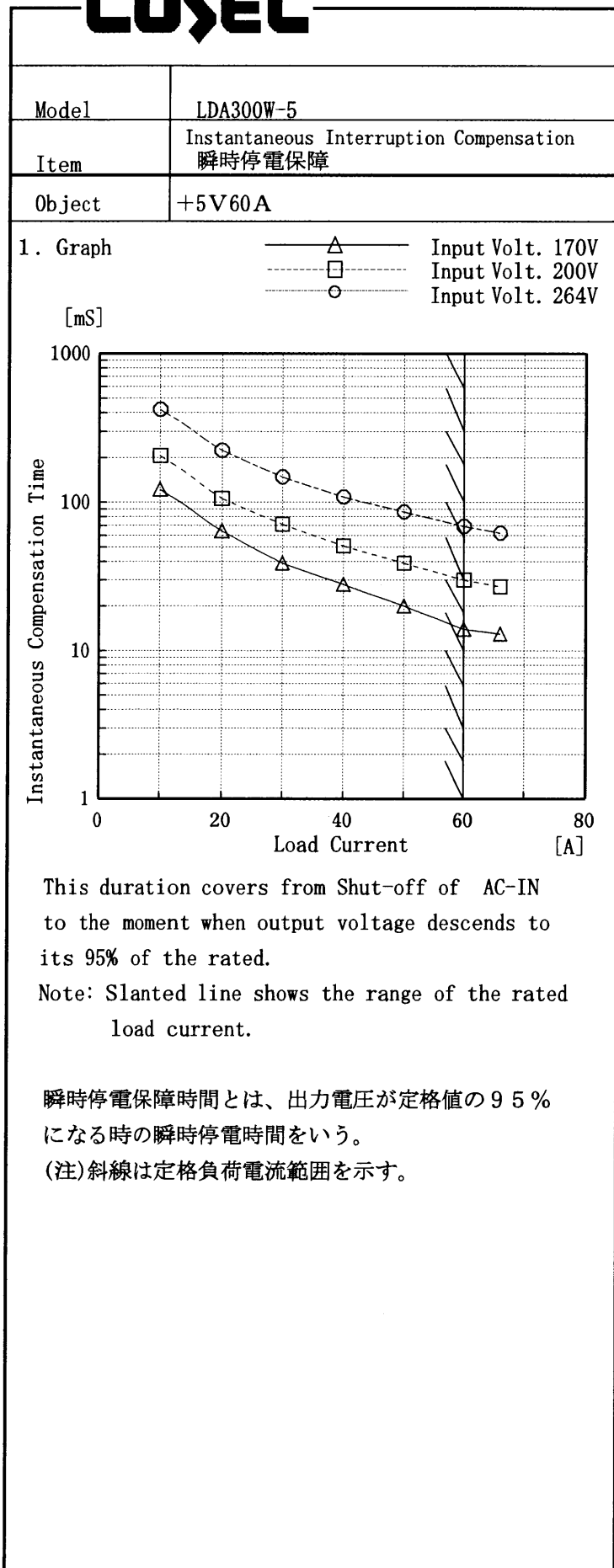


Input Voltage [V]	Load 50%	Load 100%
	Efficiency [%]	Efficiency [%]
150	82.46	79.74
160	82.65	80.17
170	82.55	80.59
180	82.24	80.59
200	82.24	81.02
220	81.71	81.24
240	81.27	81.24
264	80.83	81.24
280	80.41	81.02

# COSEL

Model		LDA300W-5	Temperature Testing Circuitry	25℃ Figure A																																
Item		Hold-Up Time 出力保持時間																																		
Object		+5V60A																																		
1. Graph		<div><div>-----□-----</div><div>Load 50%</div><div>-----△-----</div><div>Load 100%</div></div> <div><div>[mS]</div><div>1000</div><div>100</div><div>10</div><div>1</div><div>Hold-Up Time</div><div>0 160 180 200 220 240 260 280 300</div><div>Input Voltage [V]</div></div> 	2. Values																																	
			<table><tr><th rowspan="2">Input Voltage [V]</th><th>Load 50%</th><th>Load 100%</th></tr><tr><th>Hold-Up Time [mS]</th><th>Hold-Up Time [mS]</th></tr><tr><td>150</td><td>30</td><td>10</td></tr><tr><td>160</td><td>39</td><td>14</td></tr><tr><td>170</td><td>48</td><td>19</td></tr><tr><td>180</td><td>57</td><td>24</td></tr><tr><td>200</td><td>78</td><td>34</td></tr><tr><td>220</td><td>101</td><td>46</td></tr><tr><td>240</td><td>125</td><td>58</td></tr><tr><td>264</td><td>158</td><td>75</td></tr><tr><td>280</td><td>181</td><td>87</td></tr></table>		Input Voltage [V]	Load 50%	Load 100%	Hold-Up Time [mS]	Hold-Up Time [mS]	150	30	10	160	39	14	170	48	19	180	57	24	200	78	34	220	101	46	240	125	58	264	158	75	280	181	87
Input Voltage [V]	Load 50%	Load 100%																																		
	Hold-Up Time [mS]	Hold-Up Time [mS]																																		
150	30	10																																		
160	39	14																																		
170	48	19																																		
180	57	24																																		
200	78	34																																		
220	101	46																																		
240	125	58																																		
264	158	75																																		
280	181	87																																		
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>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。</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																				

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Testing Circuitry Figure A 25°C

## 2. Values

Load Current [A]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
	Time [mS]		
0.0	—	—	—
10.0	122	206	421
20.0	64	106	223
30.0	39	71	148
40.0	28	51	109
50.0	20	39	86
60.0	14	30	69
66.0	13	27	62
—	—	—	—
—	—	—	—
—	—	—	—

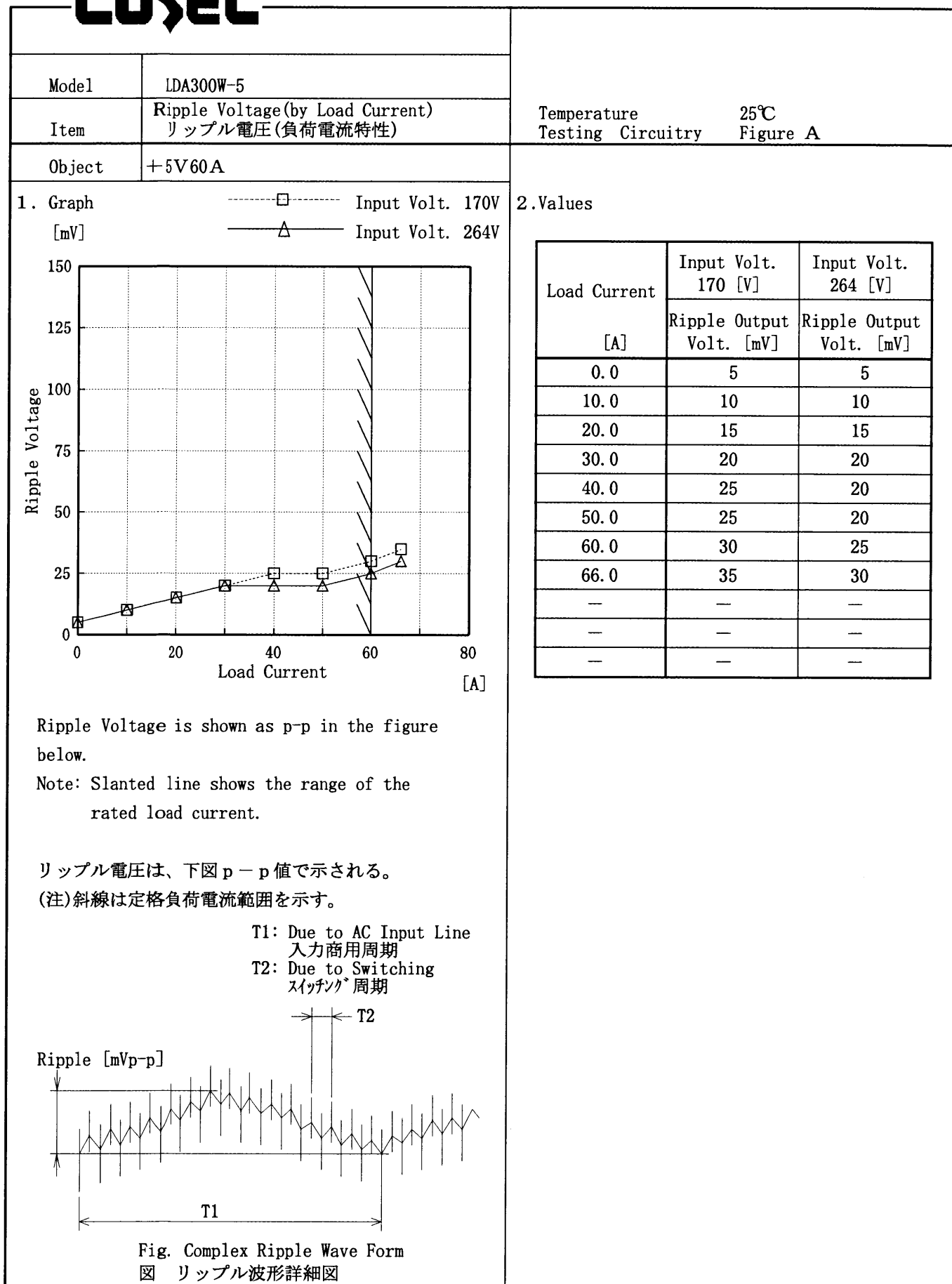
# COSEL

Model	LDA300W-5	Temperature	25°C																																												
Item	Load Regulation 静的負荷変動	Testing Circuitry	Figure A																																												
Object	+5V60A	2. Values																																													
1. Graph	<div> <div>△</div> Input Volt. 170V <div>□</div> Input Volt. 200V <div>○</div> Input Volt. 264V </div>																																														
		<table border="1"> <thead> <tr> <th>Load Current [A]</th><th>Input Volt. 170[V] Output Volt. [V]</th><th>Input Volt. 200[V] Output Volt. [V]</th><th>Input Volt. 264[V] Output Volt. [V]</th></tr> </thead> <tbody> <tr><td>0.0</td><td>5.025</td><td>5.025</td><td>5.025</td></tr> <tr><td>10.0</td><td>5.022</td><td>5.022</td><td>5.023</td></tr> <tr><td>20.0</td><td>5.020</td><td>5.020</td><td>5.020</td></tr> <tr><td>30.0</td><td>5.017</td><td>5.017</td><td>5.017</td></tr> <tr><td>40.0</td><td>5.014</td><td>5.015</td><td>5.015</td></tr> <tr><td>50.0</td><td>5.012</td><td>5.012</td><td>5.012</td></tr> <tr><td>60.0</td><td>5.009</td><td>5.009</td><td>5.010</td></tr> <tr><td>66.0</td><td>5.008</td><td>5.008</td><td>5.008</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]	Input Volt. 170[V] Output Volt. [V]	Input Volt. 200[V] Output Volt. [V]	Input Volt. 264[V] Output Volt. [V]	0.0	5.025	5.025	5.025	10.0	5.022	5.022	5.023	20.0	5.020	5.020	5.020	30.0	5.017	5.017	5.017	40.0	5.014	5.015	5.015	50.0	5.012	5.012	5.012	60.0	5.009	5.009	5.010	66.0	5.008	5.008	5.008	—	—	—	—	—	—	—	—
Load Current [A]	Input Volt. 170[V] Output Volt. [V]	Input Volt. 200[V] Output Volt. [V]	Input Volt. 264[V] Output Volt. [V]																																												
0.0	5.025	5.025	5.025																																												
10.0	5.022	5.022	5.023																																												
20.0	5.020	5.020	5.020																																												
30.0	5.017	5.017	5.017																																												
40.0	5.014	5.015	5.015																																												
50.0	5.012	5.012	5.012																																												
60.0	5.009	5.009	5.010																																												
66.0	5.008	5.008	5.008																																												
—	—	—	—																																												
—	—	—	—																																												

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





# COSEL

Model		LDA300W-5	
Item		Ripple-Noise   リップルノイズ	
Object		+5V60A	
1. Graph		2. Values	

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# COSEL

Model LDA300W-5

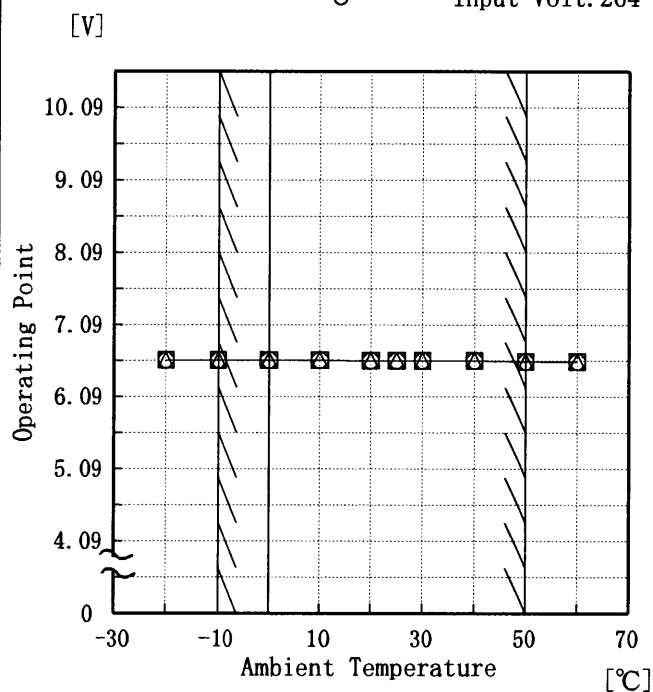
Item Overvoltage Protection  
過電圧保護

Object +5V 60A

Testing Circuitry Figure A

## 1. Graph

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



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

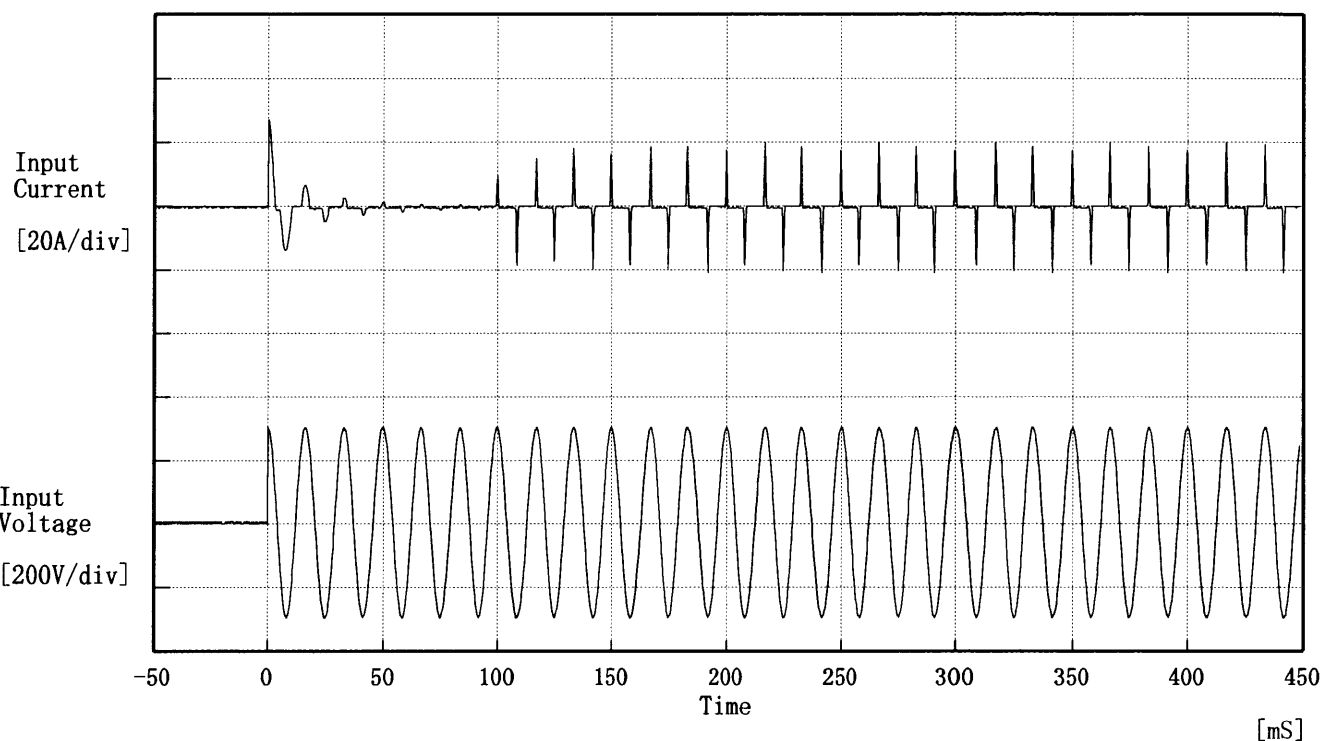
(注)斜線は定格周囲温度範囲を示す。

## 2. Values

Ambient Temp. [°C]	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
Operating Point [V]			
-20	6.60	6.60	6.60
-10	6.60	6.60	6.60
0	6.60	6.60	6.60
10	6.60	6.60	6.60
20	6.59	6.59	6.59
25	6.59	6.59	6.59
30	6.59	6.59	6.59
40	6.59	6.59	6.59
50	6.58	6.58	6.58
60	6.58	6.58	6.58
—	—	—	—

# COSEL

Model	LDA300W-5	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



Input Voltage 200 V

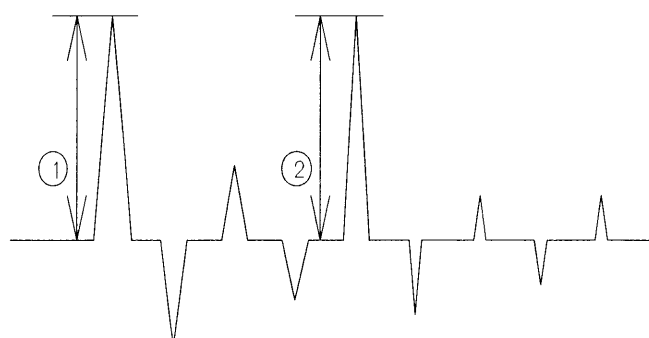
Frequency 60 Hz

Load 100 %

Inrush Current

① 27.00 [A]

② 21.00 [A]



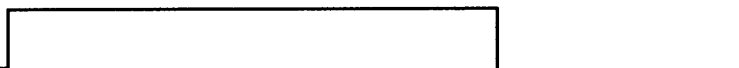
# COSEL

Model	LDA300W-5		
Item	Dynamic Load Responce 動的負荷変動	Temperature	25°C
Object	+5V60A	Testing Circuitry	Figure A

Input Volt. 200 V

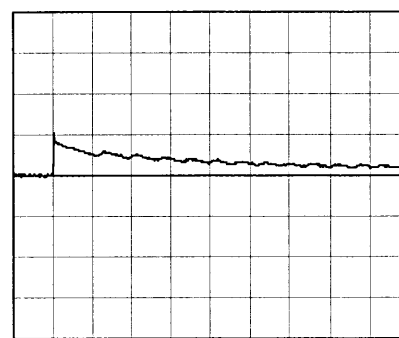
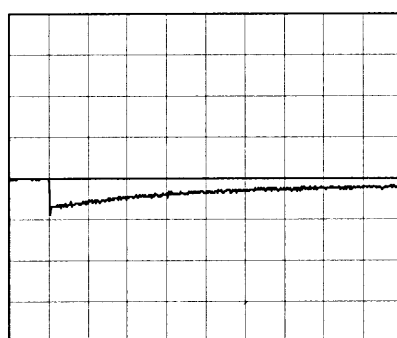
Cycle 1000 mS

Load Current



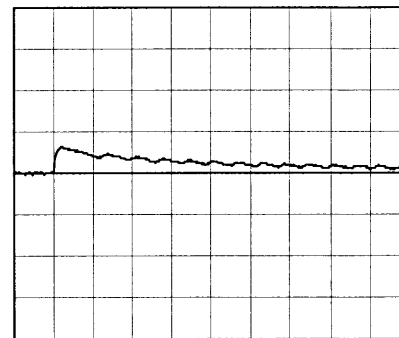
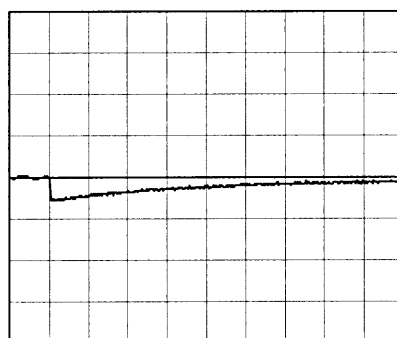
Min. Load  $\longleftrightarrow$

Load 100 %



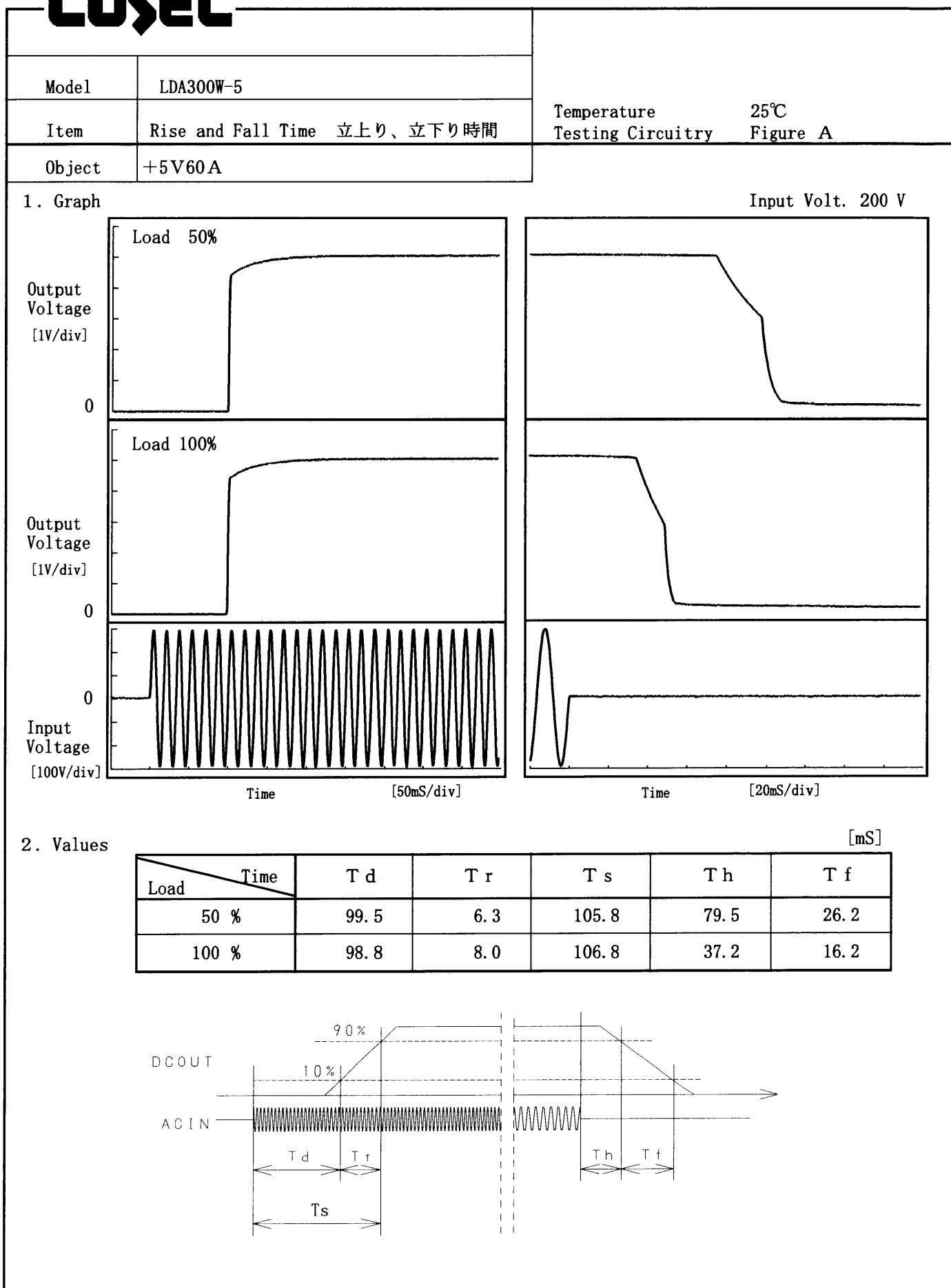
Min. Load  $\longleftrightarrow$

Load 50 %



100 mV/div

10 mV/div

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# COSEL

Model LDA300W-5

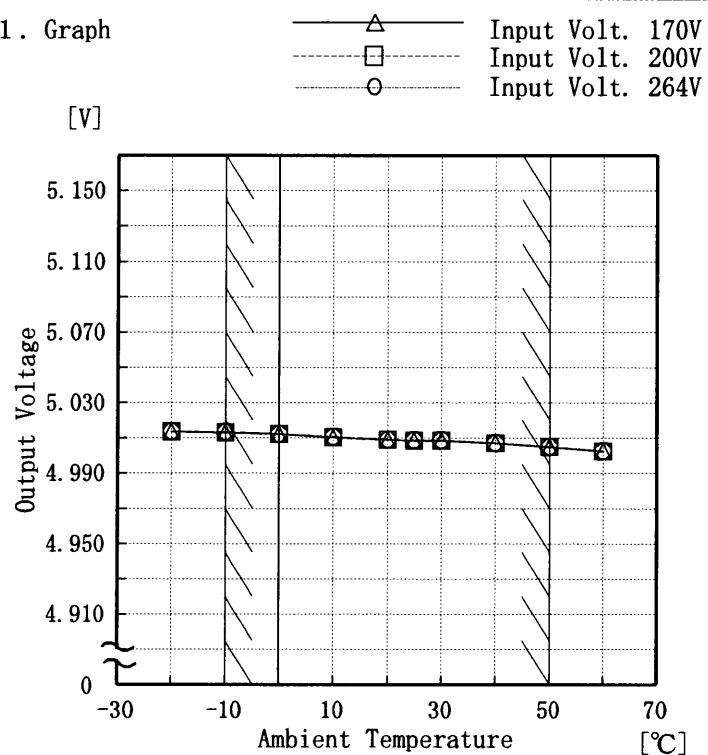
Item Ambient Temperature Drift

Item 周囲温度変動

Object +5V60A

Testing Circuitry Figure A

## 1. Graph



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	5.014	5.014	5.014
-10	5.013	5.013	5.014
0	5.012	5.012	5.013
10	5.010	5.011	5.011
20	5.009	5.009	5.009
25	5.009	5.009	5.009
30	5.009	5.009	5.009
40	5.007	5.007	5.007
50	5.005	5.005	5.005
60	5.003	5.003	5.003
—	—	—	—

# COSEL

Model

LDA300W-5

Item

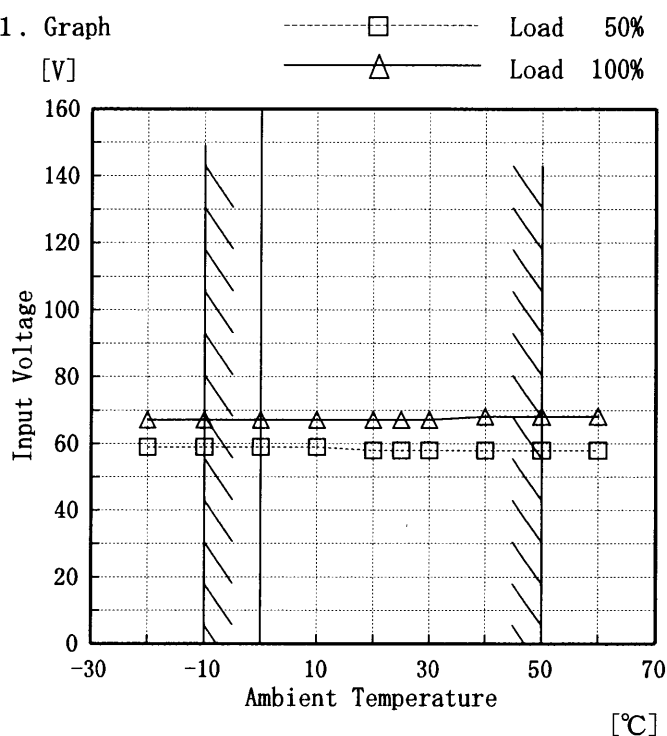
Minimum Input Voltage for Regulated Output Voltage  
最低レギュレーション電圧

Object

+5V60A

Testing Circuitry Figure A

## 1. Graph



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

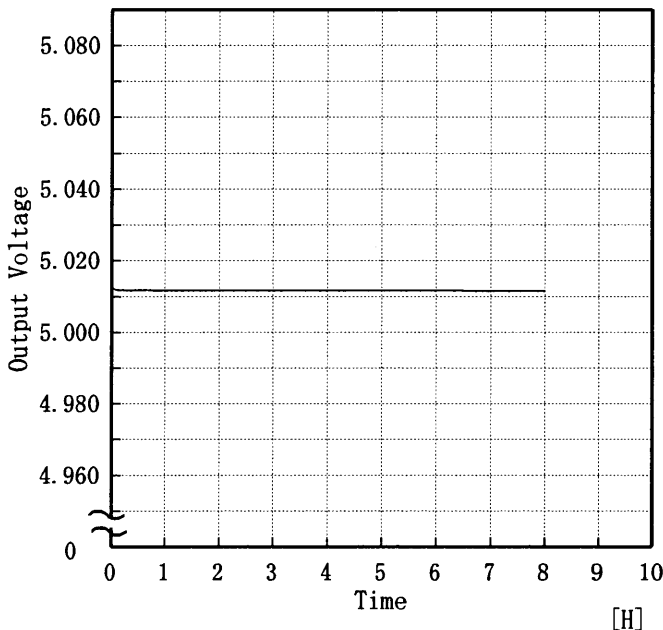
Ambient Temp. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-20	59	67
-10	59	67
0	59	67
10	59	67
20	58	67
25	58	67
30	58	67
40	58	68
50	58	68
60	58	68
—	—	—



# COSEL

Model LDA300W-5		Testing Circuitry      Figure A																																						
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																							
Object	+5V 60A																																							
<p>1. Graph</p> <p>-----□----- Load 50%</p> <p>-----△----- Load 100%</p> <p>[mV]</p> <p>Ripple Voltage</p> <p>Ambient Temperature [°C]</p> <p>Input Volt. 170 V</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>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. [°C]</th><th>Load 50%</th><th>Load 100%</th></tr> <tr> <th>Ripple Output Volt. [mV]</th><th>Ripple Output Volt. [mV]</th></tr> </thead> <tbody> <tr><td>-20</td><td>35</td><td>50</td></tr> <tr><td>-10</td><td>30</td><td>45</td></tr> <tr><td>0</td><td>25</td><td>40</td></tr> <tr><td>10</td><td>20</td><td>35</td></tr> <tr><td>20</td><td>20</td><td>30</td></tr> <tr><td>25</td><td>20</td><td>30</td></tr> <tr><td>30</td><td>20</td><td>30</td></tr> <tr><td>40</td><td>20</td><td>30</td></tr> <tr><td>50</td><td>15</td><td>25</td></tr> <tr><td>60</td><td>15</td><td>25</td></tr> <tr><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Ambient Temp. [°C]	Load 50%	Load 100%	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]	-20	35	50	-10	30	45	0	25	40	10	20	35	20	20	30	25	20	30	30	20	30	40	20	30	50	15	25	60	15	25	—	—	—
Ambient Temp. [°C]	Load 50%	Load 100%																																						
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]																																						
-20	35	50																																						
-10	30	45																																						
0	25	40																																						
10	20	35																																						
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25	20	30																																						
30	20	30																																						
40	20	30																																						
50	15	25																																						
60	15	25																																						
—	—	—																																						

**COSEL**

COSEL																									
Model	LDA300W-5	Temperature 25 ℃ Testing Circuitry Figure A																							
Item	Time Lapse Drift 経時ドリフト																								
Object	+5V60A																								
1. Graph		2.Values																							
<p>[V]</p>  <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 200V Load 100%</p>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.013</td></tr><tr><td>0.5</td><td>5.012</td></tr><tr><td>1.0</td><td>5.012</td></tr><tr><td>2.0</td><td>5.012</td></tr><tr><td>3.0</td><td>5.012</td></tr><tr><td>4.0</td><td>5.012</td></tr><tr><td>5.0</td><td>5.012</td></tr><tr><td>6.0</td><td>5.012</td></tr><tr><td>7.0</td><td>5.012</td></tr><tr><td>8.0</td><td>5.012</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.013	0.5	5.012	1.0	5.012	2.0	5.012	3.0	5.012	4.0	5.012	5.0	5.012	6.0	5.012	7.0	5.012	8.0	5.012
Time since start [H]	Output Voltage [V]																								
0.0	5.013																								
0.5	5.012																								
1.0	5.012																								
2.0	5.012																								
3.0	5.012																								
4.0	5.012																								
5.0	5.012																								
6.0	5.012																								
7.0	5.012																								
8.0	5.012																								

-16-

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# COSEL

		Testing Circuitry Figure A
Model	LDA300W-5	
Item	Output Voltage Accuracy 定電圧精度	
Object	+5V60A	

## Output Voltage Accuracy

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

Temperature : -10~50 °C

Input Voltage : 170~264 V

Load Current : 0~60 A

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

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

## 定電圧精度

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

負過電流 : 0~60 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 (Ratio) [%]
Maximum Voltage	-10	264	0	5.028	±11	±0.228
Minimum Voltage	50	170	60	5.005		

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Model	LDA300W-5
Item	Condensation 結露特性
Object	+5V60A

Testing Circuitry      Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ 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℃ and the humidity is 45%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℃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45%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	5.083	30	40
	2	5.083	30	40
	3	5.083	30	40
Load 100 %	1	5.083	30	40
	2	5.083	30	40
	3	5.083	30	40

Input Volt. 200 V

-18-

BC-0695

# COSEL

LOREL

Model	LDA300W-5
Item	Leakage Current 漏洩電流
Object	+5V60A

Testing Circuitry      Figure B

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	0.41	0.49	0.67

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。

Load 100 %

-19-

BC-0695

**COSEL**

		Testing Circuitry      Figure C
Model	LDA300W-5	
Item	Line Noise Tolerance 入力雑音耐量	
Object	+5V60A	

## 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	6.62	no regulation
	NORMAL	6.62	no regulation
1000	COMMON	6.62	no regulation
	NORMAL	6.62	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	LDA300W-5	Testing Circuitry Figure D
Item	Conducted Emission 雑音端子電圧	
Object	+5V60A	

## 1. Graph

### Remarks

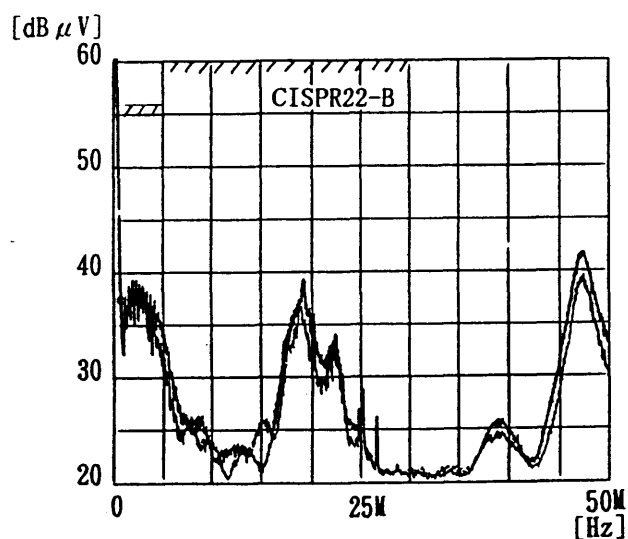
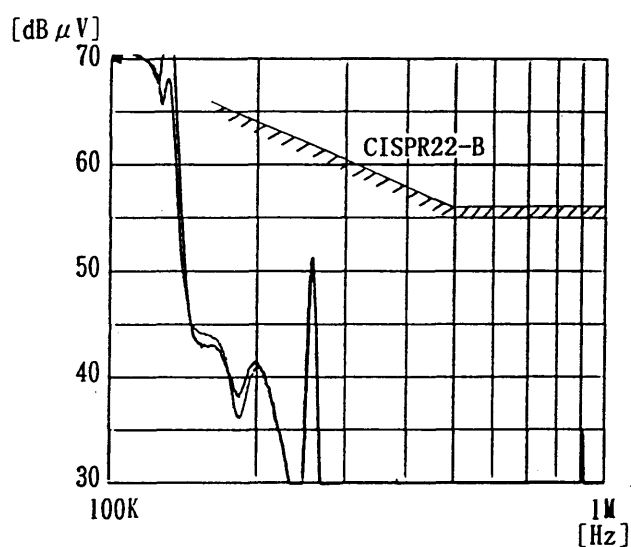
Input Volt. 240 V

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	CISPR 22 Class A (EN55022)		0.15~0.5	79
			0.5~30	73
6	CISPR 22 Class B (EN55022)	○	0.15~0.5	66~56
			0.5~5	56
			5~30	60



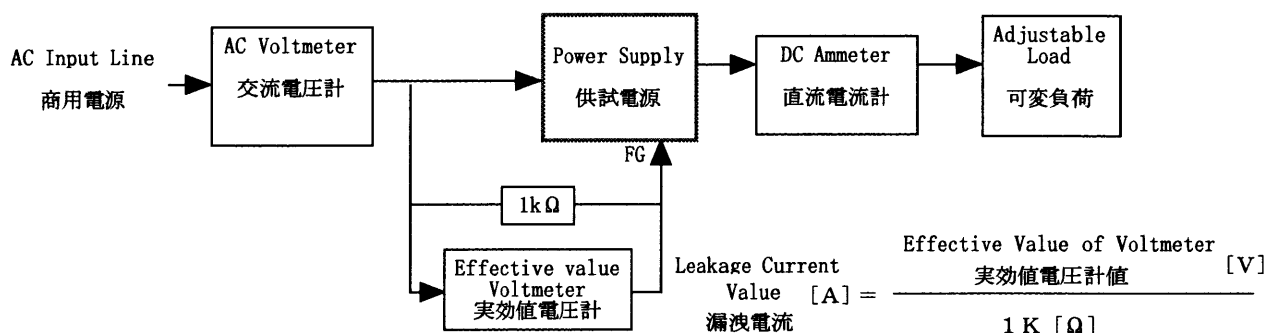
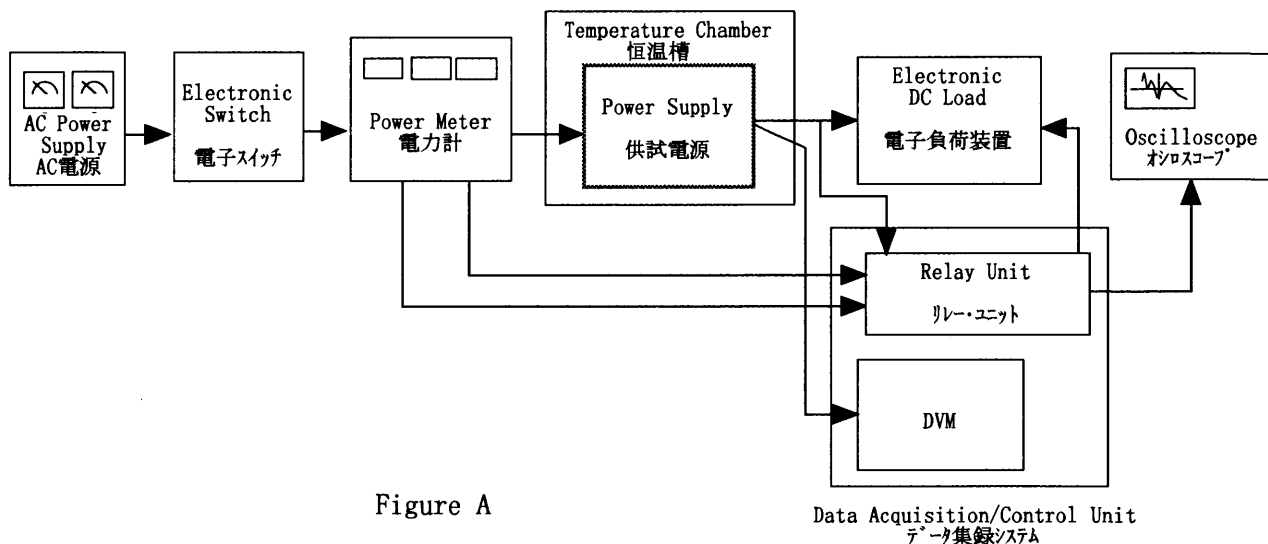


Figure B (DENTORI)

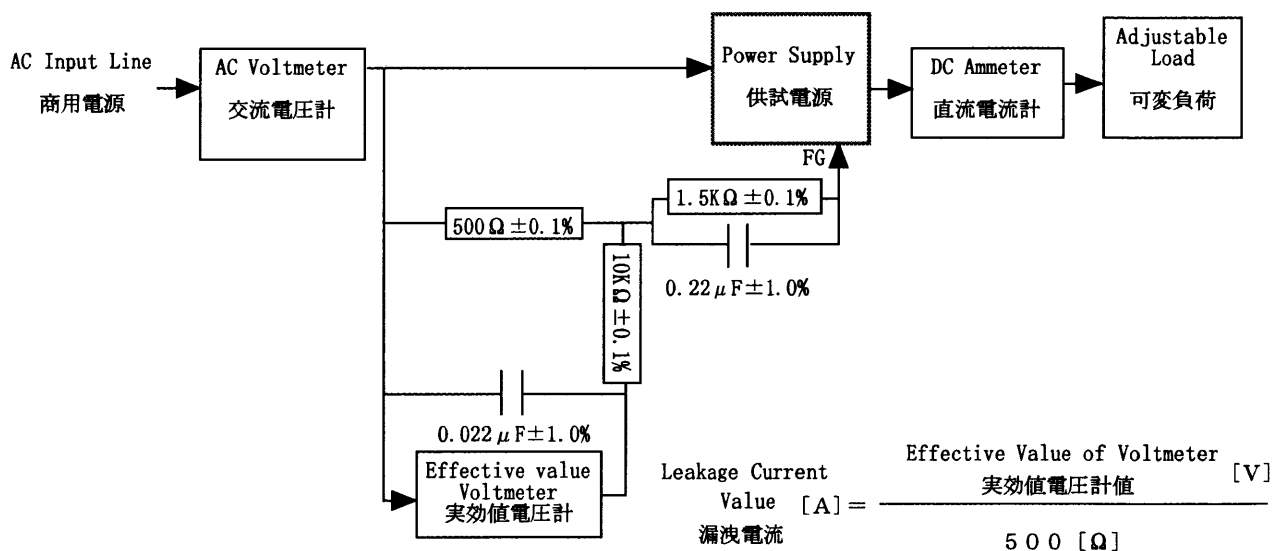


Figure B (UL, CSA, VDE)



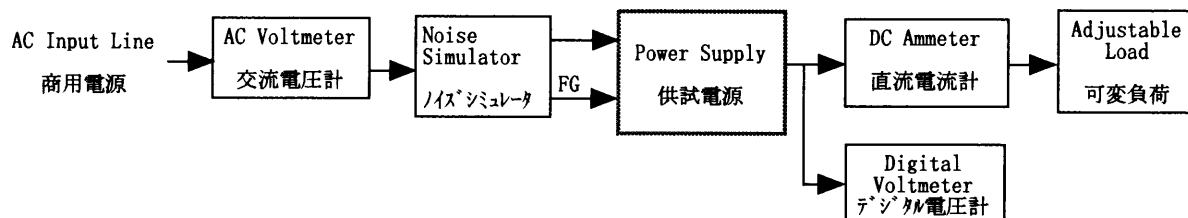


Figure C

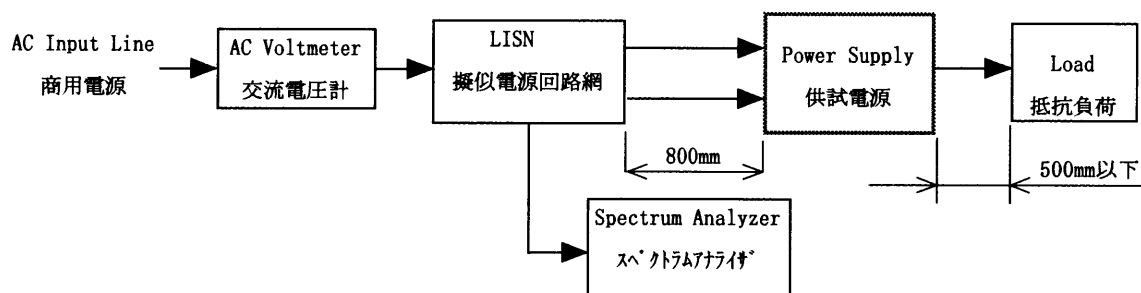


Figure D

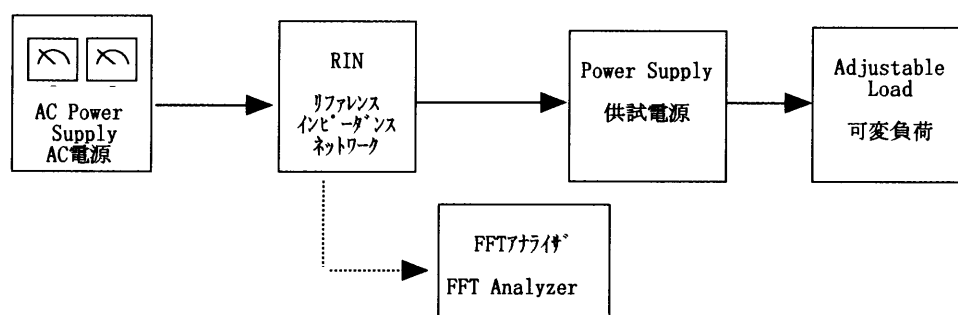


Figure E