参考資料

COSEL

TEST DATA OF LCA150S-24-H

(100V INPUT)

Regulated DC Power Supply

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コーセル株式会社

COSEL CO., LTD.

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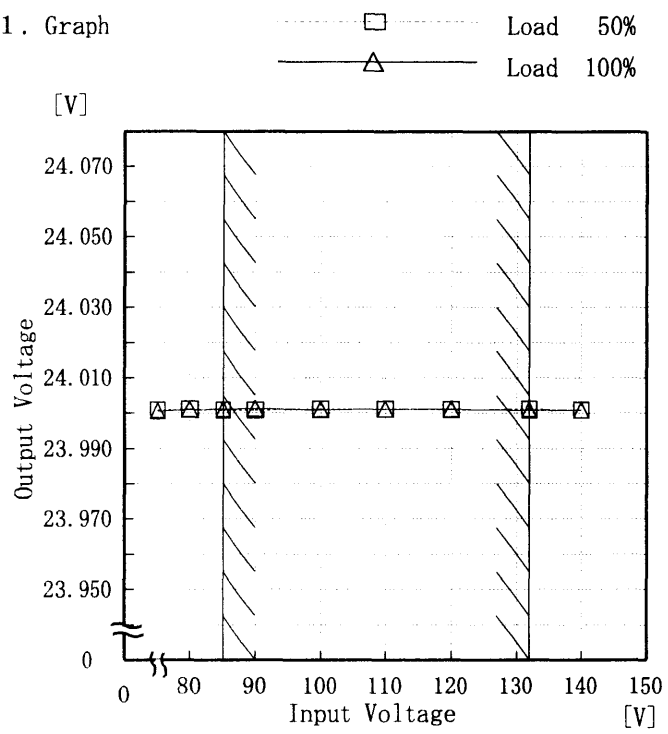
Item	Line Regulation 静的入力変動
Object	+24.0V6.3A

Temperature 25℃
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]	Output Voltage [V]	
	Load 50%	Load 100%
75	24.001	24.001
80	24.001	24.001
85	24.001	24.001
90	24.001	24.001
100	24.001	24.001
110	24.001	24.001
120	24.001	24.001
132	24.001	24.001
140	24.001	24.001

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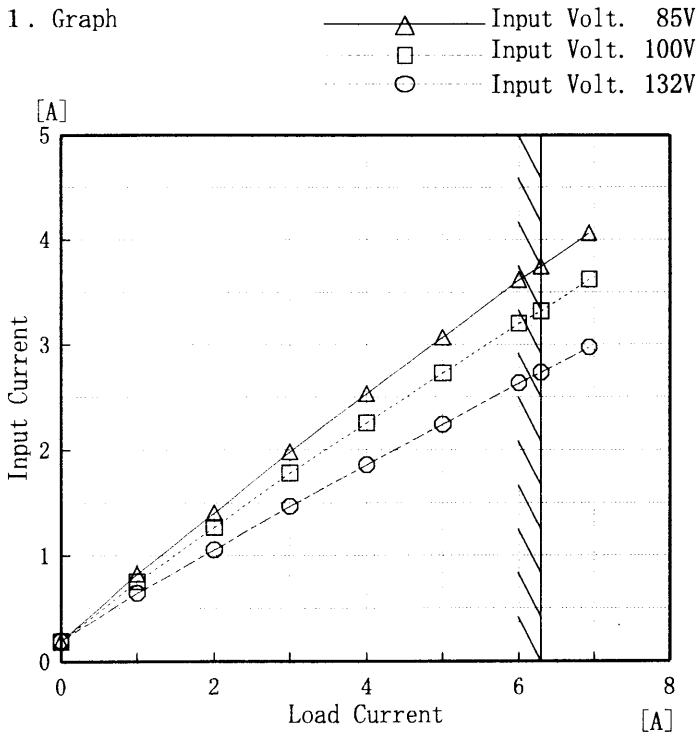
Model	LCA150S-24-H
Item	Input Current (by Load Current) 入力電流（負荷特性）
Output	————

Temperature 25℃
Testing Circuitry Figure A

1．Graph



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。

2．Values

Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.183	0.188	0.194
1.00	0.828	0.755	0.646
2.00	1.403	1.270	1.055
3.00	1.983	1.781	1.469
4.00	2.533	2.257	1.861
5.00	3.068	2.726	2.243
6.00	3.614	3.202	2.635
6.30	3.745	3.322	2.733
6.93	4.062	3.621	2.976
—	—	—	—
—	—	—	—
—	—	—	—

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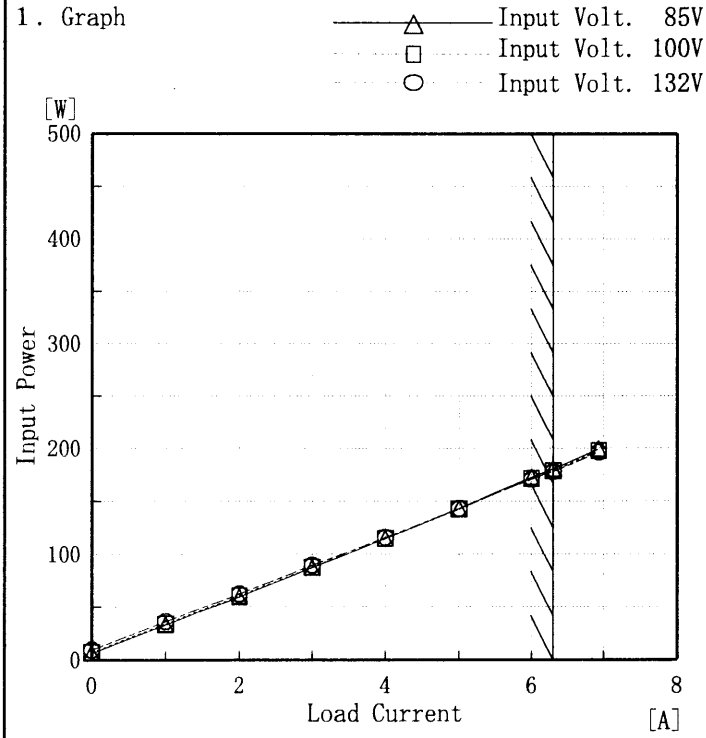
COSEL

Model	LCA150S-24-H
Item	Input Power (by Load Current) 入力電力 (負荷特性)
Output	————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	5.98	7.05	9.19
1.00	33.10	33.98	36.20
2.00	59.59	60.30	62.20
3.00	87.30	87.70	89.40
4.00	115.00	114.90	116.00
5.00	143.10	142.60	142.90
6.00	172.60	171.40	171.10
6.30	180.30	178.90	178.30
6.93	199.40	197.50	196.30
—	—	—	—
—	—	—	—
—	—	—	—

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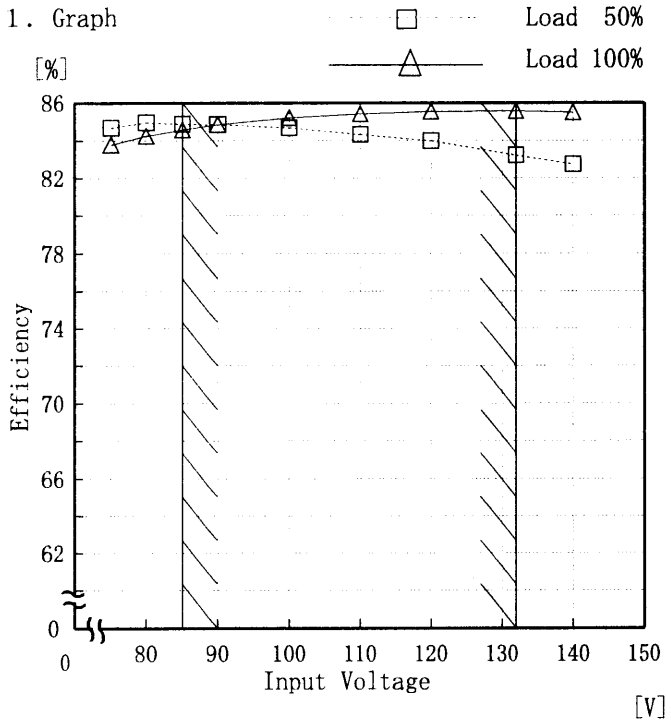
COSEL

Model	LCA150S-24-H
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	――――――――――――――

Temperature 25℃
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

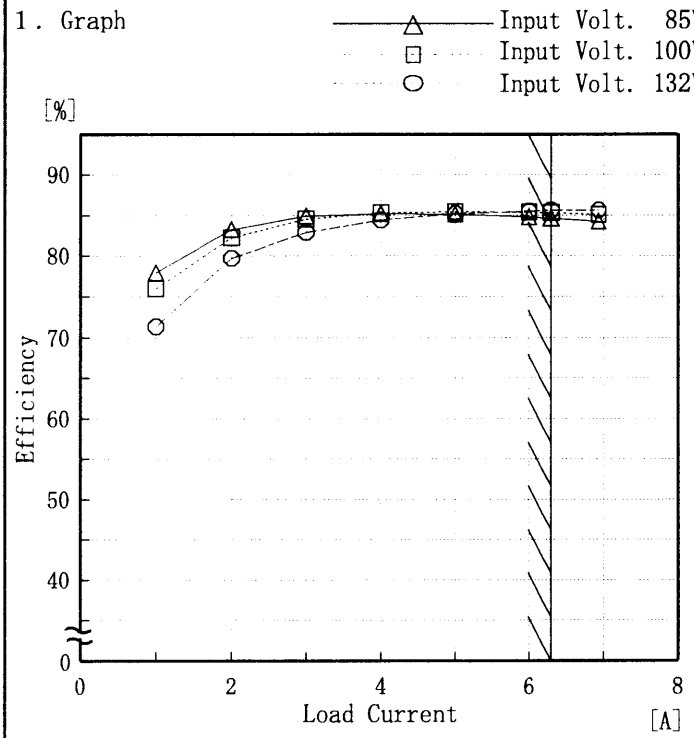
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	84.7	83.8
80	85.0	84.2
85	84.9	84.6
90	84.9	84.9
100	84.7	85.2
110	84.3	85.4
120	84.0	85.5
132	83.2	85.6
140	82.7	85.5

COSEL

Model	LCA150S-24-H
Item	Efficiency (by Load Current) 効率（負荷特性）
Output	————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
1.00	77.9	76.0	71.3
2.00	83.3	82.3	79.7
3.00	84.9	84.6	82.9
4.00	85.2	85.3	84.5
5.00	85.2	85.5	85.2
6.00	84.8	85.4	85.5
6.30	84.7	85.4	85.6
6.93	84.3	85.1	85.6
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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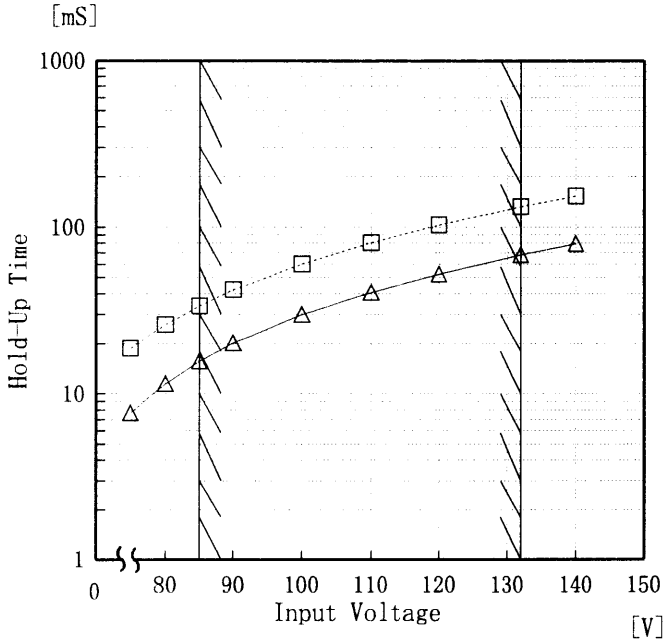
Model	LCA150S-24-H
Item	Hold-Up Time 出力保持時間
Object	+24.0V6.3A

Temperature 25℃
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、入力電圧断から出力電圧が、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]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	19	8
80	26	12
85	34	16
90	42	20
100	60	30
110	81	41
120	103	53
132	132	68
140	153	80

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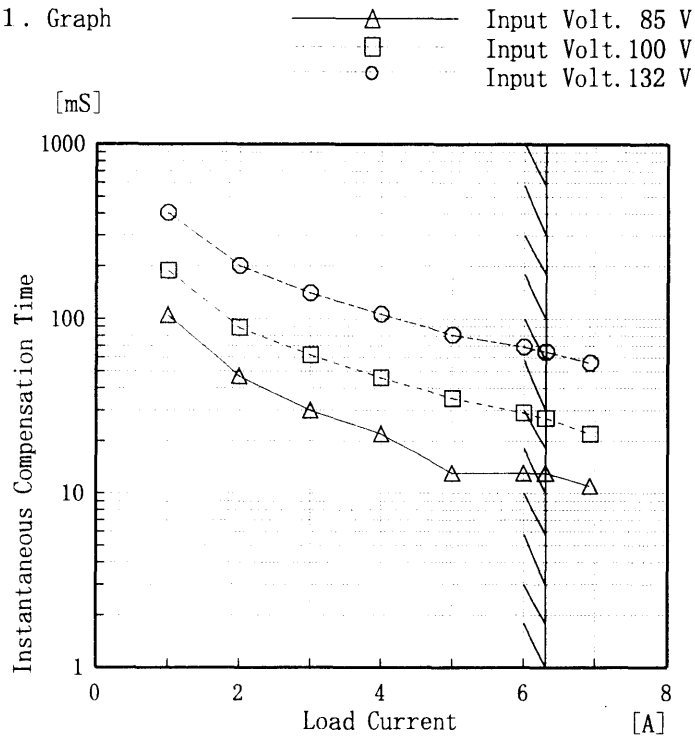
Model	LCA150S-24-H
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+24.0V6.3A

Temperature 25℃
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

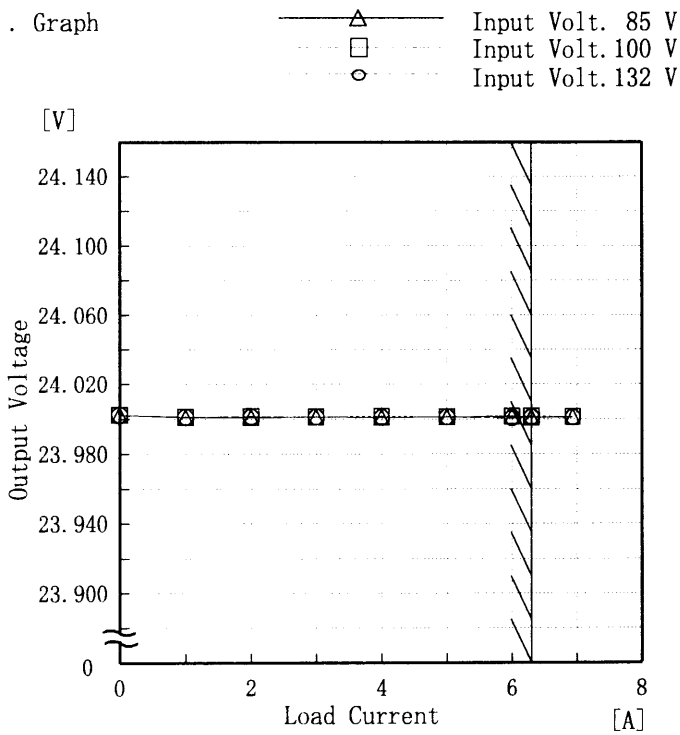
Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
1.00	105	189	406
2.00	47	89	202
3.00	30	62	140
4.00	22	46	106
5.00	13	35	81
6.00	13	29	69
6.30	13	27	65
6.93	11	22	56
—	—	—	—
—	—	—	—

COSEL

Model	LCA150S-24-H
Item	Load Regulation 静的負荷変動
Object	+24.0V6.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	24.002	24.002	24.002
1.00	24.001	24.001	24.001
2.00	24.001	24.001	24.001
3.00	24.001	24.001	24.001
4.00	24.001	24.002	24.001
5.00	24.001	24.001	24.001
6.00	24.001	24.002	24.001
6.30	24.001	24.001	24.001
6.93	24.001	24.001	24.001
—	—	—	—

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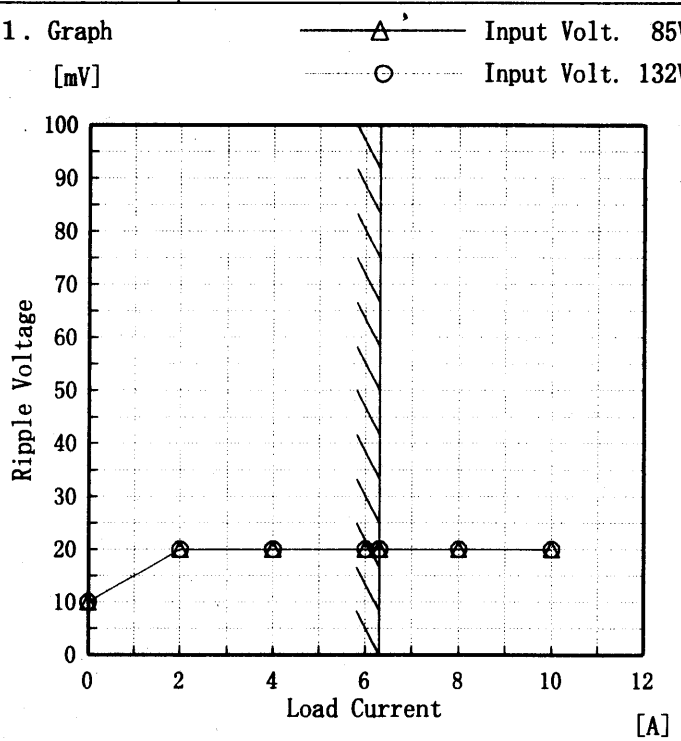
Model	LCA150S-24-H
Item	Ripple Voltage(by Load Current) リップル電圧(負荷特性)
Object	+24.0V6.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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
ｽｲｯﾁﾝｸﾞ周期

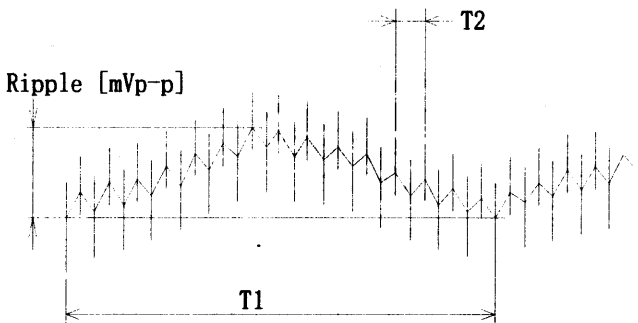


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2. Values

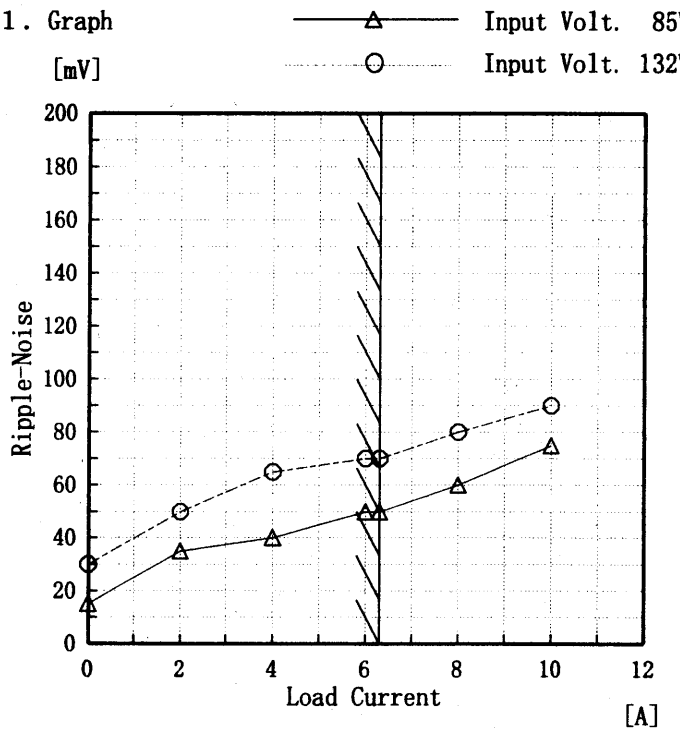
Load Current [A]	Ripple Output Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	10	10
2.0	20	20
4.0	20	20
6.0	20	20
6.3	20	20
8.0	20	20
10.0	20	20
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	LCA150S-24-H
Item	Ripple-Noise リップルノイズ
Object	+24.0V6.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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
ｽｲｯﾁﾝｸﾞ周期

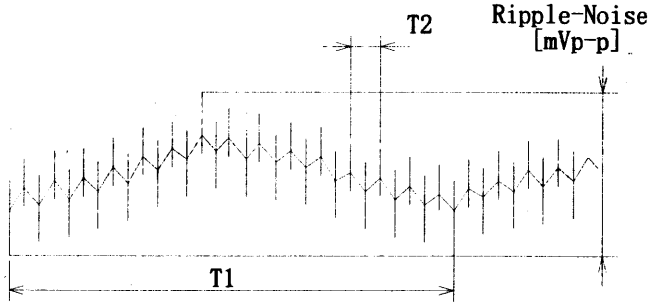


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.0	15	30
2.0	35	50
4.0	40	65
6.0	50	70
6.3	50	70
8.0	60	80
10.0	75	90
—	—	—
—	—	—
—	—	—
—	—	—

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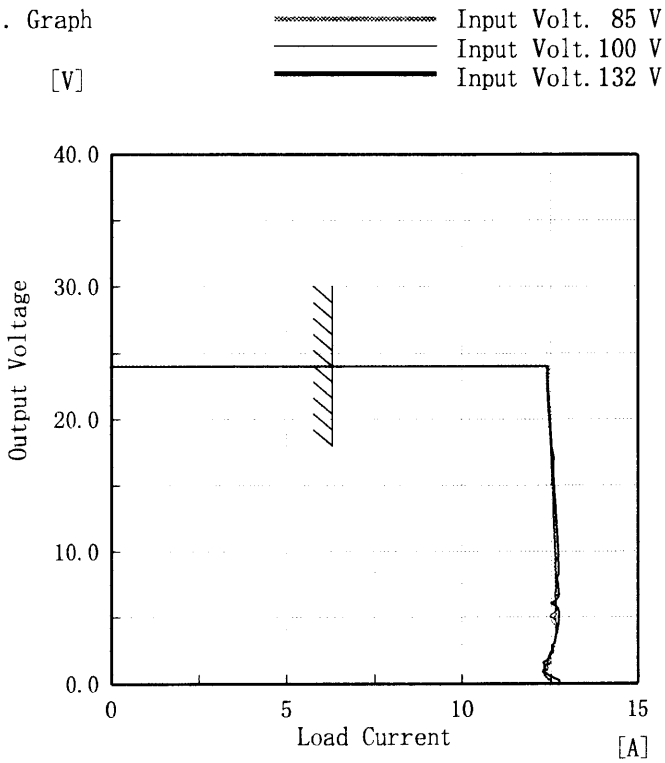
Model	LCA150S-24-H
Item	Overcurrent Protection 過電流保護
Object	+24.0V6.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	12.430	12.377	12.392
22.80	12.417	12.370	12.392
21.60	12.424	12.386	12.426
19.20	12.468	12.453	12.477
16.80	12.519	12.499	12.558
14.40	12.552	12.546	12.585
12.00	12.577	12.564	12.650
9.60	12.615	12.611	12.700
7.20	12.634	12.641	12.707
4.80	12.596	12.615	12.718
2.40	12.553	12.513	12.513
0.00	12.476	12.528	12.774

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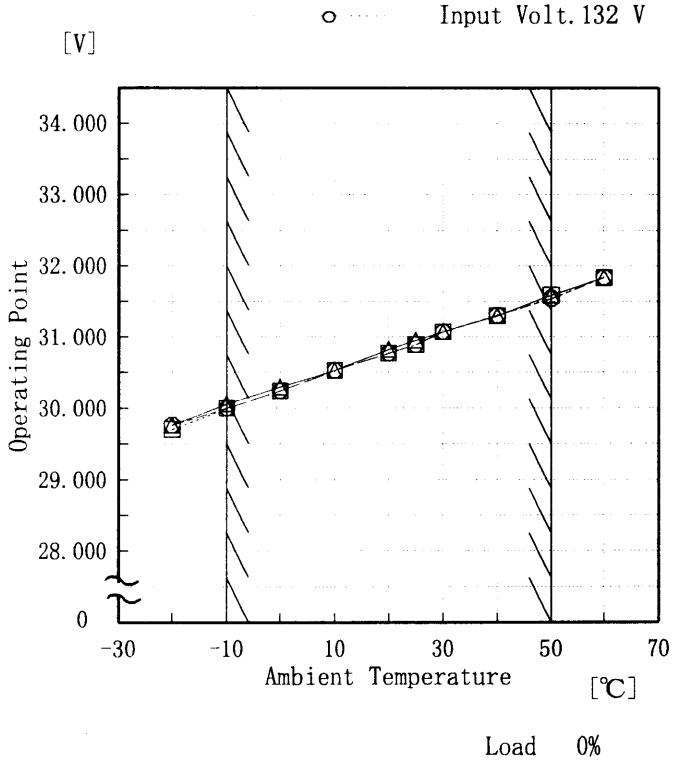
Model	LCA150S-24-H
Item	Overvoltage Protection 過電圧保護
Object	+24.0V6.3A

Testing Circuitry Figure A

1. Graph

△ Input Volt. 85 V
□ Input Volt.100 V
○ Input Volt.132 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 [℃]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	29.76	29.70	29.76
-10	30.06	30.00	30.00
0	30.29	30.24	30.24
10	30.53	30.53	30.53
20	30.82	30.77	30.77
25	30.95	30.89	30.89
30	31.07	31.07	31.07
40	31.30	31.30	31.31
50	31.59	31.59	31.54
60	31.84	31.83	31.84
—	—	—	—

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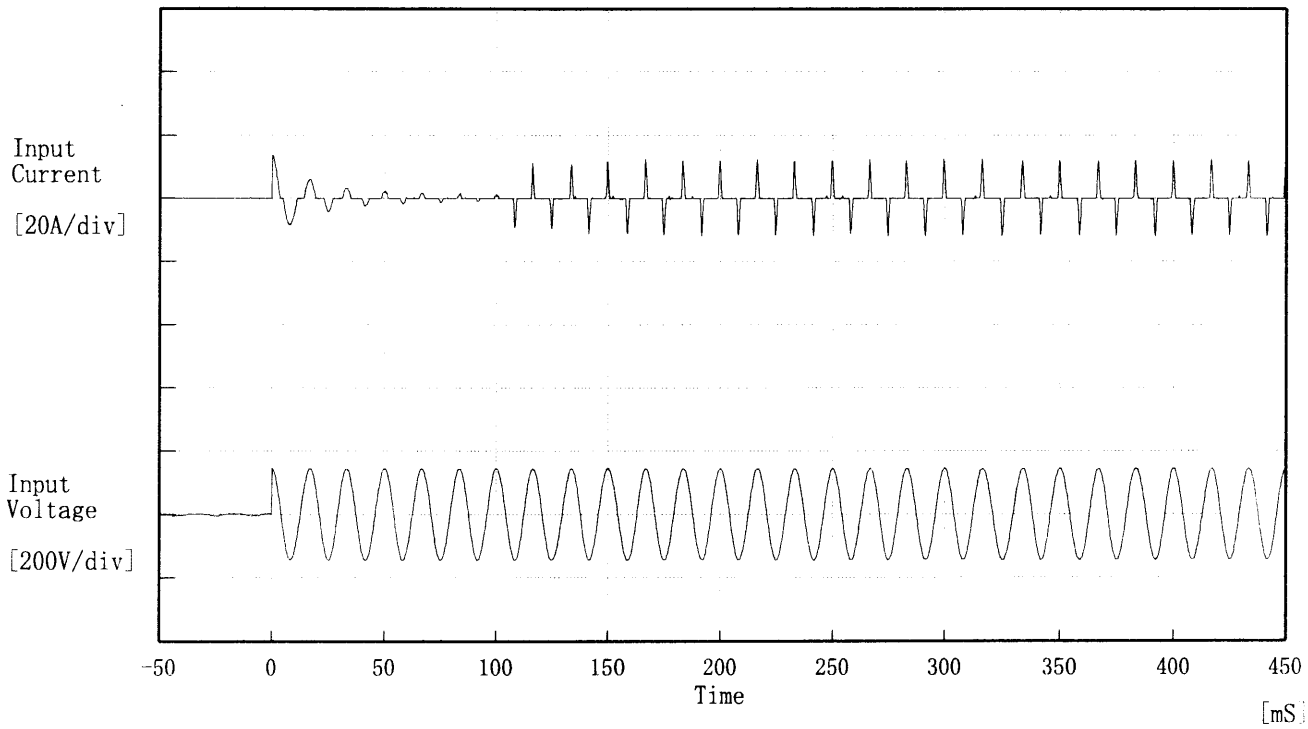
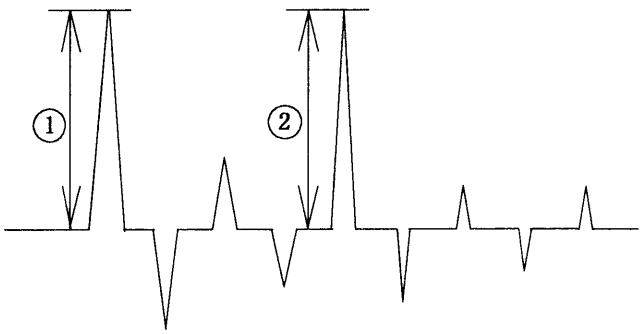
Model	LCA150S-24-H
Item	Inrush Current 突入電流
Object	――――――――

Temperature 25℃
Testing Circuitry Figure A



Input Voltage 100 V
Frequency 60 Hz
Load 100 %
Inrush Current
① 13.56 [A]
② 12.36 [A]



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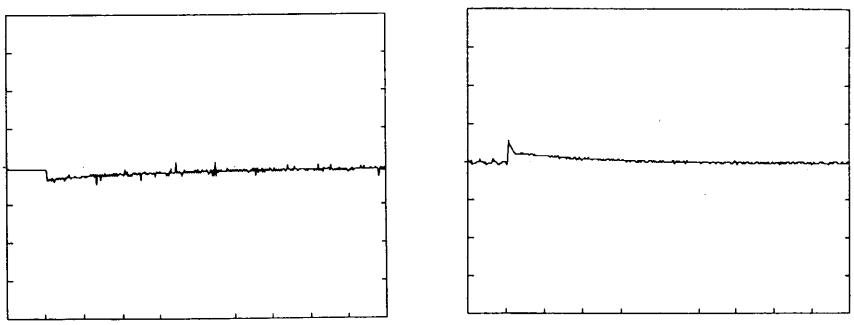
Model	LCA150S-24-H		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+24.0V6.3A		

Input Volt. 100 V

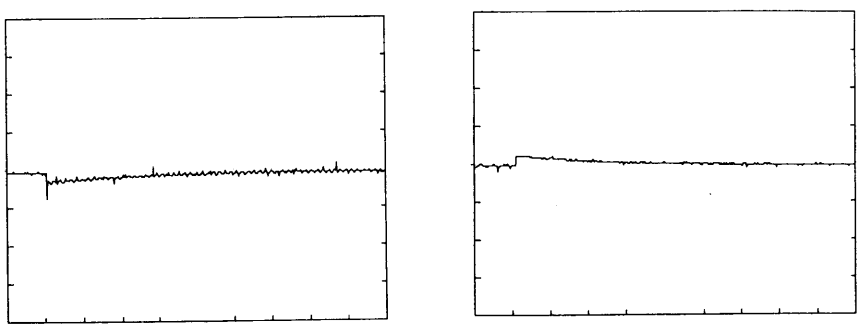
Cycle 1000 mS

Load Current

Load 0% ⟷
Load 100 %



Load 0% ⟷
Load 50 %



100 mV/div

10 mS/div

COSEL

Model	LCA150S-24-H		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+24.0V6.3A		

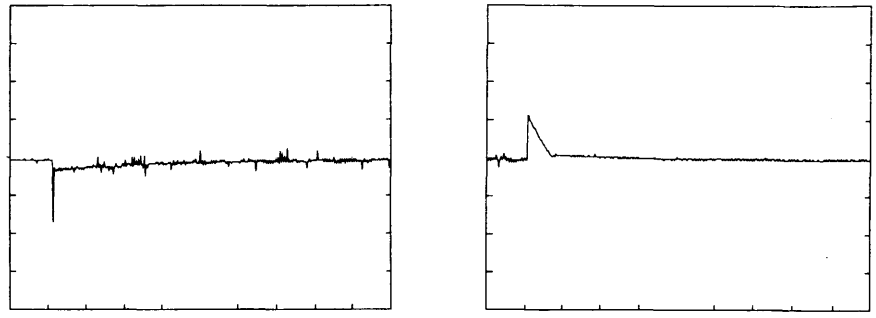
Input Volt. 100 V

Cycle 1000 mS

Load Current

Load 0% ←→

Load Peak



100 mV/div

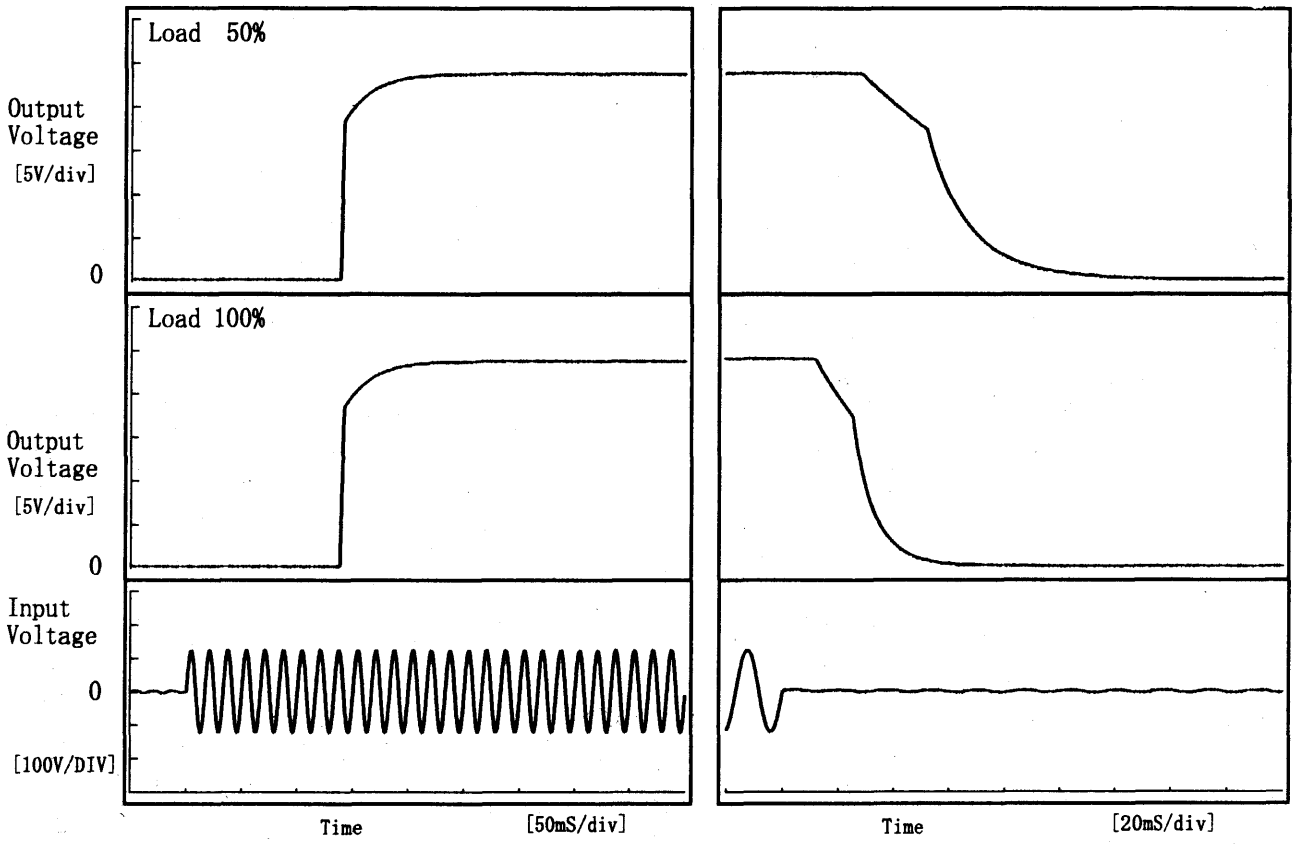
10 mS/div

COSEL

Model	LCA150S-24-H		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+24.0V6.3A		

1. Graph

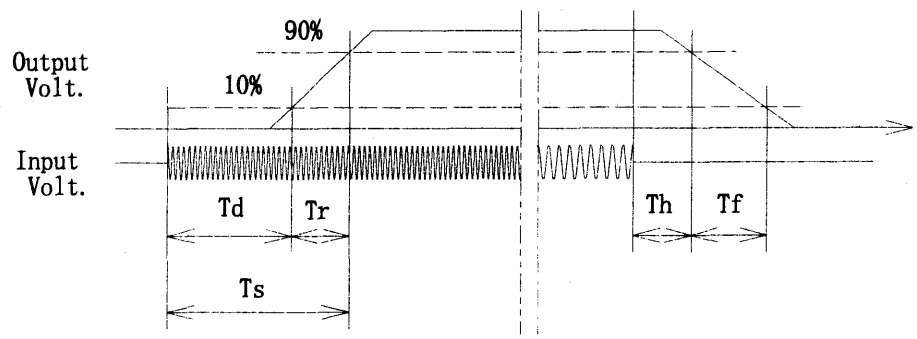
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	138.5	28.0	166.5	35.6	47.9
100 %	138.5	27.5	166.0	16.3	25.5



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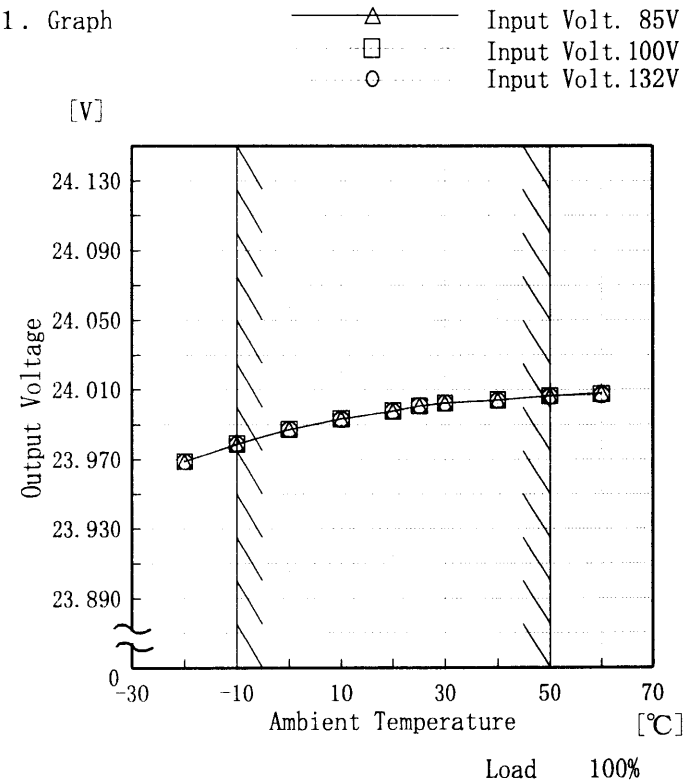
Model	LCA150S-24-H
Item	Ambient Temperature Drift 周囲温度変動
Object	+24.0V6.3A

Testing Circuitry Figure A

1. Graph



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

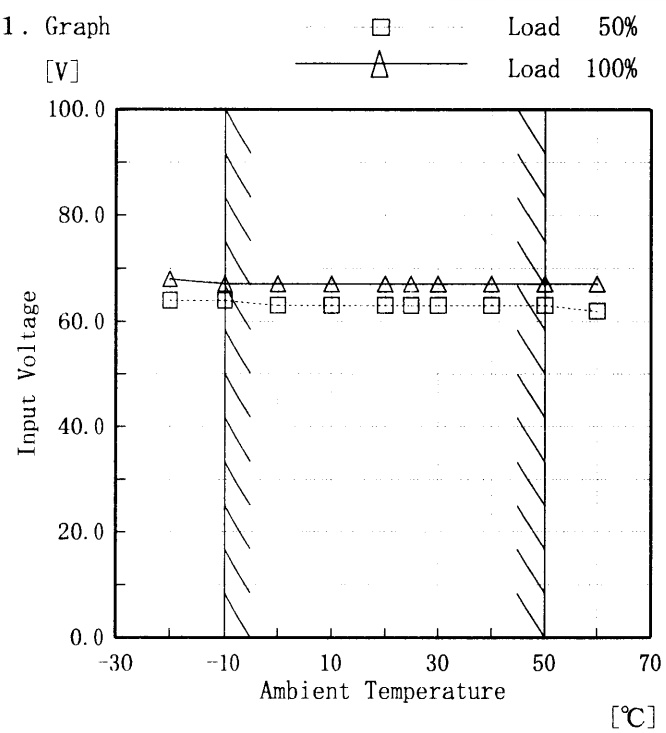
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	23.969	23.969	23.969
-10	23.979	23.979	23.979
0	23.987	23.987	23.987
10	23.993	23.994	23.993
20	23.998	23.998	23.998
25	24.001	24.001	24.001
30	24.002	24.002	24.002
40	24.004	24.004	24.004
50	24.006	24.006	24.006
60	24.008	24.008	24.007
—	—	—	—

COSEL

Model	LCA150S-24-H
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+24.0V6.3A

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

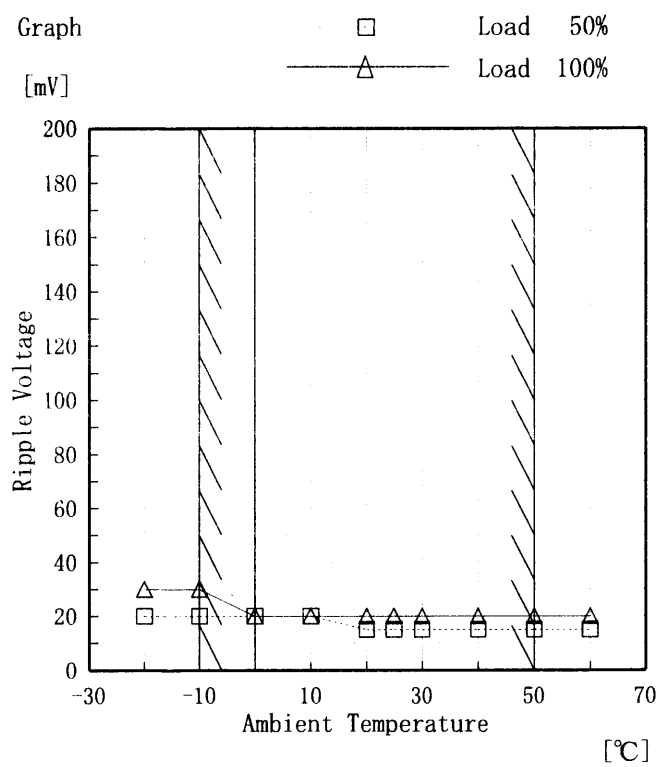
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	64	68
-10	64	67
0	63	67
10	63	67
20	63	67
25	63	67
30	63	67
40	63	67
50	63	67
60	62	67
—	—	—

COSEL

Model	LCA150S-24-H
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+24.0V6.3A

Testing Circuitry Figure A

1. Graph



Input Volt. 100 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

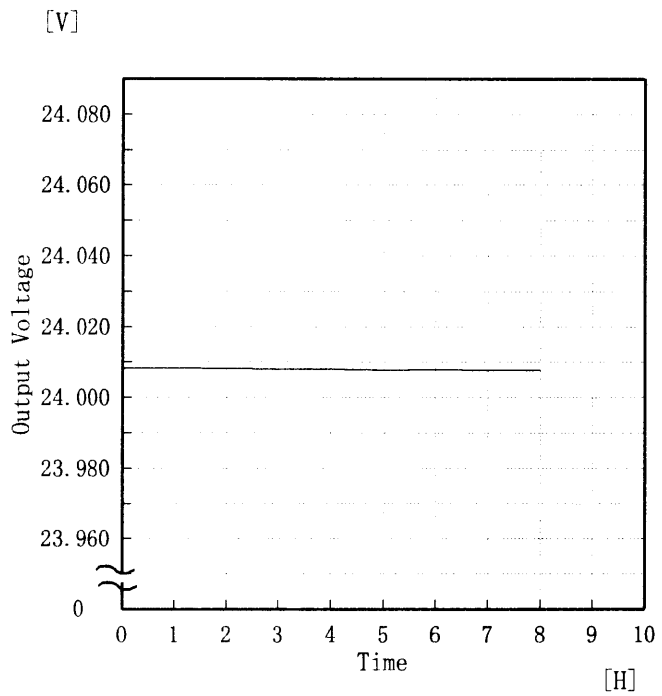
Ambient Temperature [℃]	Ripple Output Voltage [mV]	
	Load 50%	Load 100%
-20	20	30
-10	20	30
0	20	20
10	20	20
20	15	20
25	15	20
30	15	20
40	15	20
50	15	20
60	15	20
—	—	—

COSEL

Model	LCA150S-24-H
Item	Time Lapse Drift　経時ドリフト
Object	+24.0V6.3A

Temperature　25℃
Testing Circuitry　Figure A

1. Graph



Input Volt.　100V
Load　100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	24.008
0.5	24.008
1.0	24.008
2.0	24.008
3.0	24.008
4.0	24.008
5.0	24.008
6.0	24.008
7.0	24.008
8.0	24.008

COSEL

Model	LCA150S-24-H	
Item	Output Voltage Accuracy　定電圧精度	Testing Circuitry　Figure A
Object	+24.0V6.3A	

1. 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 ℃
Input Voltage :　85～132 V
Load Current　:　0～6.3 A

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

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

1. 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 ℃
入力電圧　　85～132 V
負荷電流　　0～6.3 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

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

2. Values

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration)[%]
Maximum Voltage	50	100	0.0	24.008	±14	±0.1
Minimum Voltage	-10	85	6.3	23.981		

COSEL

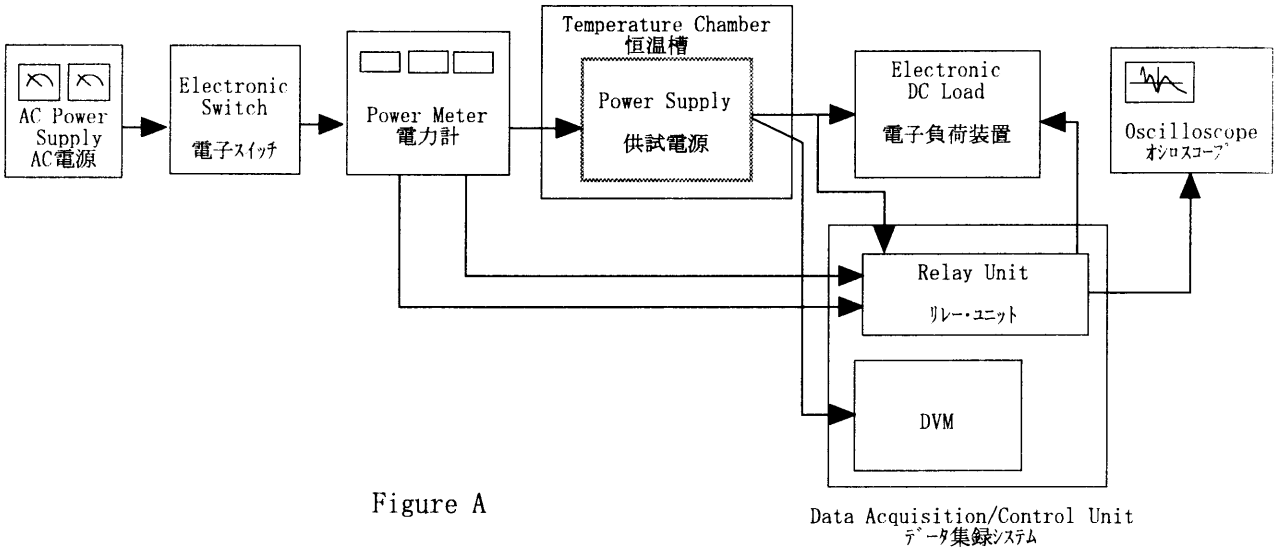


Figure A

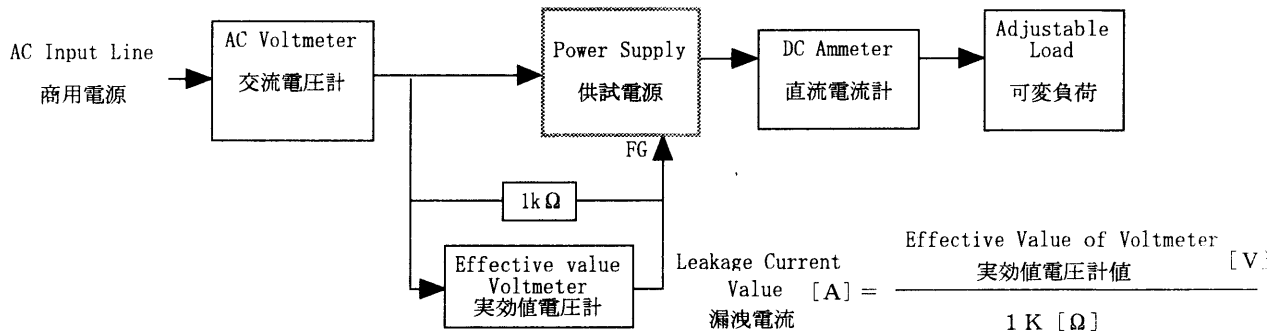


Figure B(DENTORI)

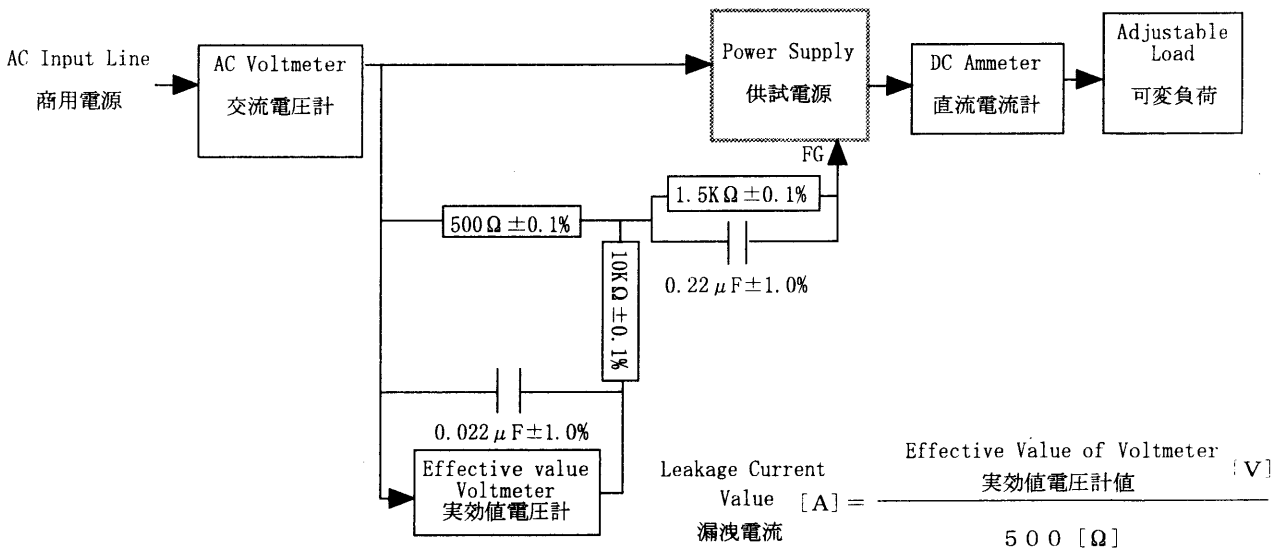


Figure B (IEC60950)

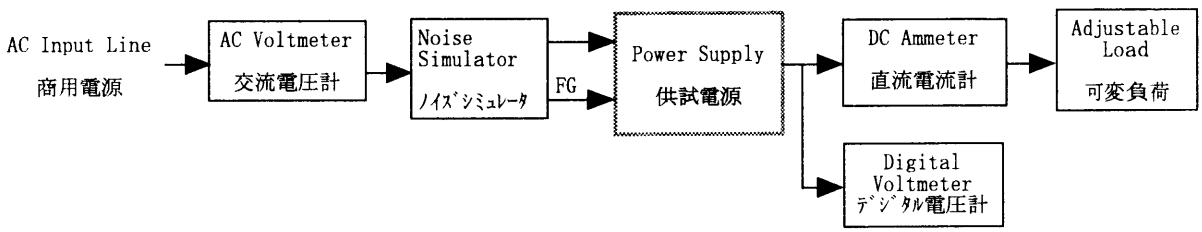


Figure C

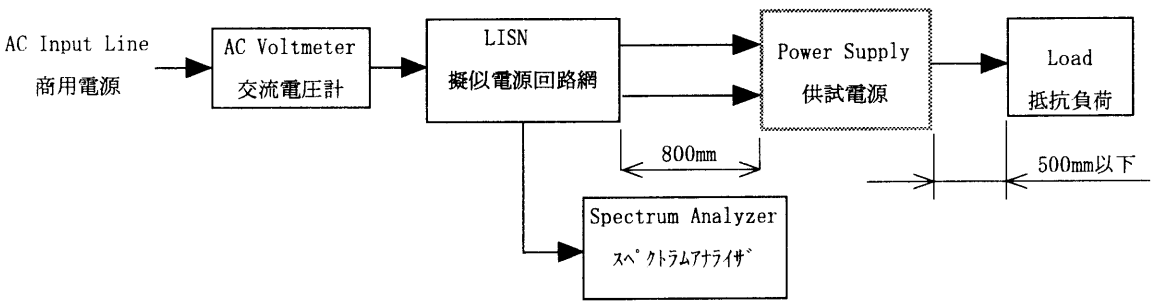


Figure D

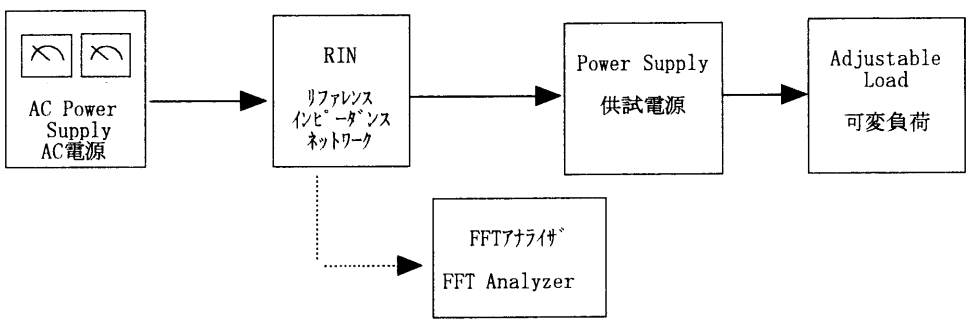


Figure E