参考資料

COSEL

TEST DATA OF ADA600F

ADA600F-24
(100V INPUT)

Regulated DC power supply
Jan. 23, 2003

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Koji Todo
Koji Todo Design Engineer

INPUT : AC 85～132V

OUTPUT : V1: 24V 21A

コーセル株式会社
COSEL CO.,LTD.

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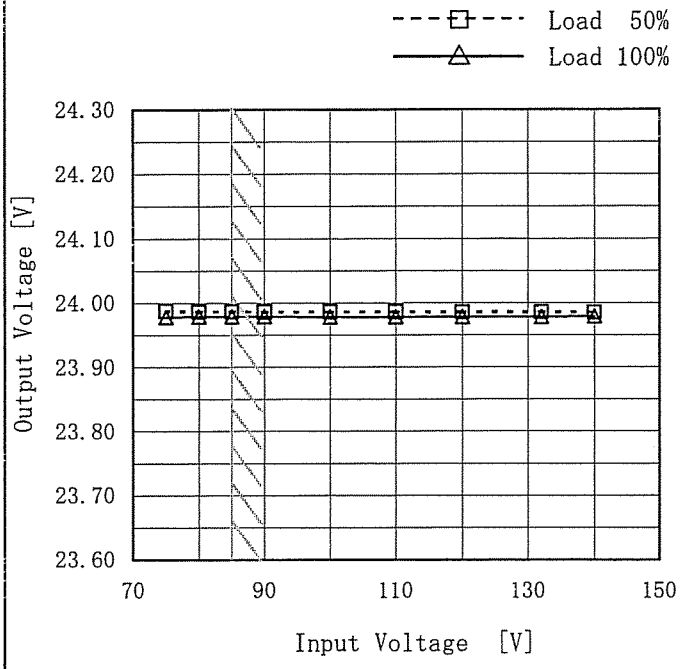
Model	ADA600F (ADA600F-24)
Item	Line Regulation 静的入力変動
Object	V1:+24V21A

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

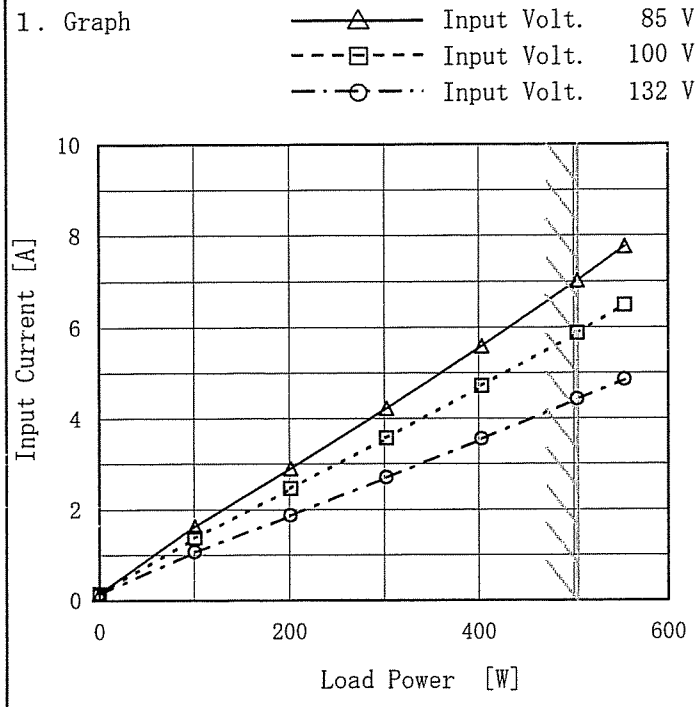
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	23.988	23.978
80	23.987	23.979
85	23.987	23.979
90	23.986	23.979
100	23.986	23.978
110	23.986	23.978
120	23.986	23.978
132	23.986	23.979
140	23.985	23.979

COSEL

Model	ADA600F (ADA600F-24)
Item	Input Current (by Load Current) 入力電流 (負荷電力特性)
Object	――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格電力範囲を示す。

2. Values

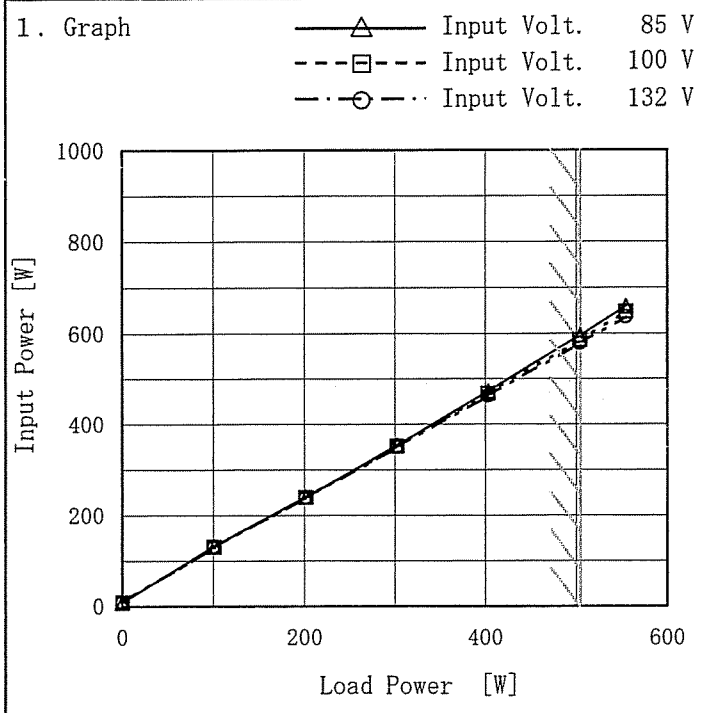
Load Power [W]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	0.149	0.137	0.132
100.8	1.627	1.381	1.057
201.6	2.901	2.461	1.871
302.4	4.220	3.569	2.703
403.2	5.590	4.720	3.552
504.0	7.020	5.870	4.420
554.4	7.760	6.480	4.850
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Input Power (by Load Power) 入力電力 (負荷電力特性)
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格電力範囲を示す。

2. Values

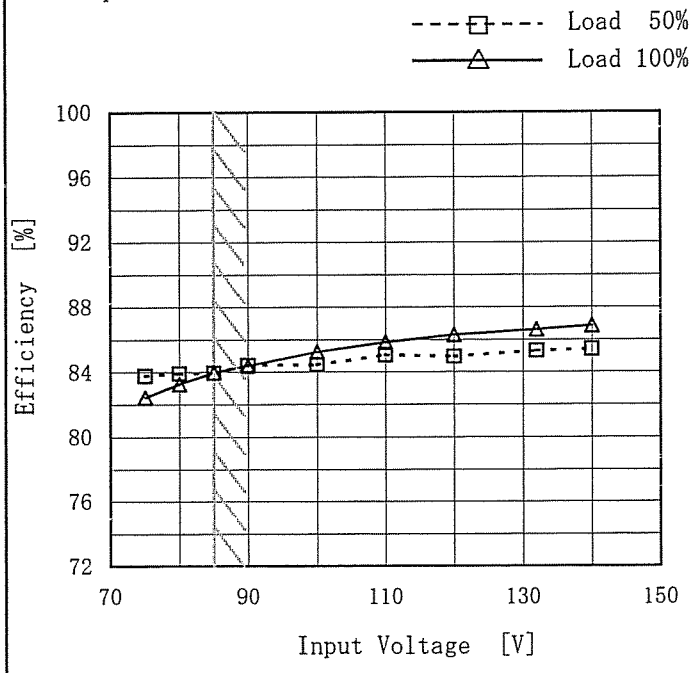
Load Power [W]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	8.9	8.5	8.6
100.8	132.0	130.7	130.1
201.6	241.0	239.3	238.5
302.4	354.0	351.4	349.3
403.2	473.0	467.0	461.9
504.0	596.0	585.0	578.0
554.4	659.0	647.0	635.0
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
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

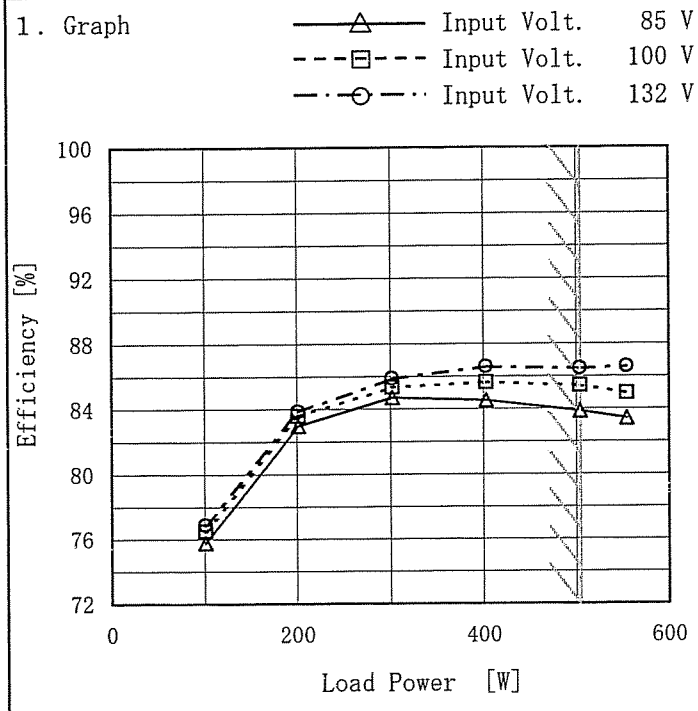
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	83.8	82.4
80	83.9	83.3
85	84.0	84.0
90	84.4	84.4
100	84.5	85.3
110	85.1	85.8
120	85.0	86.3
132	85.3	86.6
140	85.4	86.8

COSEL

Model	ADA600F (ADA600F-24)
Item	Efficiency (by Load Power) 効率 (負荷電力特性)
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格電力範囲を示す。

2. Values

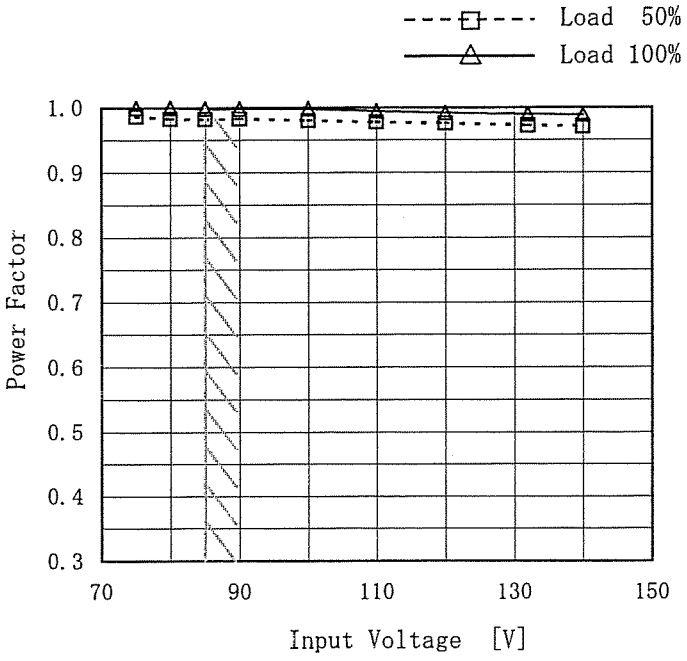
Load Power [W]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
100.8	75.8	76.5	76.9
201.6	83.0	83.6	83.9
302.4	84.7	85.4	85.9
403.2	84.5	85.6	86.6
504.0	83.9	85.4	86.5
554.4	83.4	85.0	86.6
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Power Factor (by Input Voltage) 力率（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]	Power Factor	
	Load 50%	Load 100%
75	0.987	0.999
80	0.983	0.999
85	0.982	0.998
90	0.983	0.998
100	0.980	0.998
110	0.978	0.995
120	0.976	0.991
132	0.972	0.990
140	0.971	0.988

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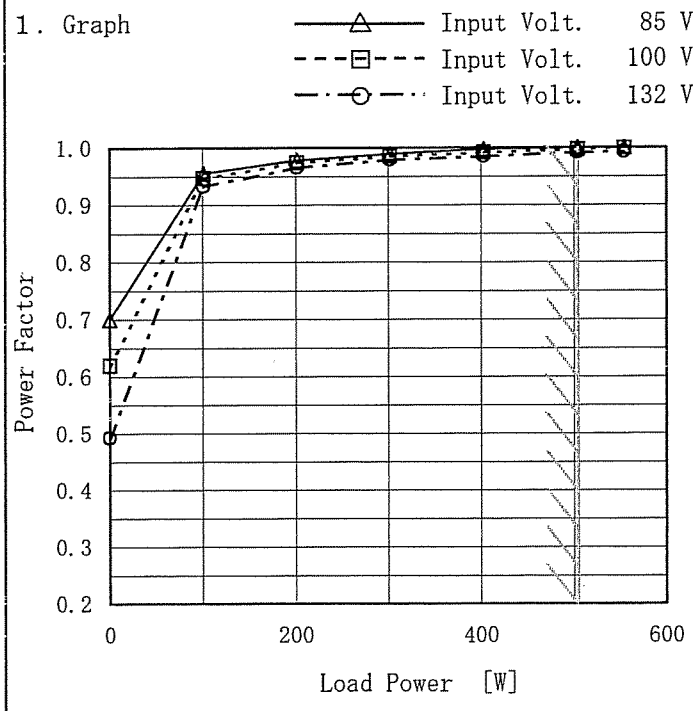
Model	ADA600F (ADA600F-24)
Item	Power Factor (by Load Power) 力率（負荷電力特性）
Object	――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格電力範囲を示す。

2. Values

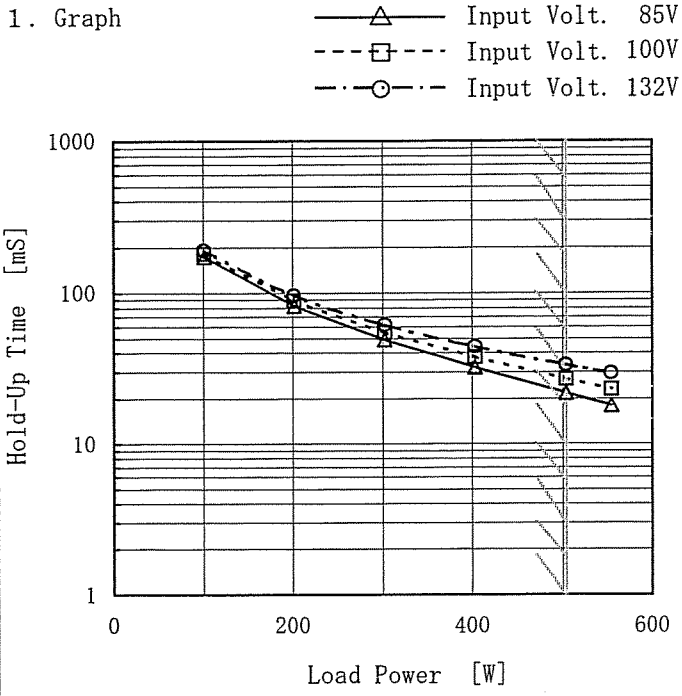
Load Power [W]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	0.700	0.620	0.493
100.8	0.955	0.947	0.933
201.6	0.978	0.974	0.966
302.4	0.989	0.985	0.979
403.2	0.998	0.992	0.985
504.0	0.999	0.997	0.991
554.4	0.999	0.999	0.992
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Hold-Up Time (by Load Power) 出力保持時間 (負荷電力特性)
Object	――――――――――

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 power.

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範囲を保持しているところまでの時間。
（注）斜線は定格電力範囲を示す。

2. Values

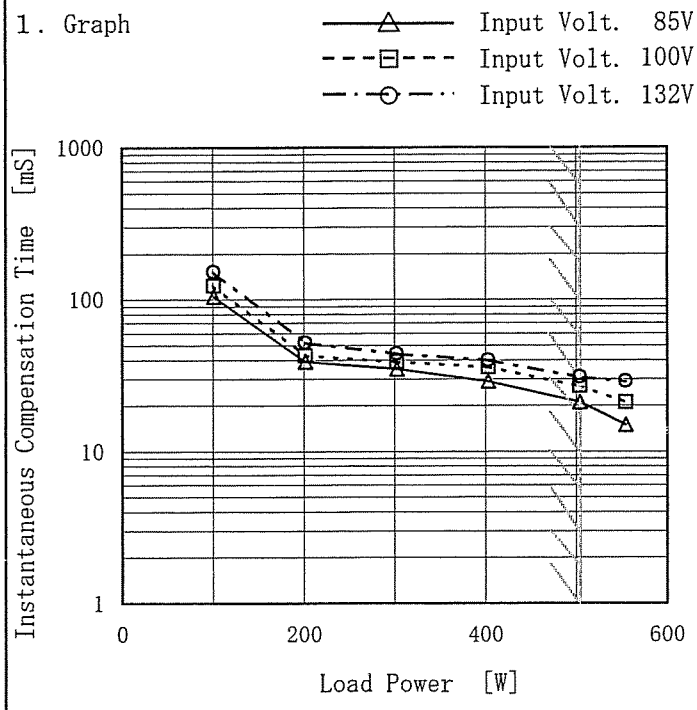
Load Power [W]	Hold-Up Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
100.8	173	181	191
201.6	82	89	96
302.4	49	55	62
403.2	32	38	44
504.0	22	27	33
554.4	18	23	29
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Instantaneous Interruption Compensation (by Load Power) 瞬時停電保障（負荷電力特性）
Object	――――――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

（注）斜線は定格電力範囲を示す。

2. Values

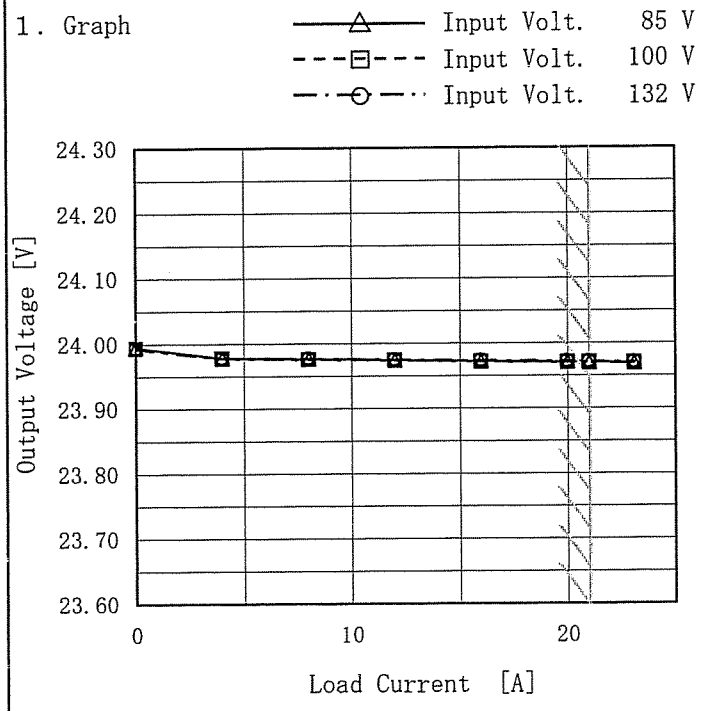
Load Power [W]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
100.8	105	124	153
201.6	39	43	52
302.4	35	39	44
403.2	29	36	40
504.0	21	27	31
554.4	15	21	29
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Load Regulation 静的負荷変動
Object	V1:+24V21A

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

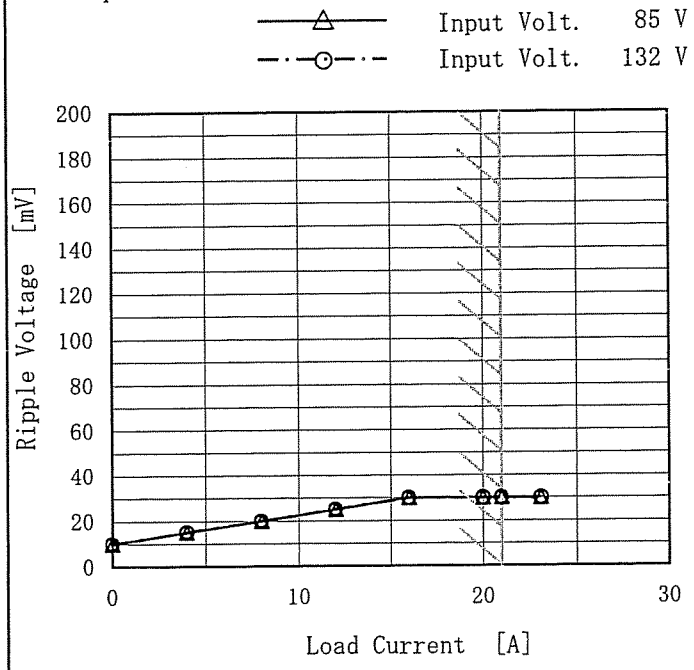
Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	23.995	23.994	23.993
4.0	23.978	23.978	23.978
8.0	23.976	23.976	23.977
12.0	23.974	23.974	23.975
16.0	23.972	23.972	23.974
20.0	23.970	23.971	23.972
21.0	23.970	23.971	23.972
23.1	23.969	23.970	23.971
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	V1:+24V21A

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

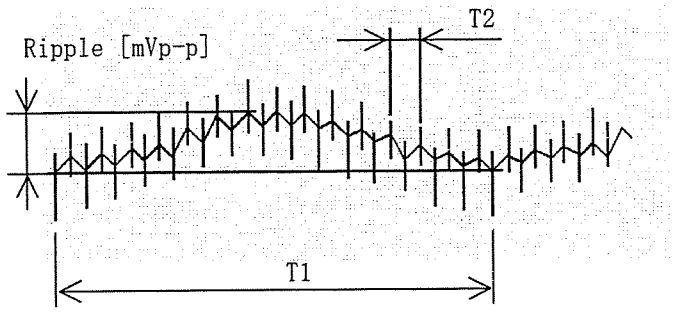


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

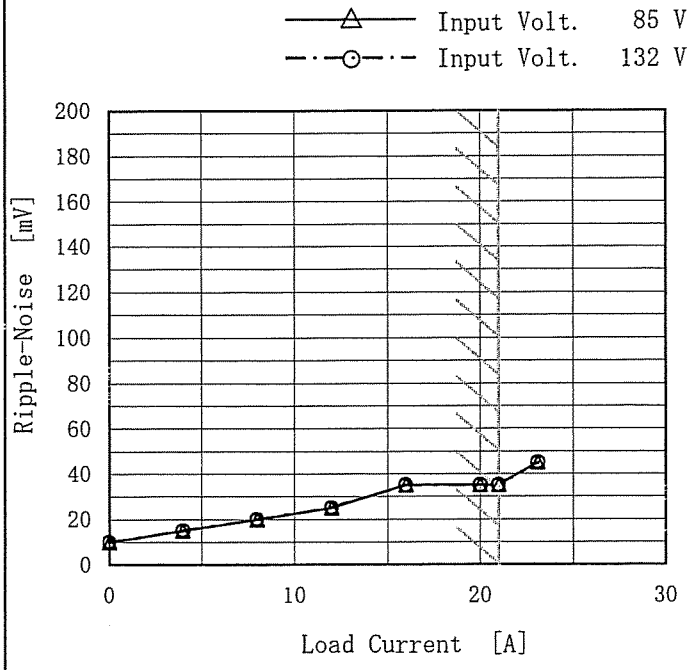
Load Current [A]	Ripple Output Voltage [mV]	
	Input Volt. 85[V]	Input Volt. 132[V]
0.0	10	10
4.0	15	15
8.0	20	20
12.0	25	25
16.0	30	30
20.0	30	30
21.0	30	30
23.1	30	30
—	—	—
—	—	—
—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Ripple-Noise リップルノイズ
Object	V1:+24V21A

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

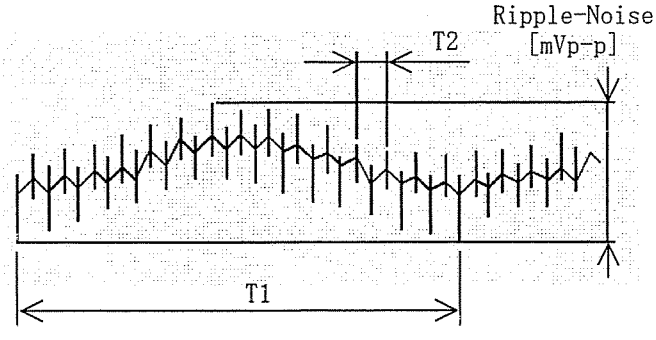


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

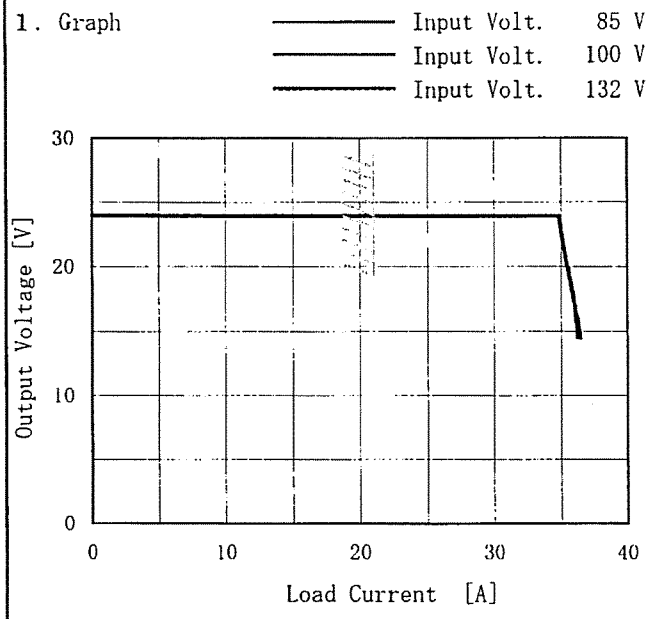
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85[V]	Input Volt. 132[V]
0.0	10	10
4.0	15	15
8.0	20	20
12.0	25	25
16.0	35	35
20.0	35	35
21.0	35	35
23.1	45	45
--	—	—
--	—	—
--	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Overcurrent Protection 過電流保護
Object	V1:+24V21A

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。

Intermittent operation occurs when the output voltage is from 14.4V to 0V.
14.4V～0V間は、間欠モードとなる。

2. Values

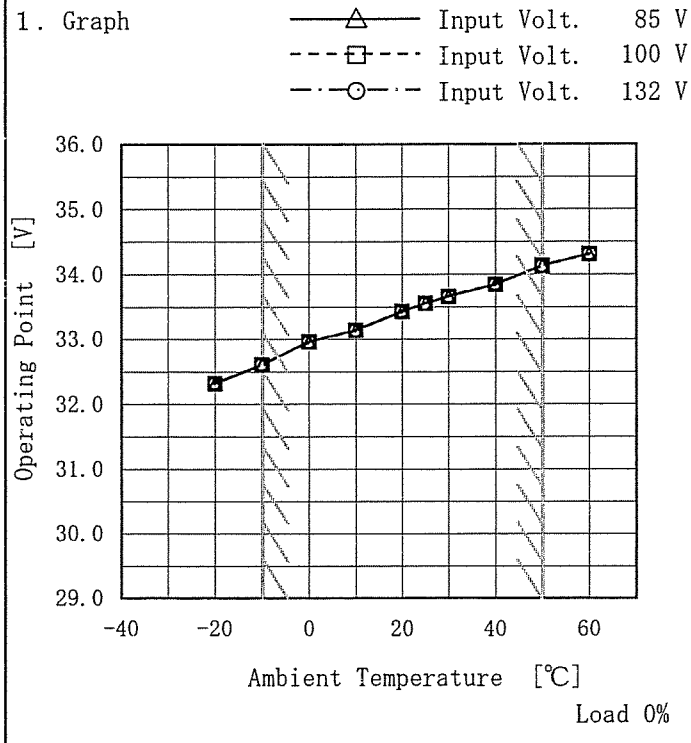
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.0	34.96	34.90	34.88
22.8	35.04	35.05	35.03
21.6	35.20	35.21	35.19
19.2	35.57	35.58	35.66
16.8	36.08	36.11	36.03
14.4	36.47	36.35	36.31
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Overvoltage Protection 過電圧保護
Object	V1:+24V21A

Testing Circuitry Figure A

1. Graph



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

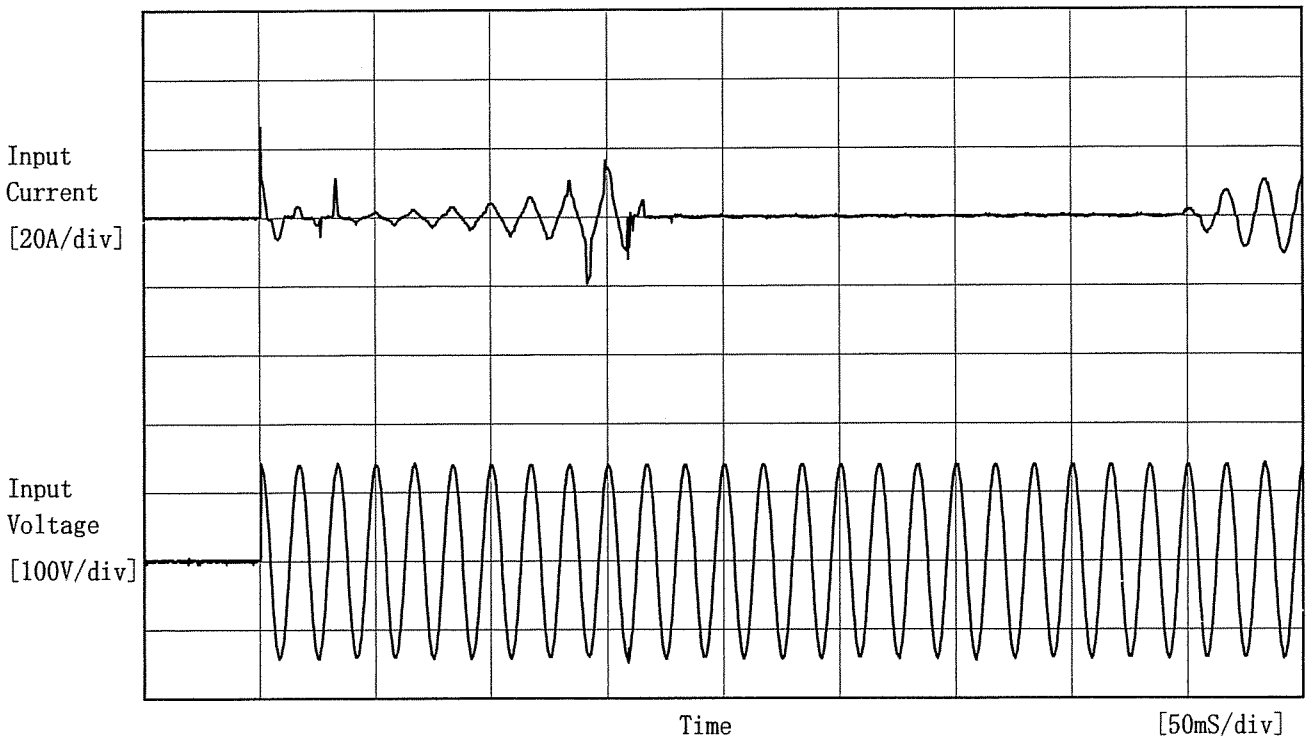
(注) 斜線は定格周囲温度範囲を示す。

2. Values

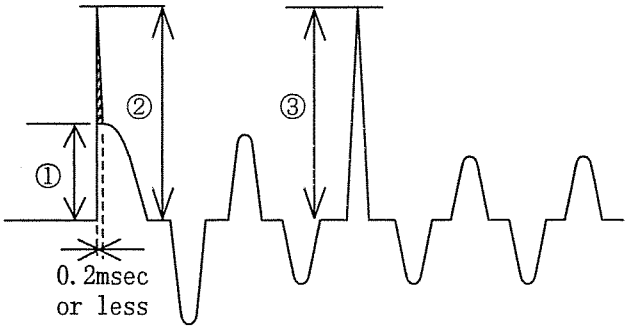
Ambient Temperature [℃]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	32.32	32.32	32.32
-10	32.61	32.61	32.61
0	32.96	32.96	32.96
10	33.14	33.14	33.14
20	33.43	33.43	33.43
25	33.55	33.55	33.55
30	33.66	33.66	33.66
40	33.84	33.84	33.84
50	34.13	34.13	34.13
60	34.31	34.31	34.31
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)		
Item	Inrush Current 突入電流	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		



Input Voltage 100 V
Frequency 60 Hz
Load 100 %
Inrush Current
① 12.6 [A]
② 26.4 [A] (0.2msec or less)*1
③ 19.2 [A]



*1 The specification of the inrush current (primary surge) means that the surge current to a built-in noise filter (0.2msec or less : waveform ②) is excluded.

本製品の突入電流(1次ｻｰｼﾞ)の仕様は、内蔵ﾉｲｽﾞﾌｨﾙﾀ部への
ｻｰｼﾞ電流(0.2msec以下:波形②)を除きます。

COSEL

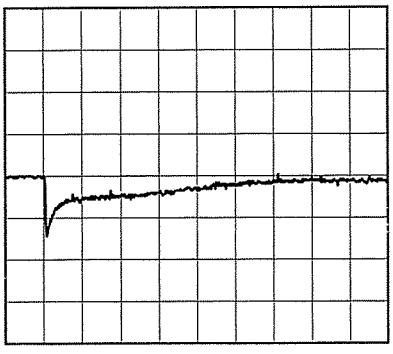
Model	ADA600F (ADA600F-24)		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	V1:+24V21A		

Input Volt. AC100 V

Cycle 1000 ms

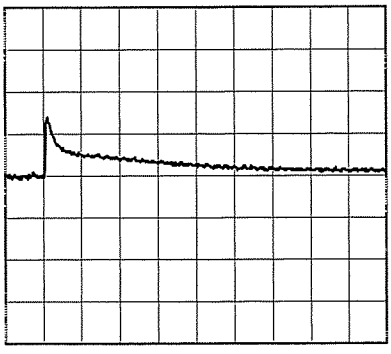
Load Current

Min. Load (0A) ⟷
Load 100% (21A)



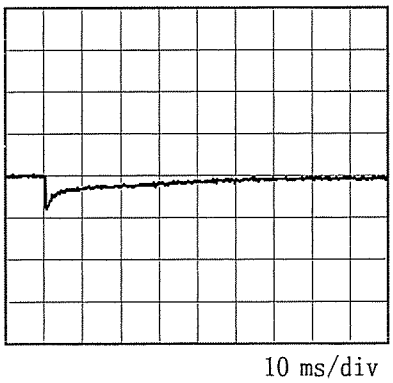
100 mV/div

10 ms/div



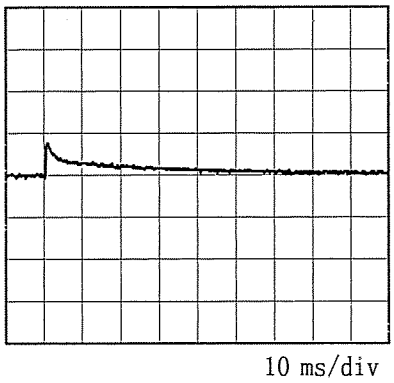
10 ms/div

Min. Load (0A) ⟷
Load 50% (10.5A)



100 mV/div

10 ms/div



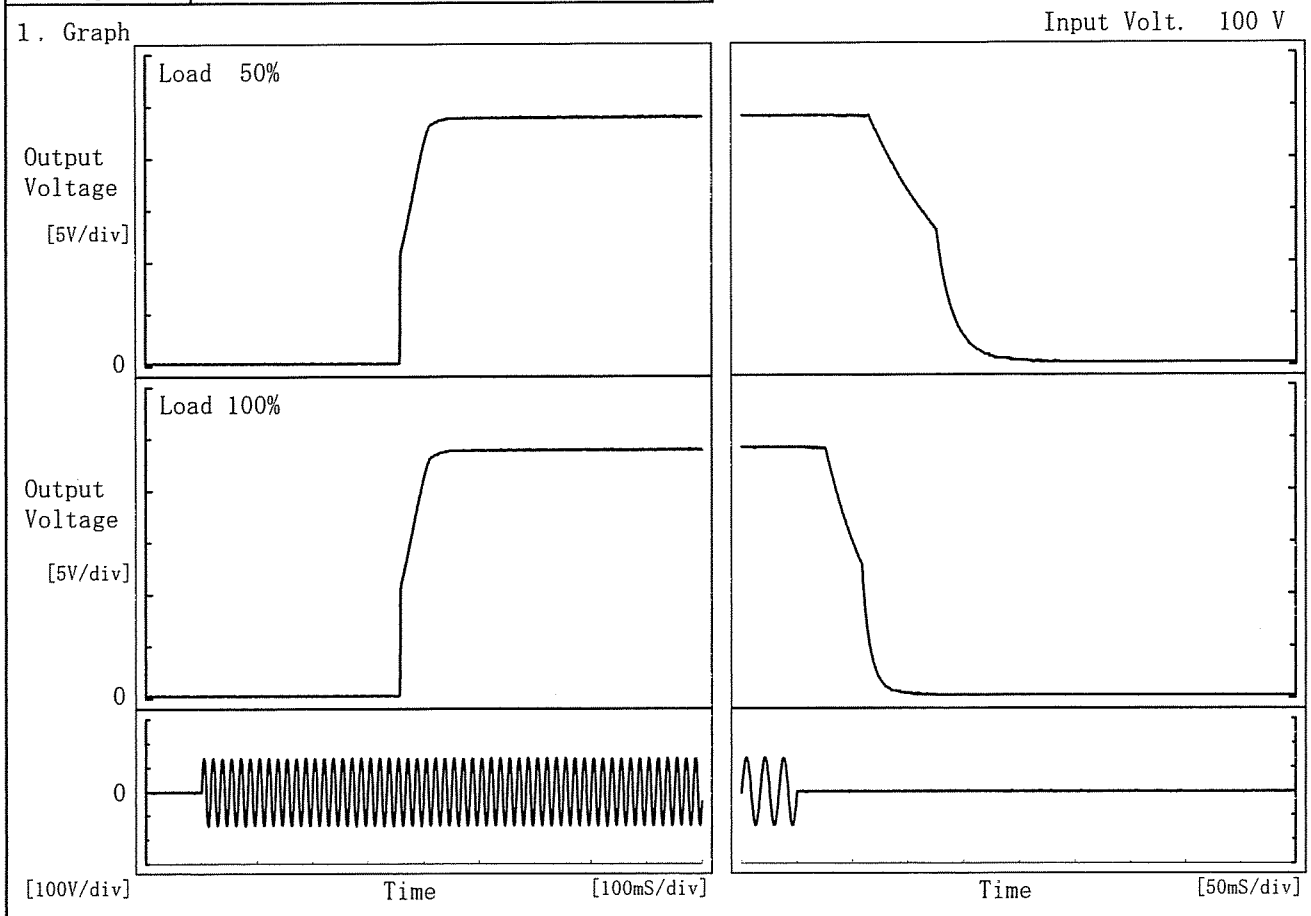
10 ms/div

COSEL

Model	ADA600F (ADA600F-24)
Item	Rise and Fall Time 立上り、立下り時間
Object	V1:+24V21A

Temperature 25℃
Testing Circuitry Figure A

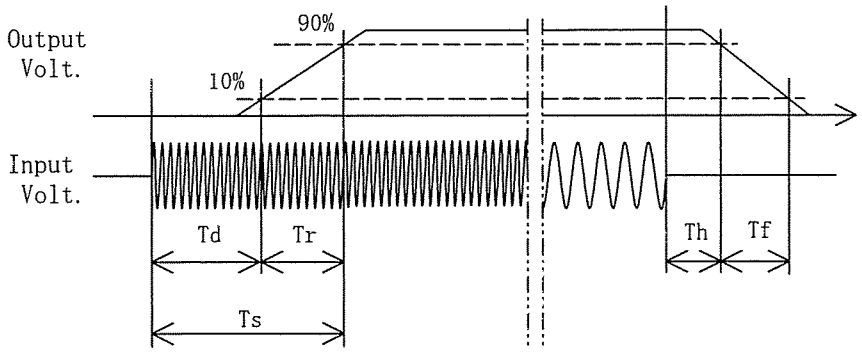
1. Graph



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	358.0	46.0	404.0	74.5	77.5
100 %	357.5	46.5	404.0	30.8	41.3

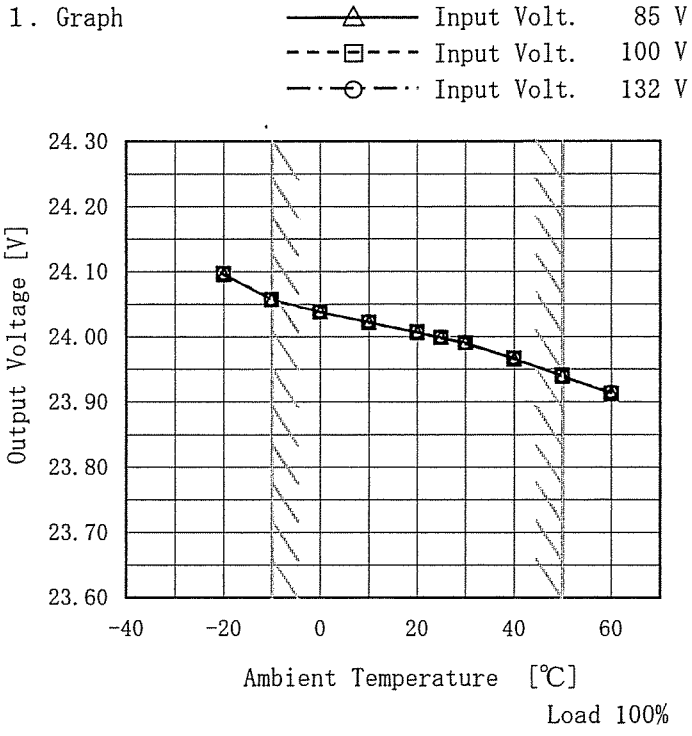


COSEL

Model	ADA600F (ADA600F-24)
Item	Ambient Temperature Drift 周囲温度変動
Object	V1:+24V21A

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

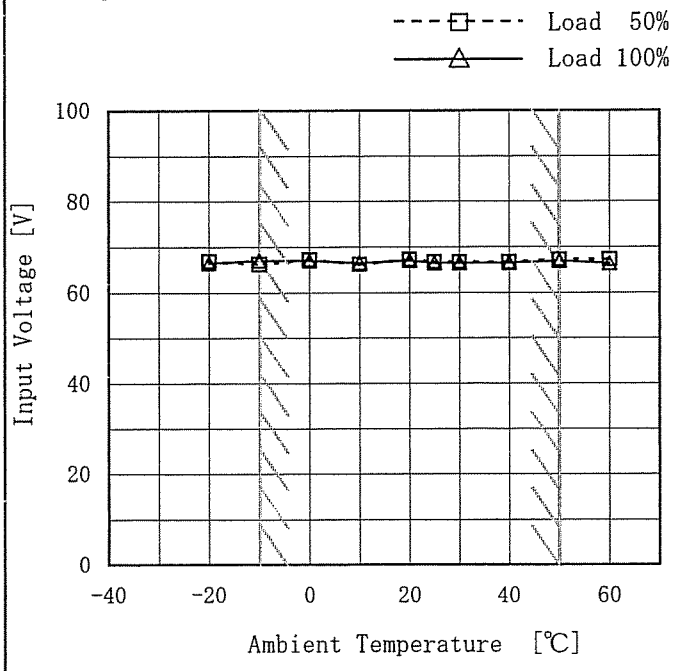
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	24.096	24.097	24.097
-10	24.057	24.057	24.057
0	24.039	24.039	24.039
10	24.022	24.022	24.023
20	24.007	24.008	24.008
25	23.999	23.999	23.999
30	23.991	23.990	23.990
40	23.966	23.967	23.967
50	23.940	23.940	23.940
60	23.914	23.914	23.915
--	—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	V1:+24V21A

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

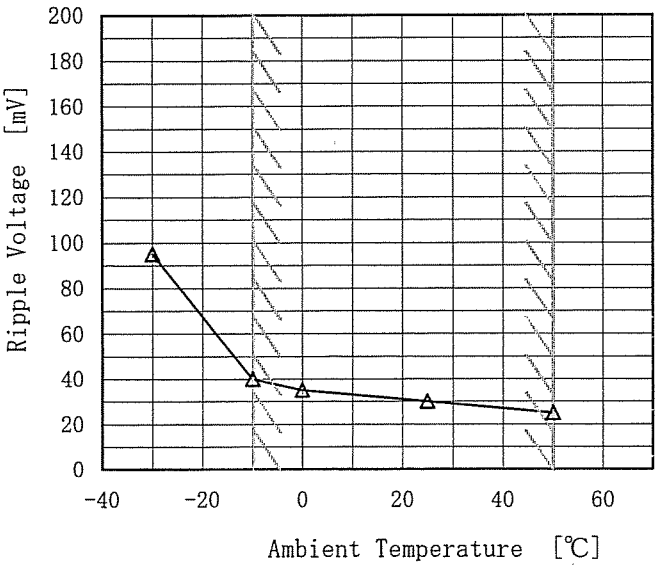
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	67	67
-10	66	67
0	67	67
10	66	67
20	67	67
25	67	67
30	67	67
40	67	67
50	67	67
60	67	66
—	—	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	V1:+24V21A

Testing Circuitry Figure A

1. Graph



Input Volt. 100 V

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

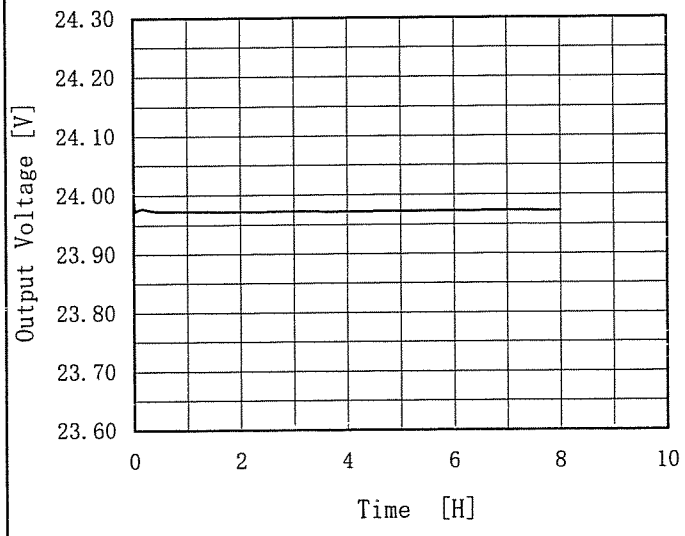
Ambient Temperature [℃]	Ripple Voltage [mV]
-30	95
-10	40
0	35
25	30
50	25
--	—
--	—
--	—
--	—
--	—
--	—

COSEL

Model	ADA600F (ADA600F-24)
Item	Time Lapse Drift 経時ドリフト
Object	V1:+24V21A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 100V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	23.996
0.5	23.973
1.0	23.972
2.0	23.972
3.0	23.972
4.0	23.971
5.0	23.972
6.0	23.972
7.0	23.973
8.0	23.973

COSEL

Model	ADA600F (ADA600F-24)	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	V1:+24V21A	

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 ～ 132V

Load Current : 0 ～ 21A

* 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 ～ 132V

負荷電流 : 0 ～ 21A

* 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		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	24.068	±72	±0.3
Minimum Voltage	50	85	21	23.925		

COSEL

Model	ADA600F (ADA600F-24)		
Item	Leakage Current 漏洩電流	Temperature Testing Circuitry	25℃ Figure B
Object	――――――――――		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A)DEN-AN	0.15	0.18	0.24
(B)IEC60950	0.15	0.18	0.24

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 240 [V]	Input Volt. 264 [V]
(B)IEC60950	―	―	―

2. Condition

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

交流入力の各相について測定し、その大きい方を漏洩電流測定値とする。

COSEL

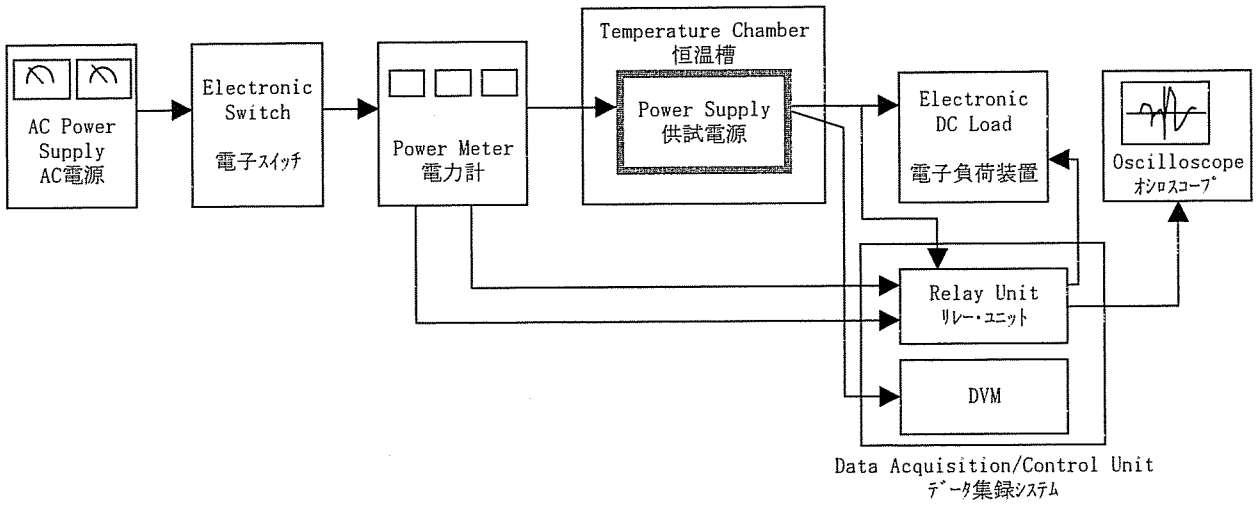


Figure A

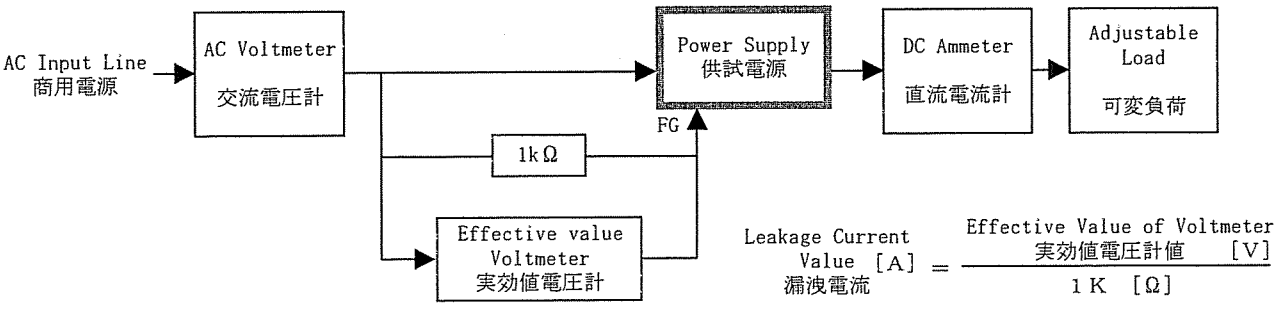


Figure B (DEN-AN)

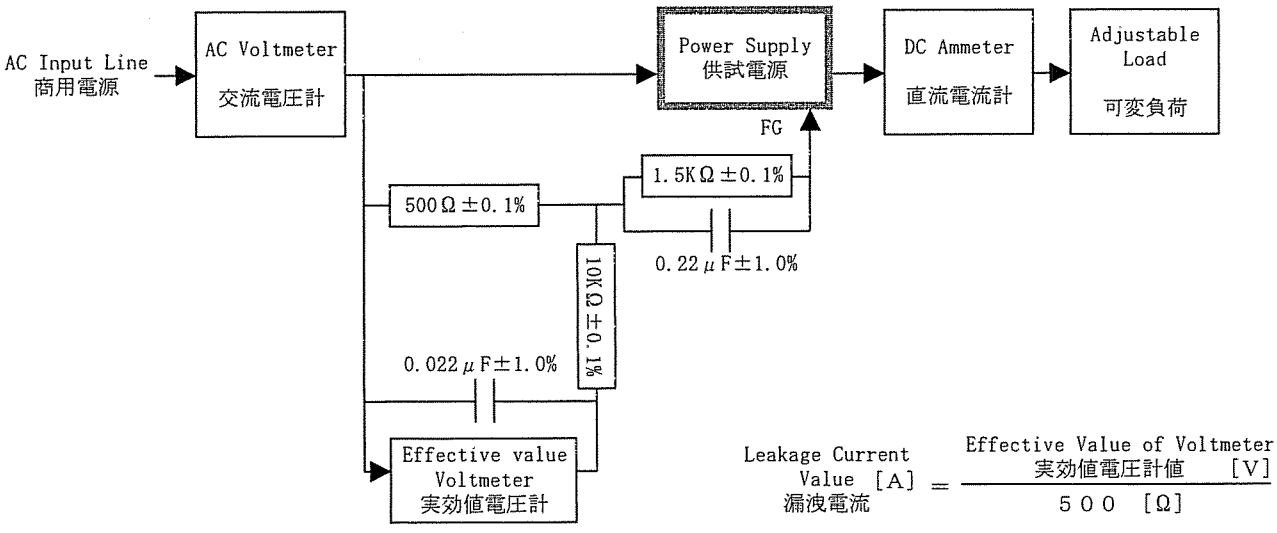


Figure B (IEC60950)