

TEST DATA OF ADA600F

ADA600F-48
(100V INPUT)

Regulated DC power supply
Mar. 11, 2003

Approved by : Kuniaki Nagahara
Kuniaki Nagahara Design Manager

Prepared by : Koji Todo
Koji Todo Design Engineer

INPUT : AC 85~132V

OUTPUT : V1: 48V 10.5A

コーセル株式会社
COSEL CO.,LTD.

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Model		ADA600F (ADA600F-48)	
Item		Line Regulation 静的入力変動	
Object		V1:+48V10.5A	

1. Graph

---□---

Load 50%

—△—

Load 100%

Output Voltage [V]

48.40

48.30

48.20

48.10

48.00

47.90

47.80

47.70

70

90

110

130

150

Input Voltage [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。

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.066	48.053
80	48.067	48.054
85	48.067	48.055
90	48.068	48.055
100	48.067	48.055
110	48.068	48.057
120	48.069	48.057
132	48.069	48.057
140	48.068	48.057

2. Values

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Model		ADA600F (ADA600F-48)		Temperature		25℃																																																				
Item		Input Current (by Load Current) 入力電流（負荷電力特性）		Testing Circuitry		Figure A																																																				
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<div><div>Input Current [A]</div><div><div>Load Power [W]</div></div></div>		<table><tr><th rowspan="2">Load Power [W]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.0</td><td>0.155</td><td>0.143</td><td>0.132</td></tr><tr><td>100.8</td><td>1.577</td><td>1.340</td><td>1.027</td></tr><tr><td>201.6</td><td>2.865</td><td>2.429</td><td>1.848</td></tr><tr><td>302.4</td><td>4.180</td><td>3.533</td><td>2.672</td></tr><tr><td>403.2</td><td>5.530</td><td>4.660</td><td>3.507</td></tr><tr><td>504.0</td><td>6.930</td><td>5.810</td><td>4.360</td></tr><tr><td>554.4</td><td>7.650</td><td>6.400</td><td>4.780</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><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>						Load Power [W]	Input Current [A]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.0	0.155	0.143	0.132	100.8	1.577	1.340	1.027	201.6	2.865	2.429	1.848	302.4	4.180	3.533	2.672	403.2	5.530	4.660	3.507	504.0	6.930	5.810	4.360	554.4	7.650	6.400	4.780	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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<p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注) 斜線は定格入力電圧範囲を示す。</p>																																				

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Model		ADA600F (ADA600F-48)		Temperature		25℃	
Item		Efficiency (by Load Power) 効率 (負荷電力特性)		Testing Circuitry		Figure A	
Object							

1. Graph

—△— Input Volt. 85 V

---□--- Input Volt. 100 V

-·-○-·- Input Volt. 132 V

Efficiency [%]

100

96

92

88

84

80

76

72

0

200

400

600

Load Power [W]

Slanted line indicates the range of the rated load power.

2. Values

Load Power [W]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
100.8	78.2	78.8	79.3
201.6	84.1	84.7	84.9
302.4	85.7	86.4	87.0
403.2	85.7	86.9	87.7
504.0	85.1	86.5	87.7
554.4	84.6	86.3	87.7
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

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

(注) 斜線は定格電力範囲を示す。

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Model

ADA600F (ADA600F-48)

Item

Power Factor (by Input Voltage)
力率 (入力電圧特性)

Object

1. Graph

□

Load 50%

△

Load 100%

Power Factor

1.0

0.9

0.8

0.7

0.6

0.5

0.4

0.3

70

90

110

130

150

Input Voltage [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]	Power Factor	
	Load 50%	Load 100%
75	0.983	0.998
80	0.978	0.995
85	0.980	0.995
90	0.979	0.993
100	0.976	0.991
110	0.974	0.991
120	0.972	0.990
132	0.969	0.987
140	0.967	0.985

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Model		ADA600F (ADA600F-48)		Temperature		25℃																																																				
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<div>Note: Slanted line shows the range of the rated load power.</div> <div>(注) 斜線は定格電力範囲を示す。</div>																																																										

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Model		ADA600F (ADA600F-48)		Temperature		25℃	
Item		Hold-Up Time (by Load Power) 出力保持時間 (負荷電力特性)		Testing Circuitry		Figure A	
Object							

1. Graph

—△—

Input Volt. 85V

---□---

Input Volt. 100V

---○---

Input Volt. 132V

Hold-Up Time [mS]

Load Power [W]	85V [mS]	100V [mS]	132V [mS]
0.0	—	—	—
100.8	178	186	196
201.6	83	89	97
302.4	50	56	63
403.2	33	38	45
504.0	22	28	34
554.4	18	24	30
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

Load Power [W]

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	178	186	196
201.6	83	89	97
302.4	50	56	63
403.2	33	38	45
504.0	22	28	34
554.4	18	24	30
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model

ADA600F (ADA600F-48)

Item

Instantaneous Interruption Compensation
(by Load Power)
瞬時停電保障 (負荷電力特性)

Object

1. Graph

—△—

Input Volt. 85V

---□---

Input Volt. 100V

---○---

Input Volt. 132V

Instantaneous Compensation Time [mS]

1000

100

10

1

0

200

400

600

Load Power [W]	85V [mS]	100V [mS]	132V [mS]
0.0	—	—	—
100.8	107	128	157
201.6	78	85	88
302.4	47	54	60
403.2	30	36	43
504.0	21	27	31
554.4	17	22	29
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

Load Power [W]

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

(注) 斜線は定格電力範囲を示す。

Temperature

25℃

Testing Circuitry

Figure A

2. Values

Load Power [W]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
100.8	107	128	157
201.6	78	85	88
302.4	47	54	60
403.2	30	36	43
504.0	21	27	31
554.4	17	22	29
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

BC-3479

COSEL

Model		ADA600F (ADA600F-48)		Temperature 25℃																																							
Item		Ripple Voltage (by Load Current) リップル電圧 (負荷特性)		Testing Circuitry Figure A																																							
Object		V1:+48V10.5A																																									
1. Graph				2. Values																																							
<div><div><div>—△—</div><div>Input Volt. 85 V</div></div><div><div>- - -○- - -</div><div>Input Volt. 132 V</div></div></div> <p>Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>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。</p> <div><div>T1: Due to AC Input Line 入力商用周期</div><div>T2: Due to Switching スイッチング周期</div></div>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Output Voltage [mV]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>15</td><td>15</td></tr><tr><td>2.00</td><td>30</td><td>30</td></tr><tr><td>4.00</td><td>35</td><td>35</td></tr><tr><td>6.00</td><td>40</td><td>40</td></tr><tr><td>8.00</td><td>45</td><td>45</td></tr><tr><td>10.00</td><td>45</td><td>45</td></tr><tr><td>10.50</td><td>50</td><td>50</td></tr><tr><td>11.55</td><td>50</td><td>50</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table>		Load Current [A]	Ripple Output Voltage [mV]		Input Volt. 85[V]	Input Volt. 132[V]	0.00	15	15	2.00	30	30	4.00	35	35	6.00	40	40	8.00	45	45	10.00	45	45	10.50	50	50	11.55	50	50	—	—	—	—	—	—	—	—	—
Load Current [A]	Ripple Output Voltage [mV]																																										
	Input Volt. 85[V]	Input Volt. 132[V]																																									
0.00	15	15																																									
2.00	30	30																																									
4.00	35	35																																									
6.00	40	40																																									
8.00	45	45																																									
10.00	45	45																																									
10.50	50	50																																									
11.55	50	50																																									
—	—	—																																									
—	—	—																																									
—	—	—																																									

COSEL

Model		ADA600F (ADA600F-48)	
Item		Ripple-Noise リップルノイズ	
Object		V1:+48V10.5A	

1. Graph

—△— Input Volt. 85 V

---○--- Input Volt. 132 V

Ripple-Noise [mV]

Load Current [A]

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

Ripple-Noise [mVp-p]

T1

T2

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]
0.00	20	20
2.00	35	35
4.00	40	40
6.00	45	45
8.00	55	55
10.00	60	60
10.50	60	60
11.55	65	65
--	--	--
--	--	--
--	--	--

COSEL

Model

ADA600F (ADA600F-48)

Item

Overcurrent Protection
過電流保護

Object

V1:+48V10.5A

1. Graph

Input Volt. 85 V

Input Volt. 100 V

Input Volt. 132 V

Output Voltage [V]

Load Current [A]

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 33.6V to 0V.

33.6V~0V間は、間欠モードとなる。

2. Values

Temperature 25°C

Testing Circuitry Figure A

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
48.0	16.79	16.77	16.79
45.6	16.84	16.86	16.87
43.2	16.95	16.95	16.99
38.4	17.15	17.18	17.16
33.6	17.38	17.35	17.32
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model		ADA600F (ADA600F-48)	
Item		Overvoltage Protection 過電圧保護	
Object		V1:+48V10.5A	

1. Graph

—△—

Input Volt.

85 V

---□---

Input Volt.

100 V

---○---

Input Volt.

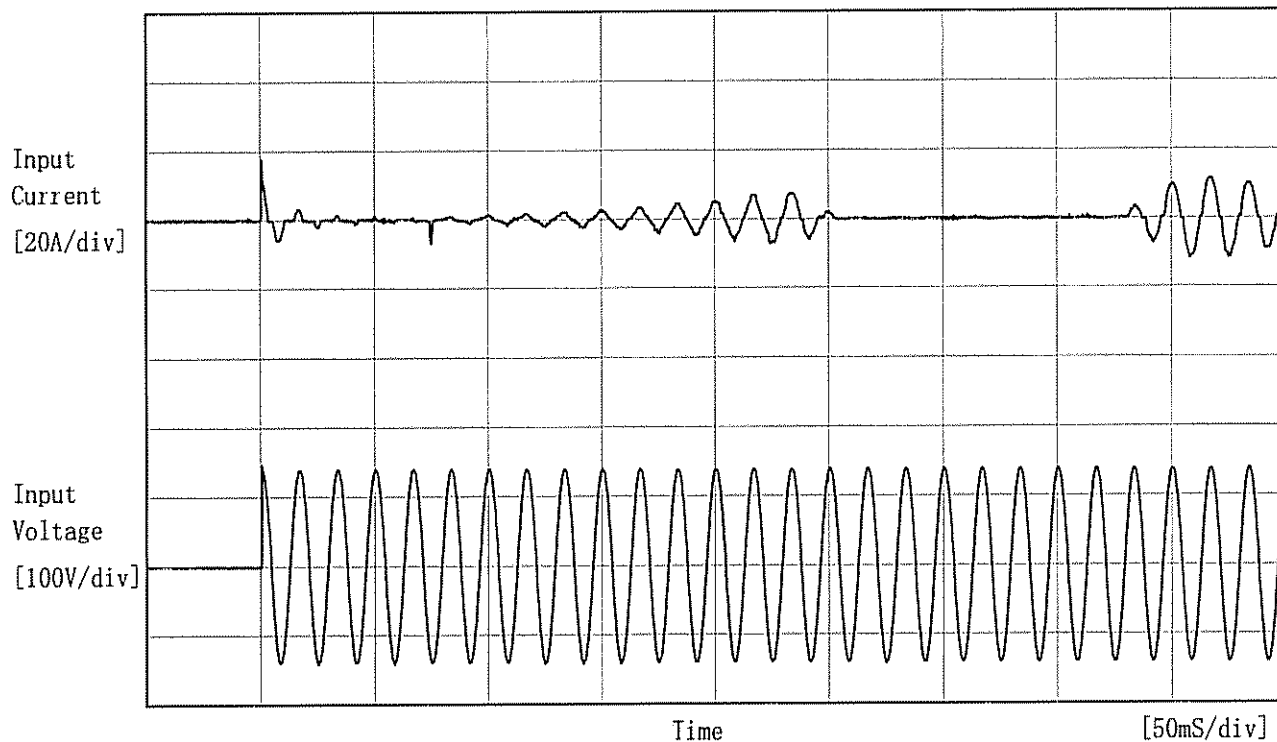
132 V

Operating Point [V]

Testing Circuitry Figure A

COSEL

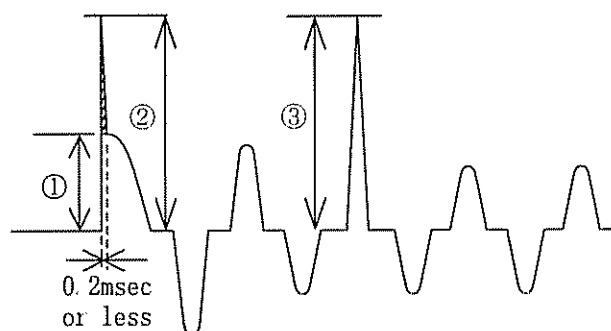
Model	ADA600F (ADA600F-48)	Temperature 25°C Testing Circuitry Figure A
Item	Inrush Current 突入電流	
Object	_____	



Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Inrush Current

- ① 12.3 [A]
- ② 17.7 [A] (0.2msec or less)*1
- ③ 6.9 [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.

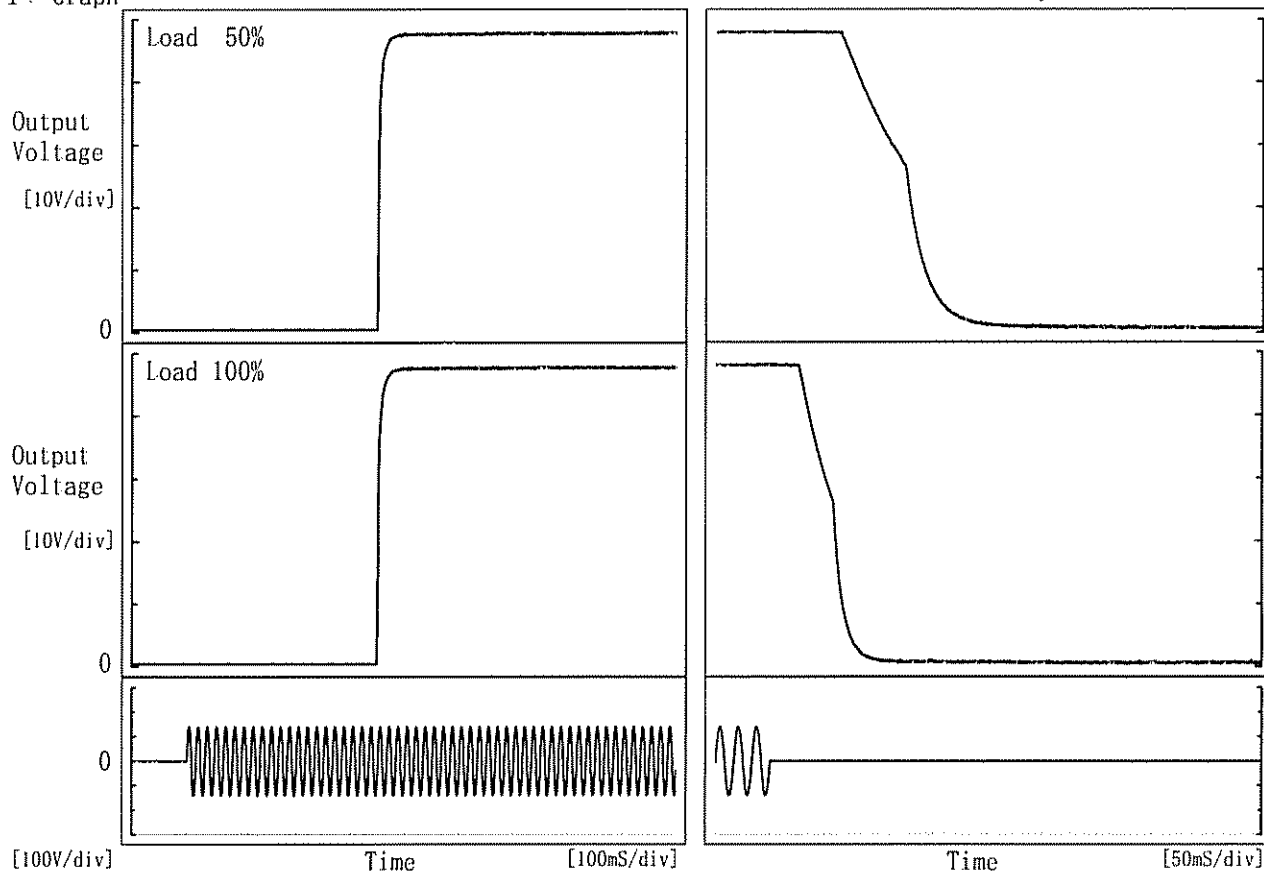
本製品の突入電流(1次サージ)の仕様は、内蔵ノイズフィルタ部へのサージ電流(0.2msec以下:波形②)を除きます。

COSEL

Model	ADA600F (ADA600F-48)	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	V1:+48V10.5A		

1. Graph

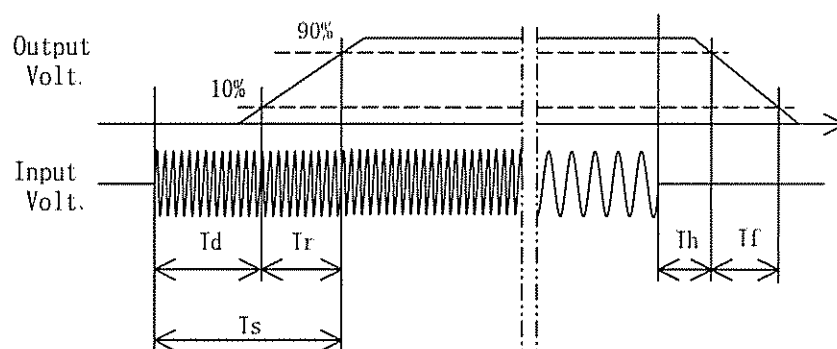
Input Volt. 100 V



2. Values

[mS]

Load \ Time	T _d	T _r	T _s	T _h	T _f
50 %	349.5	10.5	360.0	74.5	80.3
100 %	349.0	10.5	359.5	31.3	42.3

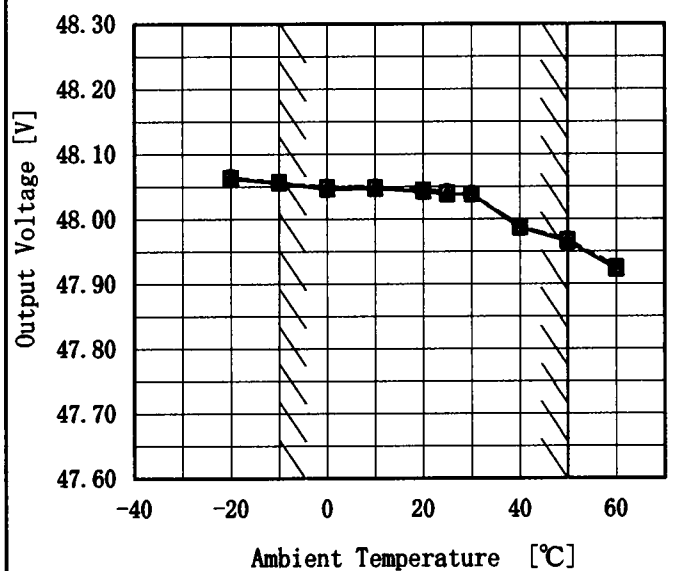


COSEL

Model	ADA600F (ADA600F-48)
Item	Ambient Temperature Drift 周囲温度変動
Object	V1:+48V10.5A

1. Graph

—△— Input Volt. 85 V
 ---□--- Input Volt. 100 V
 ---○--- Input Volt. 132 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。

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	48.063	48.064	48.066
-10	48.056	48.058	48.055
0	48.046	48.049	48.050
10	48.047	48.048	48.050
20	48.043	48.045	48.045
25	48.039	48.040	48.043
30	48.038	48.039	48.040
40	47.987	47.988	47.988
50	47.965	47.968	47.969
60	47.923	47.926	47.924
—	—	—	—

COSEL

Model

ADA600F (ADA600F-48)

Item

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

Object

V1:+48V10.5A

1. Graph

---□--- Load 50%

—△— Load 100%

Input Voltage [V]

100

80

60

40

20

0

-40

-20

0

20

40

60

Ambient Temperature [°C]

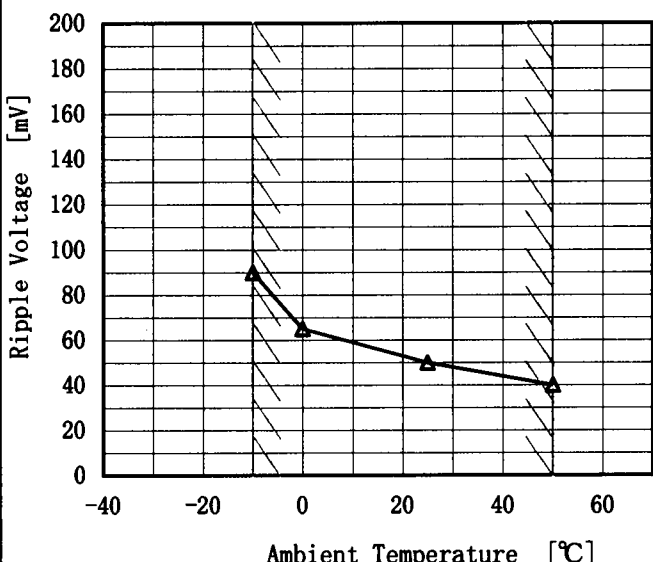
Note: Slanted line shows the range of the rated ambient temperature.

(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	68	68
-10	67	68
0	67	68
10	67	68
20	67	68
25	67	68
30	67	68
40	67	67
50	67	68
60	67	67
—	—	—

COSEL

Model	ADA600F (ADA600F-48)																										
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)		Testing Circuitry Figure A																								
Object	V1:+48V10.5A																										
1. Graph		2. Values																									
<div><p style="text-align: center;">Ambient Temperature [°C]</p><p>Input Volt. 100 V</p><p>Load 100 %</p></div>		<table><tr><th>Ambient Temperature [°C]</th><th>Ripple Voltage [mV]</th></tr><tr><td>-10</td><td>90</td></tr><tr><td>0</td><td>65</td></tr><tr><td>25</td><td>50</td></tr><tr><td>50</td><td>40</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td></tr></table>		Ambient Temperature [°C]	Ripple Voltage [mV]	-10	90	0	65	25	50	50	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ambient Temperature [°C]	Ripple Voltage [mV]																										
-10	90																										
0	65																										
25	50																										
50	40																										
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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。																											

COSEL

Model	ADA600F (ADA600F-48)		
Item	Time Lapse Drift 経時ドリフト	Temperature	25℃
Object	V1:+48V10.5A	Testing Circuitry	Figure A
1. Graph		2. Values	
<div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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COSEL

Model	ADA600F (ADA600F-48)	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	V1:+48V10.5A	

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°C

Input Voltage : 85 ~ 132V

Load Current : 0 ~ 10.5A

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

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

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°C

入力電圧 : 85 ~ 132V

負荷電流 : 0 ~ 10.5A

* 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) = $\frac{\text{変動値}}{\text{定格出力電圧}} \times 100$

2. Values

Item	Temperature [°C]	Input Voltage [V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	48.085	±64	±0.1
Minimum Voltage	50	85	10.5	47.957		

COSEL

Model	ADA600F (ADA600F-48)				
Item	Leakage Current 漏洩電流			Temperature Testing Circuitry	25℃ Figure B
Object	_____				

1. Results

Standards	Leakage Current [mA]		
	Input Volt.	Input Volt.	Input Volt.
	85 [V]	100 [V]	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.	Input Volt.	Input Volt.
	170 [V]	240 [V]	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。

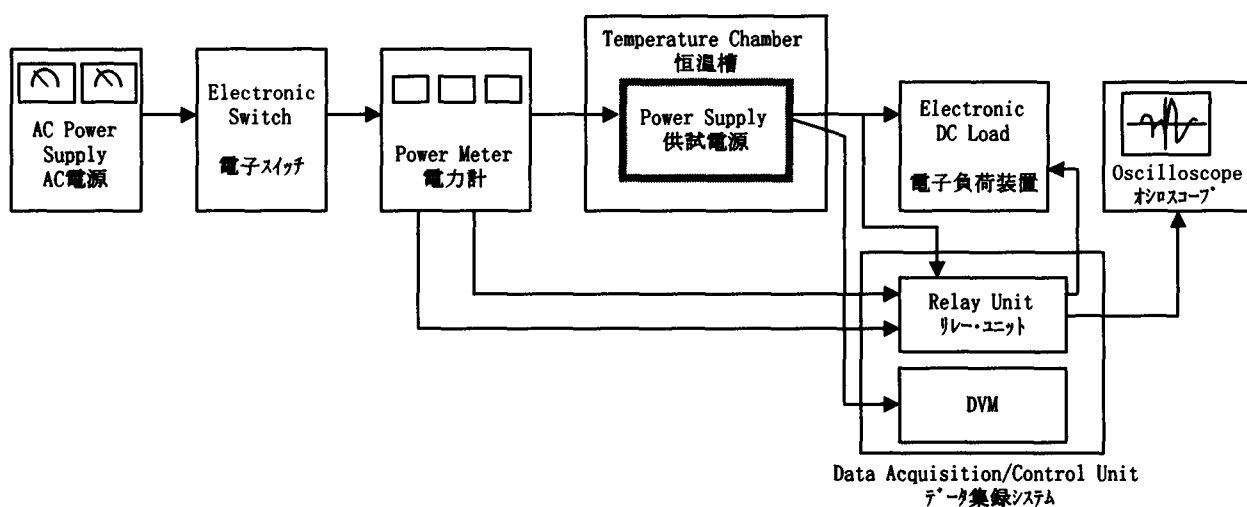


Figure A

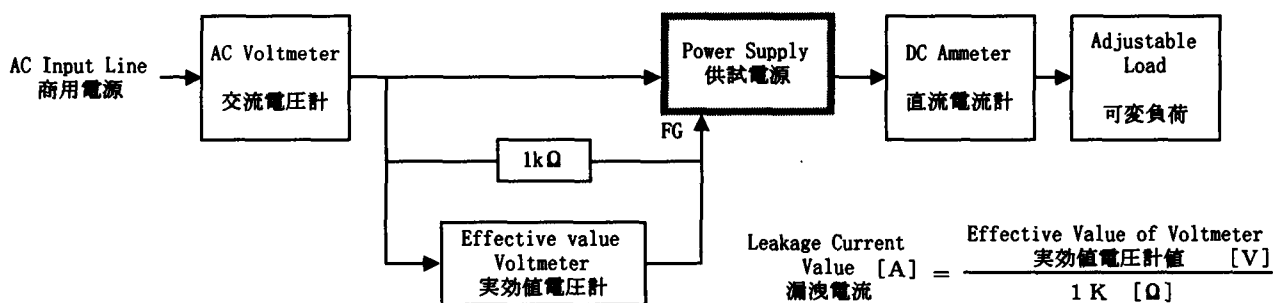


Figure B (DEN-AN)

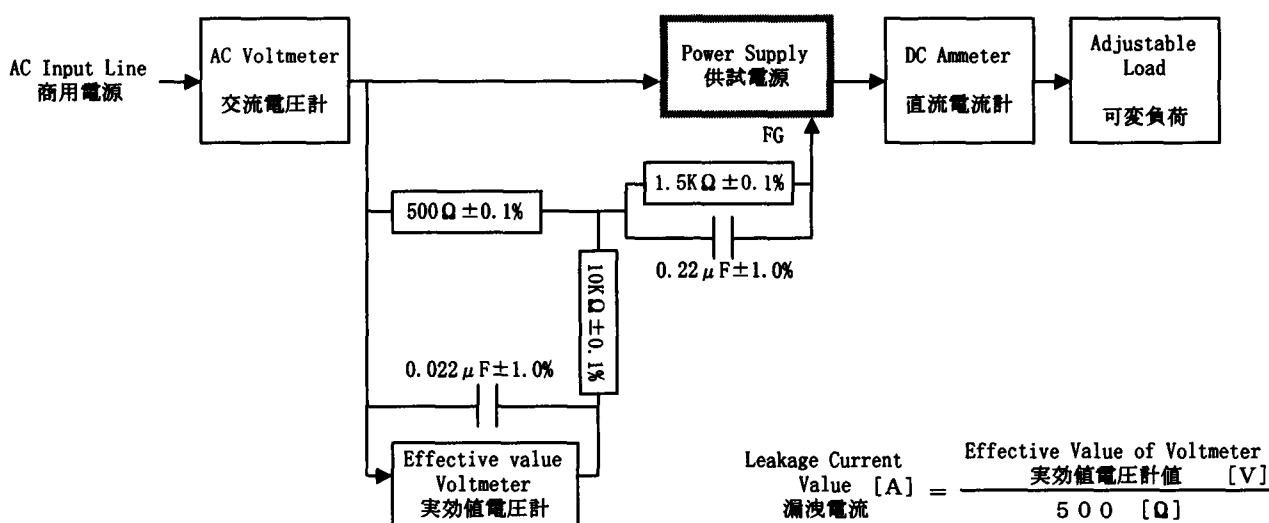


Figure B (IEC60950)