COSEL

TEST DATA OF CDS4004803
(48V INPUT)

Regulated DC Power Supply
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Item	Line Regulation 静的入力変動
Object	+3.3V100A

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

- - -□- - - Load 50%
———△——— Load 100%

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%
33	3.346	3.347
36	3.346	3.347
40	3.346	3.347
48	3.346	3.347
54	3.346	3.347
60	3.347	3.347
68	3.347	3.346
76	3.347	3.346
80	3.347	3.346

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Model	CDS4004803
Item	Input Current (by Input Voltage) 入力電流（入力電圧特性）
Object	

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

———△——— Load 100%
- - -☐- - - Load 50%
—·—○—·— Load 0%

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]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
25	0.016	0.015	0.016
30	0.172	7.068	13.428
33	0.155	6.344	12.738
36	0.145	5.745	11.575
40	0.135	5.139	10.146
48	0.116	4.245	8.687
54	0.108	3.802	7.783
60	0.107	3.447	7.006
68	0.100	3.062	6.182
76	0.096	2.780	5.531
80	0.091	2.674	5.255
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

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Model	CDS4004803
Item	Input Current (by Load Current) 入力電流（負荷特性）
Object	

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

△ Input Volt. 36V
□ Input Volt. 48V
○ Input Volt. 76V

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.145	0.116	0.096
15	2.007	1.456	0.976
30	3.572	2.624	1.732
45	5.200	3.837	2.510
60	6.840	5.112	3.308
75	8.576	6.398	4.130
90	10.379	7.749	4.963
100	11.620	8.681	5.535
110	12.814	9.622	6.106
---	—	—	—
--	—	—	—

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参考資料

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Model	CDS4004803
Item	Input Power (by Load Current) 入力電力（負荷特性）
Object	————

Temperature　　　　25℃
Testing Circuitry　　Figure A

1. Graph

————△———— Input Volt. 36V
- - -☐- - - Input Volt. 48V
—·—○—·— Input Volt. 76V

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	5.2	5.6	7.3
15	72.2	69.8	74.1
30	128.2	125.8	131.6
45	186.4	183.7	190.6
60	246.0	244.5	251.0
75	308.0	307.1	313.3
90	372.2	371.7	376.4
100	416.2	416.2	419.6
110	461.2	460.9	463.9
--	—	—	—
--	—	—	—

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Model	CDS4004803
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

--- □ --- Load 50%
—△— Load 100%

Efficiency [%] vs 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]	Efficiency [%]	
	Load 50%	Load 100%
33	80.1	79.7
36	81.1	80.4
40	81.8	80.3
48	82.2	80.4
54	81.6	80.4
60	81.1	80.2
68	80.3	80.0
76	79.3	79.7
80	78.8	79.4

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参考資料

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Model	CDS4004803
Item	Efficiency (by Load Current) 効率（負荷特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph

- —△— Input Volt. 36V
- ---□--- Input Volt. 48V
- —·—○—·— Input Volt. 76V

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。

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	—	—	—
15	69.2	71.5	67.4
30	78.0	79.6	76.0
45	80.7	81.9	78.9
60	81.5	82.0	79.9
75	81.4	81.7	80.0
90	80.9	81.0	80.0
100	80.4	80.4	79.7
110	79.8	79.8	79.3
---	—	—	—
--	—	—	—

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Model	CDS4004803
Item	Load Regulation 静的負荷変動
Object	+3.3V100A

Temperature　　　　25℃
Testing Circuitry　　Figure A

1. Graph

⎯△⎯　Input Volt.　36V
- - -▱- - -　Input Volt.　48V
—·—◯—·—　Input Volt.　76V

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	3.345	3.346	3.346
15	3.345	3.347	3.347
30	3.346	3.347	3.347
45	3.346	3.347	3.347
60	3.346	3.347	3.347
75	3.347	3.347	3.347
90	3.347	3.347	3.347
100	3.347	3.347	3.347
110	3.347	3.347	3.347
--	—	—	—

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Model	CDS4004803
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	+3.3V100A

Temperature　　　　25℃
Testing Circuitry　　Figure A

1. Graph

—△—　Input Volt.　36V
—·—○—·—　Input Volt.　76V

Ripple Voltage [mV] vs Load Current [A]

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	5	5
20	5	10
40	10	10
60	10	10
80	10	10
90	10	10
100	10	10
110	10	10
—	—	—
—	—	—
—	—	—

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。

Ripple [mVp-p]

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

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Model	CDS4004803
Item	Ripple-Noise リップルノイズ
Object	+3.3V100A

Temperature   25℃
Testing Circuitry   Figure A

1. Graph

——△—— Input Volt. 36V
——○—— Input Volt. 76V

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 ー p 値で示される。
（注）斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	20	30
20	30	30
40	30	30
60	30	30
80	40	40
90	40	40
100	40	40
110	45	45
—	—	—
—	—	—
—	—	—

Ripple Noise[mVp-p]

Fig. Complex Ripple Noise Wave Form
図　リップルノイズ波形

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Model	CDS4004803
Item	Overcurrent Protection 過電流保護
Object	+3.3V100A

Temperature   25℃
Testing Circuitry   Figure A

1. Graph

———————— Input Volt. 36V
·················· Input Volt. 48V
················· Input Volt. 76V

Output Voltage [V] (vertical axis: 0.0 to 5.0)
Load Current [A] (horizontal axis: 0 to 160)

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 2.3V to 0V.
2.3V～0V間は、間欠モードとなる。

2. Values

Output	Load Current [A]		
Voltage	Input Volt.	Input Volt.	Input Volt.
[V]	36[V]	48[V]	76[V]
3.300	100.02	100.01	100.01
3.135	119.55	120.30	125.57
2.970	119.83	120.68	126.17
2.640	120.37	121.17	127.63
2.310	121.07	121.62	129.53
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—
--	—	—	—

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Model	CDS4004803
Item	Overvoltage Protection 過電圧保護
Object	+3.3V100A

Testing Circuitry   Figure A

1. Graph

       ——△—— Input Volt. 36V
       - - -☐- - - Input Volt. 48V
       —·—○—·— Input Volt. 76V

Operating Point [V] vs Ambient Temperature [℃]
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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
−35	5.13	5.14	5.14
−20	5.01	5.02	5.02
0	4.95	4.96	4.96
15	4.84	4.85	4.85
25	4.72	4.84	4.85
40	4.72	4.73	4.73
55	4.60	4.61	4.61
70	4.54	4.61	4.61
85	4.42	4.43	4.43
90	4.42	4.43	4.43
——	—	—	—

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Model	CDS4004803
Item	Dynamic Load Response 動的負荷変動
Object	+3.3V100A

Temperature	25℃
Testing Circuitry	Figure A

Input Volt.　　48 V

Cycle　　1000 ms

Load Current

Min. Load (0A) ←→
Load 100% (100A)

200 mV/div
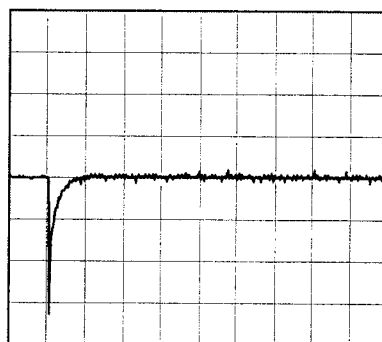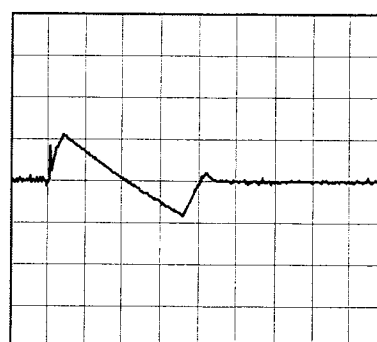
2 ms/div

2 ms/div

Min. Load (0A) ←→
Load 50% (50A)

200 mV/div
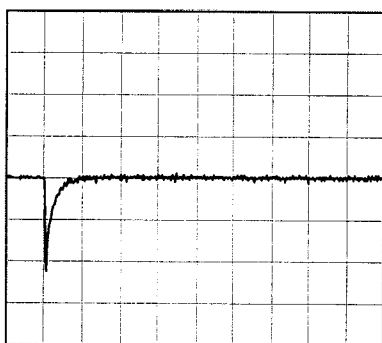
2 ms/div
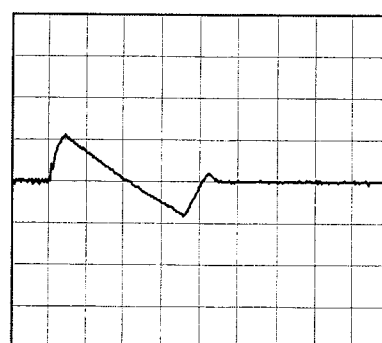
2 ms/div

Load 10% (10A) ←→
Load 100% (100A)

200 mV/div

2 ms/div

2 ms/div

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参考資料
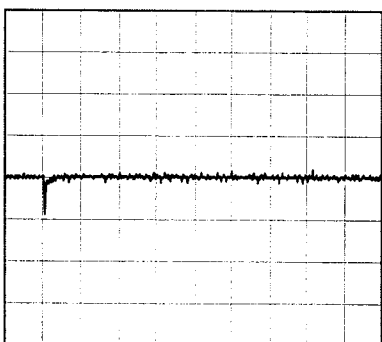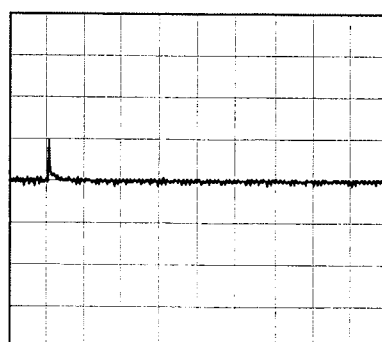
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Model	CDS4004803
Item	Rise and Fall Time 立上り、立下り時間
Object	+3.3V100A

Temperature 25℃
Testing Circuitry Figure A

1. Graph　　　　　　　　　　　　　　　　Input Volt. 36 V

Output Volt. [0.5V/div] — Load 50%

Output Volt. [0.5V/div] — Load 100%

Input Volt. [10V/div]

Time [100mS/div]　　　Time [50mS/div]
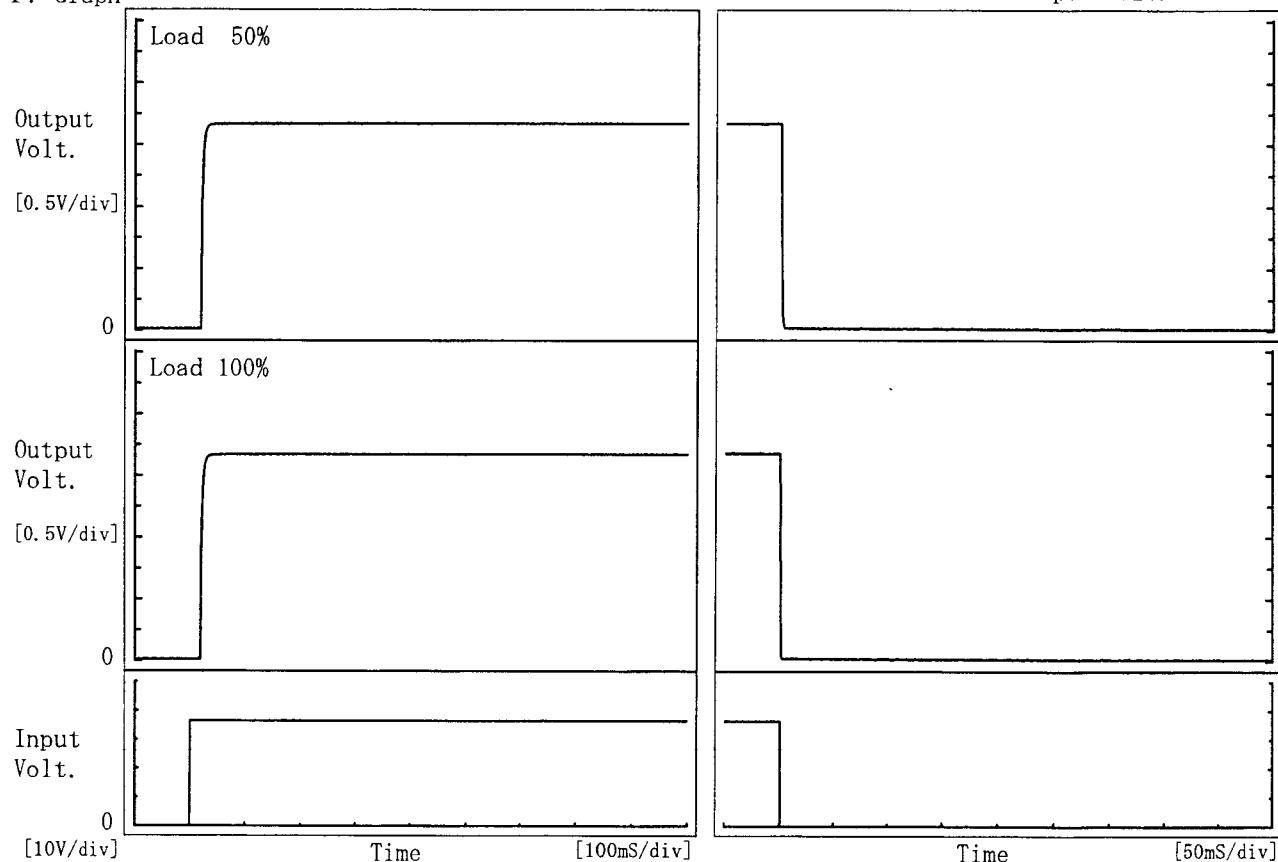
2. Values　　　　　　　　　　　　　　　　　　　[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	18.0	5.5	23.5	0.3	1.5
100 %	18.0	5.5	23.5	0.3	1.0

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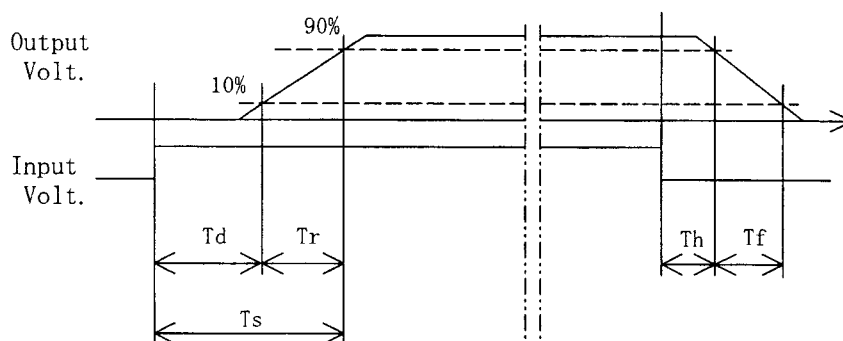
Model	CDS4004803
Item	Ambient Temperature Drift 周囲温度変動
Object	+3.3V100A

Testing Circuitry   Figure A

1. Graph

————△———— Input Volt. 36V
- - -☐- - - Input Volt. 48V
—·—○—·— Input Volt. 76V

Ambient Temperature [℃]

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
−35	3.353	3.353	3.353
−20	3.352	3.352	3.352
0	3.351	3.351	3.351
15	3.351	3.350	3.350
25	3.350	3.350	3.349
40	3.347	3.347	3.347
55	3.342	3.342	3.342
70	3.337	3.336	3.336
85	3.330	3.330	3.330
90	3.327	3.327	3.327
―	―	―	―

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Model	CDS4004803
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+3.3V100A
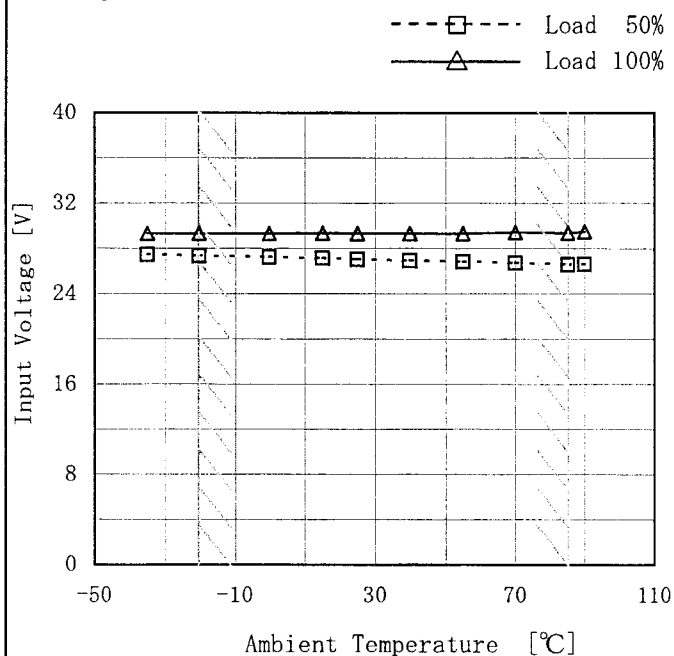
Testing Circuitry   Figure A

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 [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	27.5	29.3
-20	27.4	29.3
0	27.3	29.3
15	27.2	29.4
25	27.1	29.3
40	27.0	29.3
55	26.9	29.3
70	26.7	29.4
85	26.6	29.4
90	26.6	29.5
--	—	—

参考資料

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Model	CDS4004803
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+3.3V100A

Testing Circuitry   Figure A

1. Graph

--- ⊟ --- Load 50%
—— △ —— Load 100%

Ambient Temperature [℃]

Input Volt.   48V

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]	
	Load 50%	Load 100%
−35	20	20
−20	15	15
0	10	10
15	10	10
25	10	10
40	10	10
55	10	10
70	10	10
85	10	10
90	10	10
—	—	—

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Model	CDS4004803
Item	Time Lapse Drift 経時ドリフト
Object	+3.3V100A

Temperature	25℃
Testing Circuitry	Figure A

1. Graph

Input Volt.   48V
Load   100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	3.360
0.5	3.353
1.0	3.353
2.0	3.353
3.0	3.353
4.0	3.353
5.0	3.353
6.0	3.353
7.0	3.353
8.0	3.353

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Model	CDS4004803
Item	Output Voltage Accuracy 定電圧精度
Object	+3.3V100A

Testing Circuitry   Figure A

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   : -20 ～ 85℃
Input Voltage   : 36 ～ 76V
Load Current   : 0 ～ 100A

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

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

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   : -20 ～ 85℃
入力電圧   : 36 ～ 76V
負荷電流   : 0 ～ 100A

* 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

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

2. Values

Item	Temperature [℃]	Input Voltage[V]	Output Current[A]	Output Voltage[V]	Output Voltage Accuracy Value [mV]	Ration [%]
Maximum Voltage	-20	36	100	3.354	±13	±0.4
Minimum Voltage	85	76	0	3.328		

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Model	CDS4004803
Item	Condense 結露特性
Object	+3.3V100A

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 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]	3.347	Input Volt.:48V, Load Current.:100A
Line Regulation [mV]	1	Input Volt.:36～76V, Load Current.:100A
Load Regulation [mV]	2	Input Volt.:48V, Load Current.:0～100A

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Model	CDS4004803		
Item	Line Noise Tolerance 入力雑音耐量	Temperature	25℃
		Testing Circuitry	Figure B
Object	+3.3V100A		

1. Conditions

      • Input Voltage   :   48 V   • Pulse Input Duration : 1 min. or more

      • Pulse Voltage   :   2000 V   • Load   :   100 %

      • Pulse Cycle   :   10 mS

2. Results

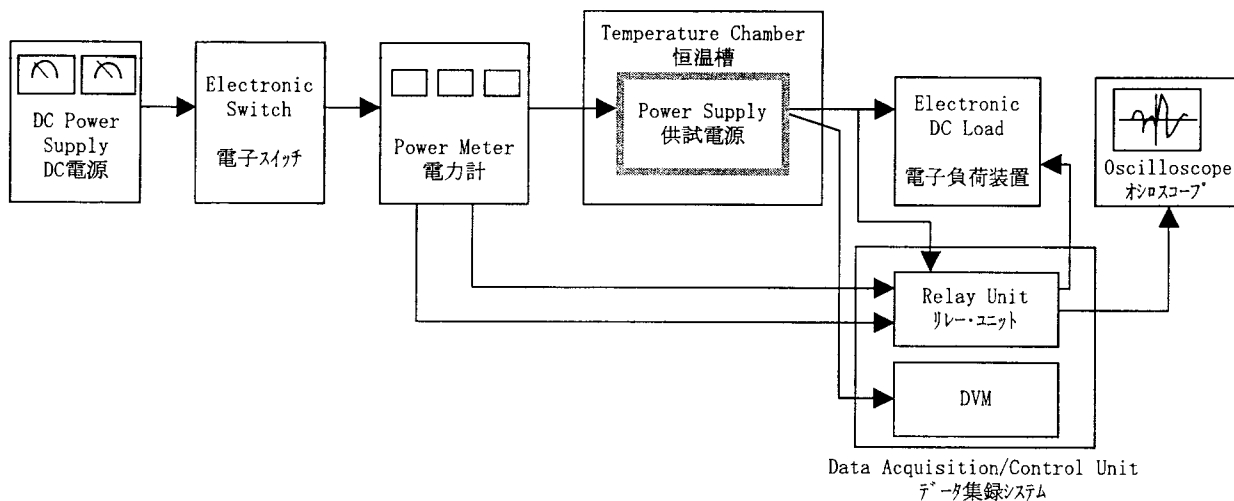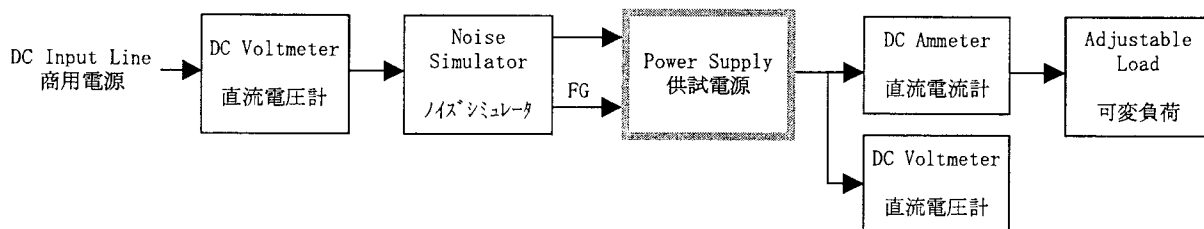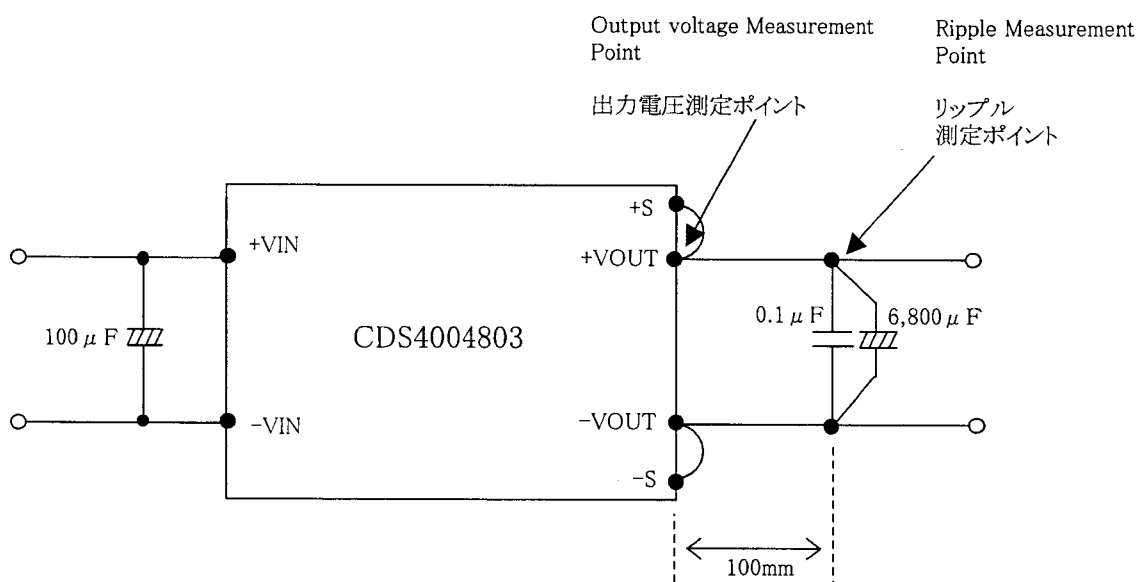| Pulse Width [nS]	MODE	POLARITY	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	+	OK	no fluctuation
		—	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		—	OK	no fluctuation
1000	COMMON	+	OK	no fluctuation
		—	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		—	OK	no fluctuation

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Figure A

Figure B

Figure C (General Electric Characteristic)
一般電気特性