



TEST DATA OF CBS2004805 (48V INPUT)

Regulated DC Power Supply
Feb. 27, 2001

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Takayuki Fukuda Design Manager

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コーワセル株式会社
COSEL CO.,LTD.

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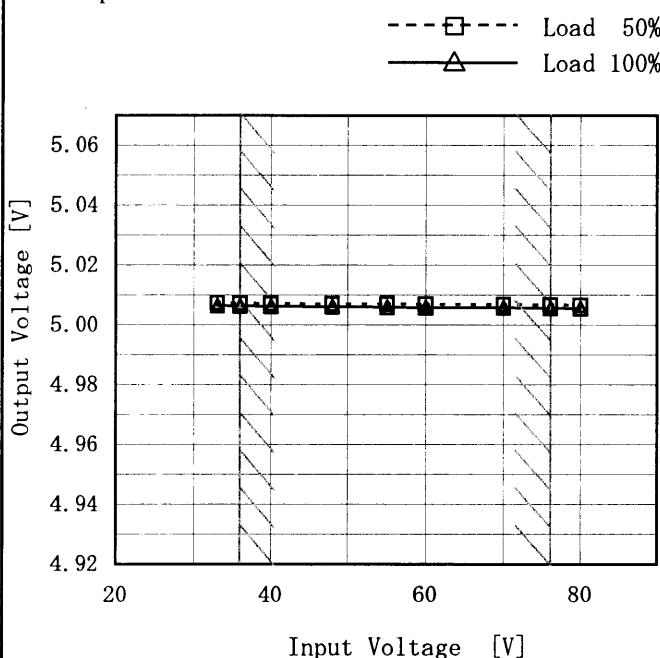
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(Final Page 21)

Model	CBS2004805
Item	Line Regulation 静的の入力変動
Object	+5V30A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	5.007	5.007
36	5.007	5.006
40	5.007	5.006
48	5.007	5.006
55	5.007	5.006
60	5.007	5.006
70	5.007	5.006
76	5.007	5.006
80	5.007	5.006

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。

Model	CBS2004805	Temperature	25°C																																																																							
Item	Input Current (by Input Voltage) 入力電流 (入力電圧特性)	Testing Circuitry	Figure A																																																																							
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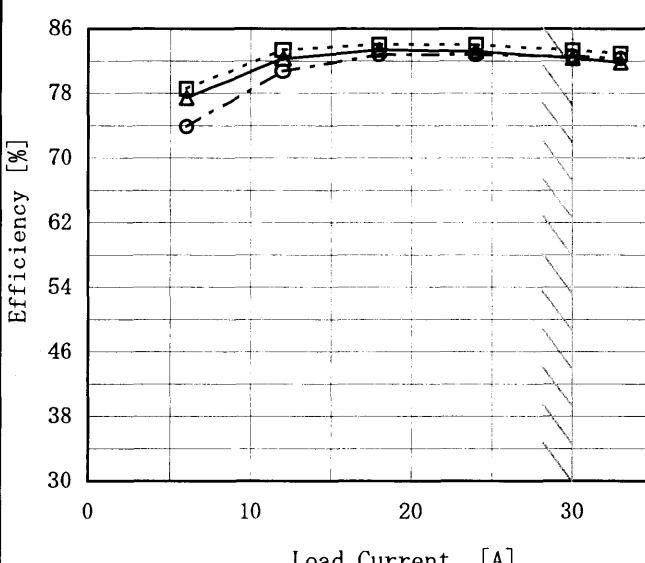
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Model	CBS2004805	Temperature	25°C
Item	Efficiency (by Load Current) 効率(負荷特性)	Testing Circuitry	Figure A
Object			
1. Graph	<p>—△— Input Volt. 36V - - -□- - Input Volt. 48V - - ○- - Input Volt. 76V</p> 		
2. Values	Load Current [A]	Efficiency [%]	Efficiency [%]
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-
6	77.5	78.5	73.9
12	82.3	83.3	80.7
18	83.4	84.0	82.8
24	83.2	84.0	82.8
30	82.4	83.3	82.6
33	81.8	82.9	82.3
—	—	—	—
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Model	CBS2004805	Temperature Testing Circuitry	25°C Figure A																																								
Item	Ripple Voltage (by Load Current) リップル電圧 (負荷特性)																																										
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<p>Ripple [mVp-p]</p>																																											
<p>Fig. Complex Ripple Wave Form 図 リップル波形図</p>																																											

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<p>Ripple-Noise 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。</p>																																										
<p>Fig. Complex Ripple Noise Wave Form 図 リップルノイズ波形</p>																																										

COSSEL

Model	CBS2004805	Temperature	25°C																																																							
Item	Overcurrent Protection 過電流保護	Testing Circuitry	Figure A																																																							
Object	+5V30A																																																									
1. Graph	<p>The graph plots Output Voltage [V] on the y-axis (0 to 6) against Load Current [A] on the x-axis (0 to 60). Three curves represent different input voltages: 36V (solid line), 48V (dotted line), and 76V (dash-dot line). A diagonal hatched band between approximately 28A and 42A represents the rated load current range.</p>																																																									
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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 3V to 0V.
3V～0V間は、間欠モードとなる。

COSSEL

Model	CBS2004805																																																					
Item	Overvoltage Protection 過電圧保護																																																					
Object	+5V30A																																																					
1. Graph	<p style="text-align: center;"> —△— Input Volt. 36V ---□--- Input Volt. 48V ---○--- Input Volt. 76V </p> <p style="text-align: center;">Operating Point [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Load 0%</p>																																																					
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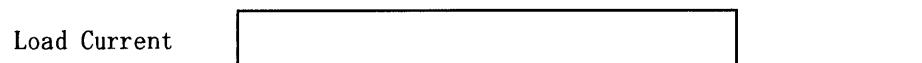
(注) 斜線は定格周囲温度範囲を示す。

COSSEL

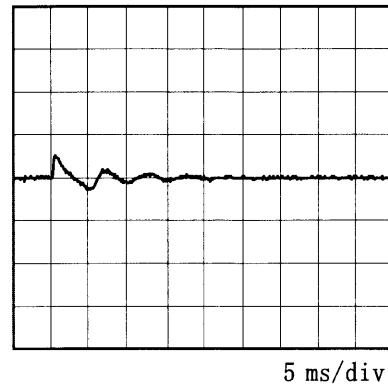
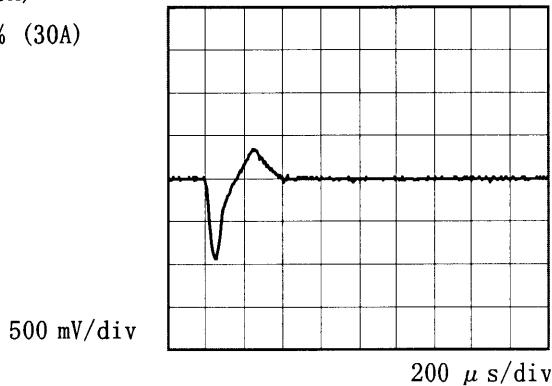
Model	CBS2004805
Item	Dynamic Load Response 動的負荷変動
Object	+5V30A

Temperature 25°C
Testing Circuitry Figure A

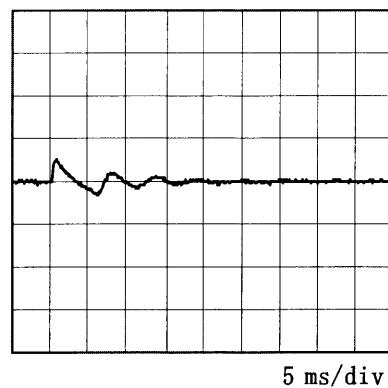
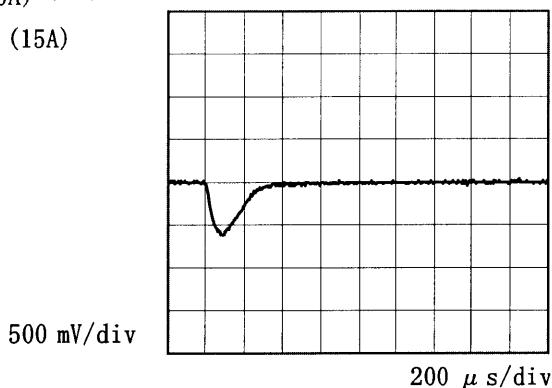
Input Volt. 48 V
Cycle 1000 ms



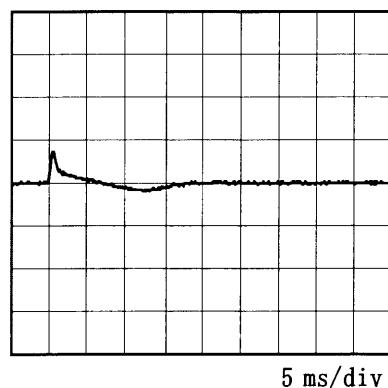
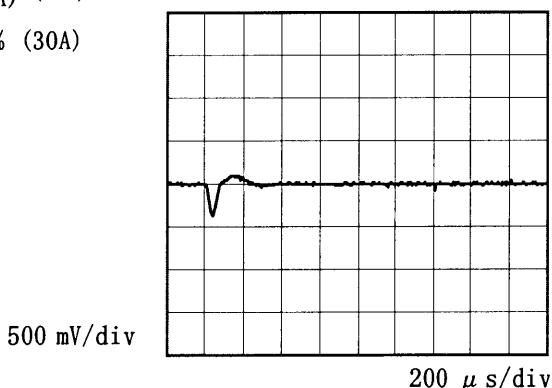
Min. Load (0A) ↔
Load 100% (30A)



Min. Load (0A) ↔
Load 50% (15A)



Load 10% (3A) ↔
Load 100% (30A)



COSSEL

Model CBS2004805

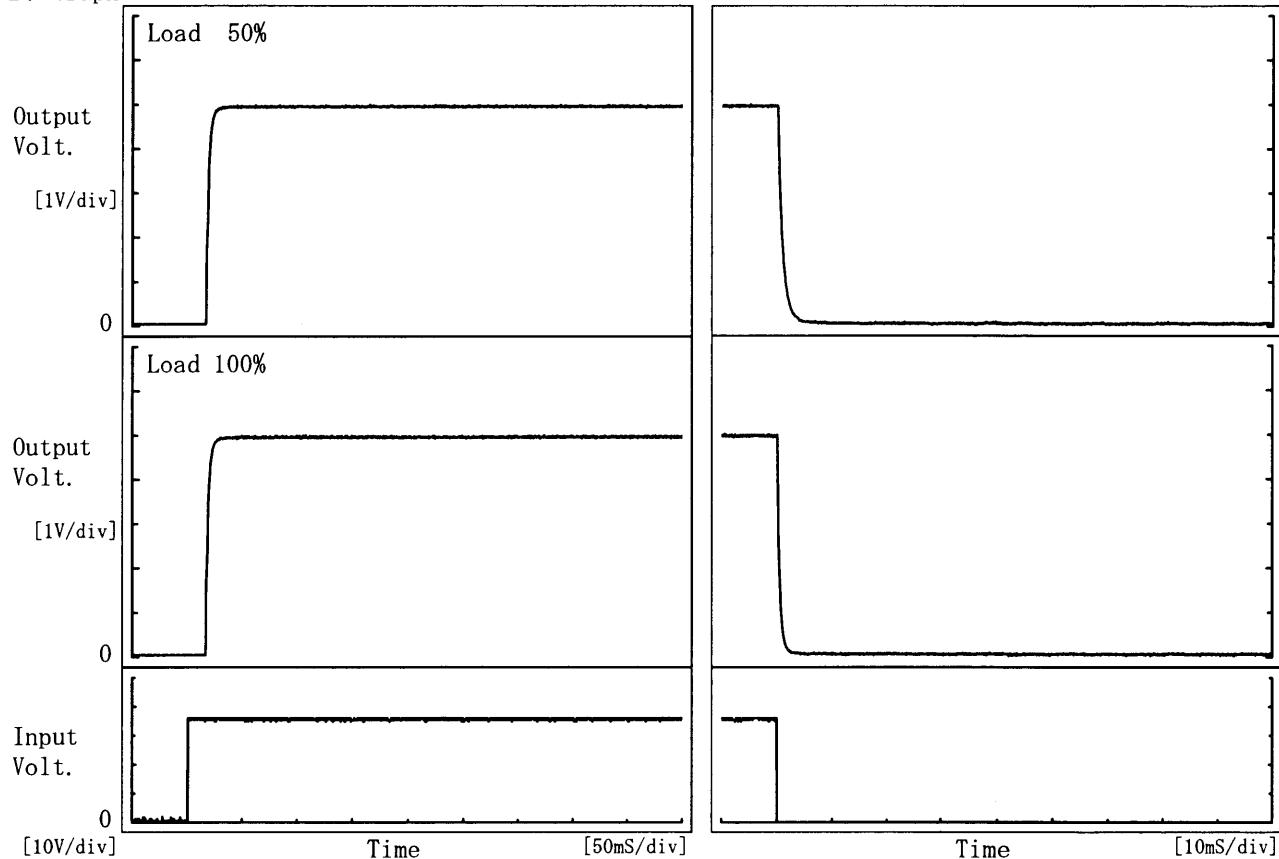
Item Rise and Fall Time
立上り、立下り時間

Object +5V30A

Temperature 25°C
Testing Circuitry Figure A

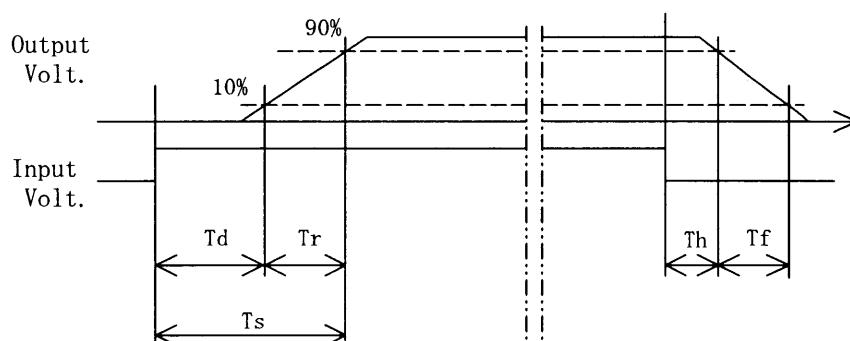
1. Graph

Input Volt. 36 V



2. Values

Load	Time	T _d	T _r	T _s	T _h	T _f	[mS]
50 %		16.3	5.5	21.8	0.1	2.1	
100 %		16.3	5.5	21.8	0.1	1.1	



Model	CBS2004805																																																					
Item	Ambient Temperature Drift 周囲温度変動																																																					
Object	+5V30A																																																					
1. Graph	<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																																					
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Note: Slanted line shows the range of the rated ambient temperature.

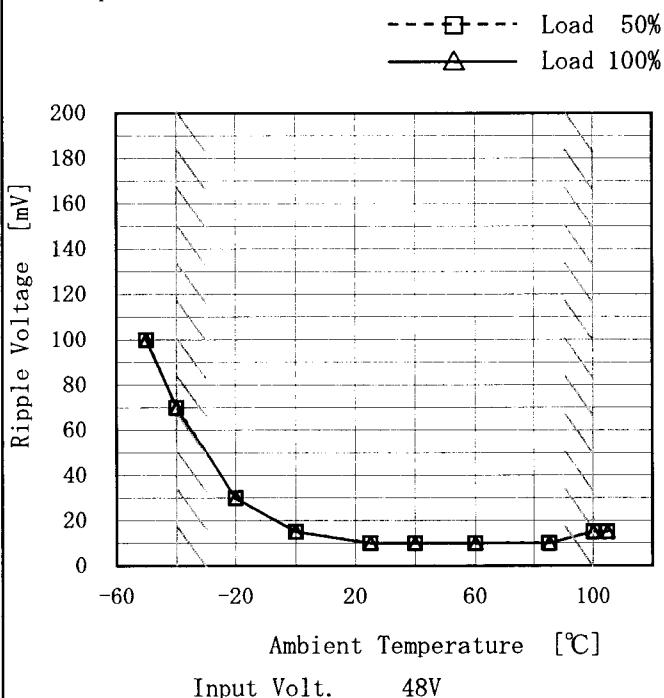
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		Testing Circuitry Figure A																																							
Model	CBS2004805																																								
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧																																								
Object	+5V30A																																								
1. Graph		2. Values																																							
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<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>																																									

COSEL

Model	CBS2004805
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+5V30A

1. Graph



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

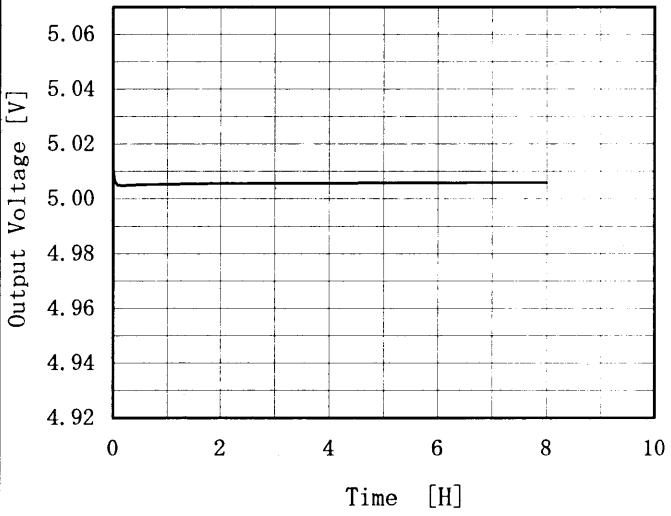
(注) 斜線は定格周囲温度範囲を示す。

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	100	100
-40	70	70
-20	30	30
0	15	15
25	10	10
40	10	10
60	10	10
85	10	10
100	15	15
105	15	15
—	—	—

COSEL

Model	CBS2004805	Temperature	25°C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	+5V30A																								
1. Graph		2. Values																							
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V</p> <p>Load 100%</p>		<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.012</td></tr> <tr><td>0.5</td><td>5.005</td></tr> <tr><td>1.0</td><td>5.005</td></tr> <tr><td>2.0</td><td>5.006</td></tr> <tr><td>3.0</td><td>5.006</td></tr> <tr><td>4.0</td><td>5.006</td></tr> <tr><td>5.0</td><td>5.006</td></tr> <tr><td>6.0</td><td>5.006</td></tr> <tr><td>7.0</td><td>5.006</td></tr> <tr><td>8.0</td><td>5.006</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	5.012	0.5	5.005	1.0	5.005	2.0	5.006	3.0	5.006	4.0	5.006	5.0	5.006	6.0	5.006	7.0	5.006	8.0	5.006
Time since start [H]	Output Voltage [V]																								
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6.0	5.006																								
7.0	5.006																								
8.0	5.006																								



Model	CBS2004805	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+5V30A	

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 : -40 ~ 100°C

Input Voltage : 36 ~ 76V

Load Current : 0 ~ 30A

* 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 : -40 ~ 100°C

入力電圧 : 36 ~ 76V

負荷電流 : 0 ~ 30A

* 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 [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	36	0	5.015	±17	±0.3
Minimum Voltage	100	76	30	4.982		



Model	CBS2004805	Testing Circuitry Figure A
Item	Condense 結露特性	
Object	+5V30A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C 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°C 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°C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°C、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]	5.021	Input Volt.:48V, Load Current.:30A
Line Regulation [mV]	1	Input Volt.:36~76V, Load Current.:30A
Load Regulation [mV]	1	Input Volt.:48V, Load Current.:0~30A



Model	CBS2004805	Temperature Testing Circuitry	25°C Figure B
Item	Line Noise Tolerance 入力雑音耐量		
Object	+5V30A		

1. Conditions

- Input Voltage : 48 V
- Pulse Input Duration : 1 min. or more
- Pulse Voltage : 2000 V
- Load : 100 %
- Pulse Cycle : 16.7 mS

2. Results

Pulse Width [nS]	MODE	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
		POLARITY	保護回路の誤動作がない	
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

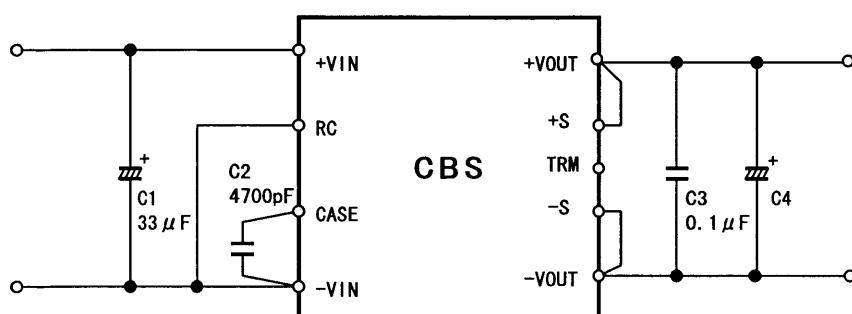
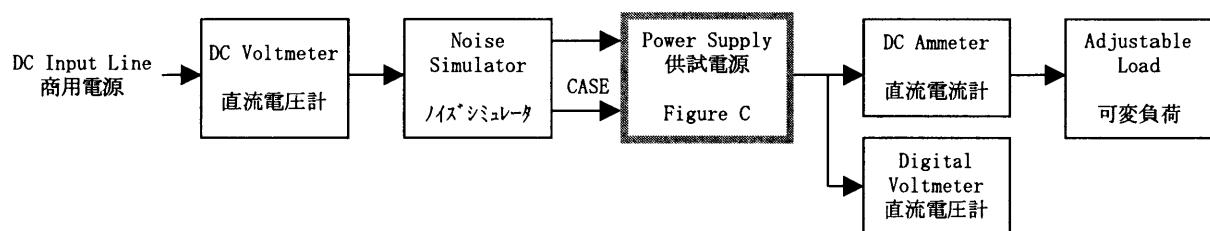
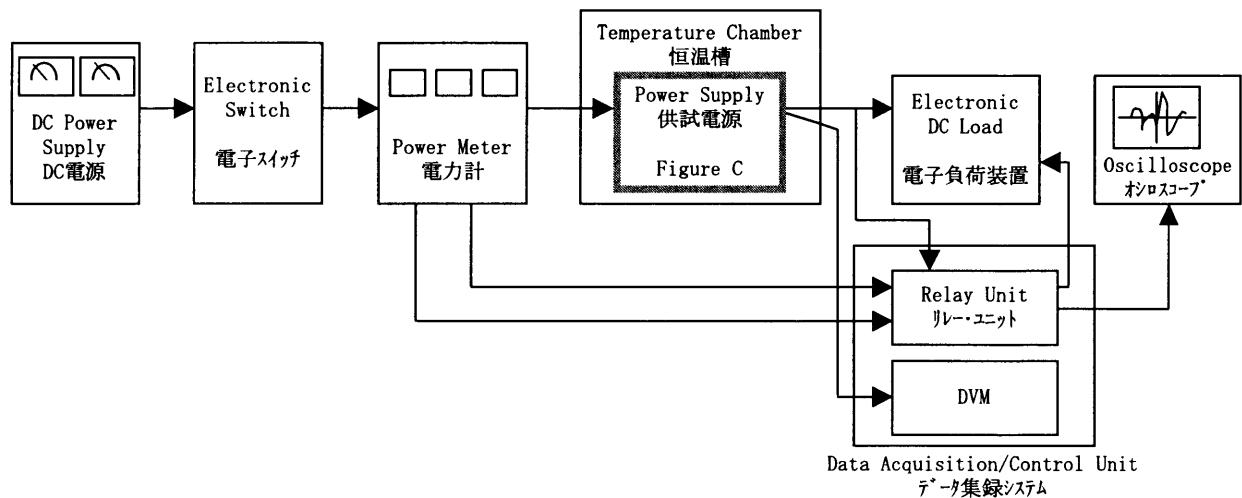


Figure C

C1 : 100V 33 μ F

C2 : 4700pF

C3 : 50V 0.1 μ F(-40°C ≤ T_B ≤ -20°C)

C4 : CBS2004803, 05	10V 2200 μ F × 2	(-20°C < T _B ≤ 100°C)
CBS2004812, 15	25V 1000 μ F × 2	C4 : CBS2004803, 05 10V 2200 μ F
CBS2004824, 28	35V 470 μ F × 2	CBS2004812, 15 25V 1000 μ F

C4 : CBS2004803, 05	10V 2200 μ F
CBS2004812, 15	25V 1000 μ F
CBS2004824, 28	35V 470 μ F

T_B:Base Plate Temp.