



TEST DATA OF CBS504805

(48V INPUT)

Regulated DC Power Supply
Feb. 27, 2001

Approved by : Takayuki Fukuda
Takayuki Fukuda Design Manager

Prepared by : Atsushi Yoshiyama
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コーセル株式会社
COSEL CO.,LTD.

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Model	CBS504805																																		
Item	Line Regulation 静の入力変動	Temperature	25℃																																
Object	+5V10A	Testing Circuitry	Figure A																																
1. Graph		2. Values																																	
<div><div>---□---</div><div>Load 50%</div><div>—△—</div><div>Load 100%</div></div> <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>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>33</td><td>5.076</td><td>5.077</td></tr><tr><td>36</td><td>5.076</td><td>5.077</td></tr><tr><td>40</td><td>5.076</td><td>5.077</td></tr><tr><td>48</td><td>5.076</td><td>5.076</td></tr><tr><td>55</td><td>5.076</td><td>5.077</td></tr><tr><td>60</td><td>5.076</td><td>5.076</td></tr><tr><td>70</td><td>5.076</td><td>5.076</td></tr><tr><td>76</td><td>5.076</td><td>5.076</td></tr><tr><td>80</td><td>5.076</td><td>5.076</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	33	5.076	5.077	36	5.076	5.077	40	5.076	5.077	48	5.076	5.076	55	5.076	5.077	60	5.076	5.076	70	5.076	5.076	76	5.076	5.076	80	5.076	5.076
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COSEL

Model		CBS504805	
Item		Load Regulation 静的負荷変動	
Object		+5V10A	

1. Graph

—△—

Input Volt.

36V

---□---

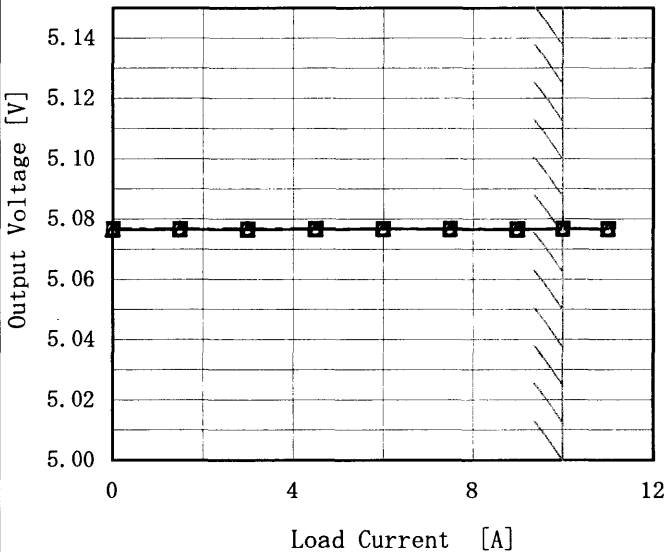
Input Volt.

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]
0.0	5.077	5.077	5.077
1.5	5.077	5.077	5.077
3.0	5.077	5.077	5.077
4.5	5.077	5.077	5.077
6.0	5.077	5.077	5.077
7.5	5.077	5.077	5.077
9.0	5.077	5.077	5.077
10.0	5.077	5.077	5.077
11.0	5.077	5.077	5.077
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COSEL

Model	CBS504805		
Item	Ripple Voltage (by Load Current) リップル電圧 (負荷特性)	Temperature	25℃
Object	+5V10A	Testing Circuitry	Figure A
1. Graph		2. Values	
<div><div><div><div></div><div>△</div><div>Input Volt. 36V</div></div><div><div>---○---</div><div>Input Volt. 76V</div></div></div><div><div><div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div><div><div>Ripple Voltage [mV]</div><div></div><div></div><div></div><div></div><div></div></div><div><div>0</div><div>4</div><div>8</div><div>12</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>Load Current [A]</div></div></div></div></div> <div><div>Ripple Voltage is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div><div>リップル電圧は、下図 p - p 値で示される。</div><div>(注) 斜線は定格負荷電流範囲を示す。</div></div> <div><div>Ripple [mVp-p]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div></div></div> <div><div>Fig. Complex Ripple Wave Form</div><div>図 リップル波形図</div></div>			

COSEL

ModelCBS504805		Temperature25℃ Testing CircuitryFigure A
Item	Ripple-Noise リップルノイズ	
Object	+5V10A	

1. Graph

—△—Input Volt. 36V

- -○- -Input Volt. 76V

Ripple-Noise [mV]

200

180

160

140

120

100

80

60

40

20

0

0

4

8

12

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。

Ripple Noise[mVp-p]

COSEL

Model	CBS504805																																																													
Item	Overcurrent Protection 過電流保護	Temperature	25℃																																																											
Object	+5V10A	Testing Circuitry	Figure A																																																											
1. Graph		2. Values																																																												
<div><div>————— Input Volt. 36V</div><div>..... Input Volt. 48V</div><div>- - - - - Input Volt. 76V</div></div> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p> <p>Intermittent operation occurs when the output voltage is from 3.2V to 0V.</p> <p>3.2V～0V間は、間欠モードとなる。</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>5.00</td><td>10.56</td><td>10.35</td><td>10.35</td></tr><tr><td>4.75</td><td>14.00</td><td>13.41</td><td>13.36</td></tr><tr><td>4.50</td><td>13.91</td><td>13.43</td><td>13.42</td></tr><tr><td>4.00</td><td>13.84</td><td>13.49</td><td>13.55</td></tr><tr><td>3.50</td><td>13.79</td><td>13.52</td><td>13.69</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><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>		Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	5.00	10.56	10.35	10.35	4.75	14.00	13.41	13.36	4.50	13.91	13.43	13.42	4.00	13.84	13.49	13.55	3.50	13.79	13.52	13.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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COSEL

Model		CBS504805
Item		Overvoltage Protection 過電圧保護
Object		+5V10A

1. Graph

—△—

Input Volt. 36V

---□---

Input Volt. 48V

-○-

Input Volt. 76V

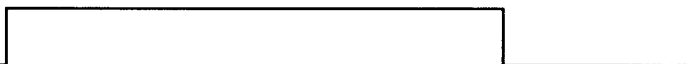
Operating Point [V]



Model	CBS504805	Temperature	25°C
Item	Dynamic Load Response 動的負荷変動	Testing Circuitry	Figure A
Object	+5V10A		

Input Volt. 48 V
Cycle 1000 ms

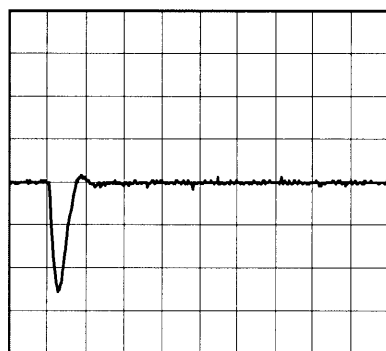
Load Current



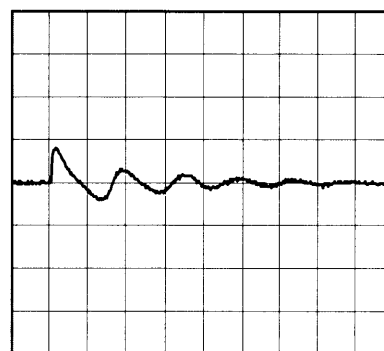
Min. Load (0A) \longleftrightarrow

Load 100% (10A)

200 mV/div



500 μ s/div

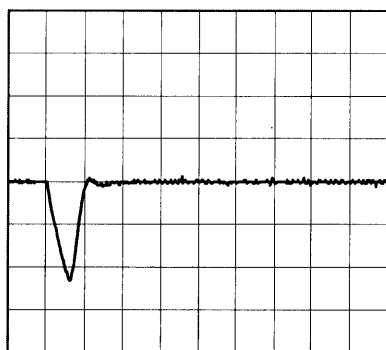


5 ms/div

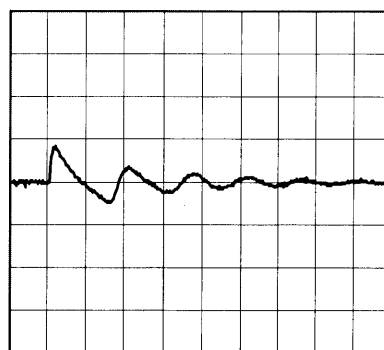
Min. Load (0A) \longleftrightarrow

Load 50% (5A)

200 mV/div



500 μ s/div

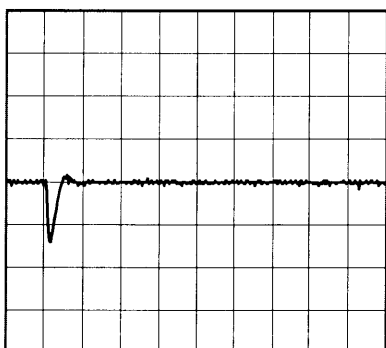


5 ms/div

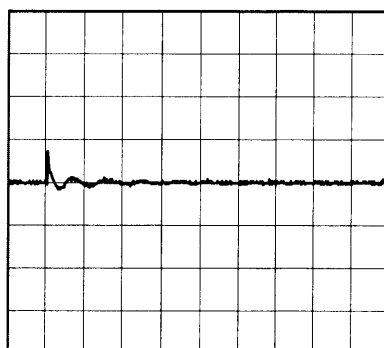
Load 10% (1A) \longleftrightarrow

Load 100% (10A)

200 mV/div



500 μ s/div



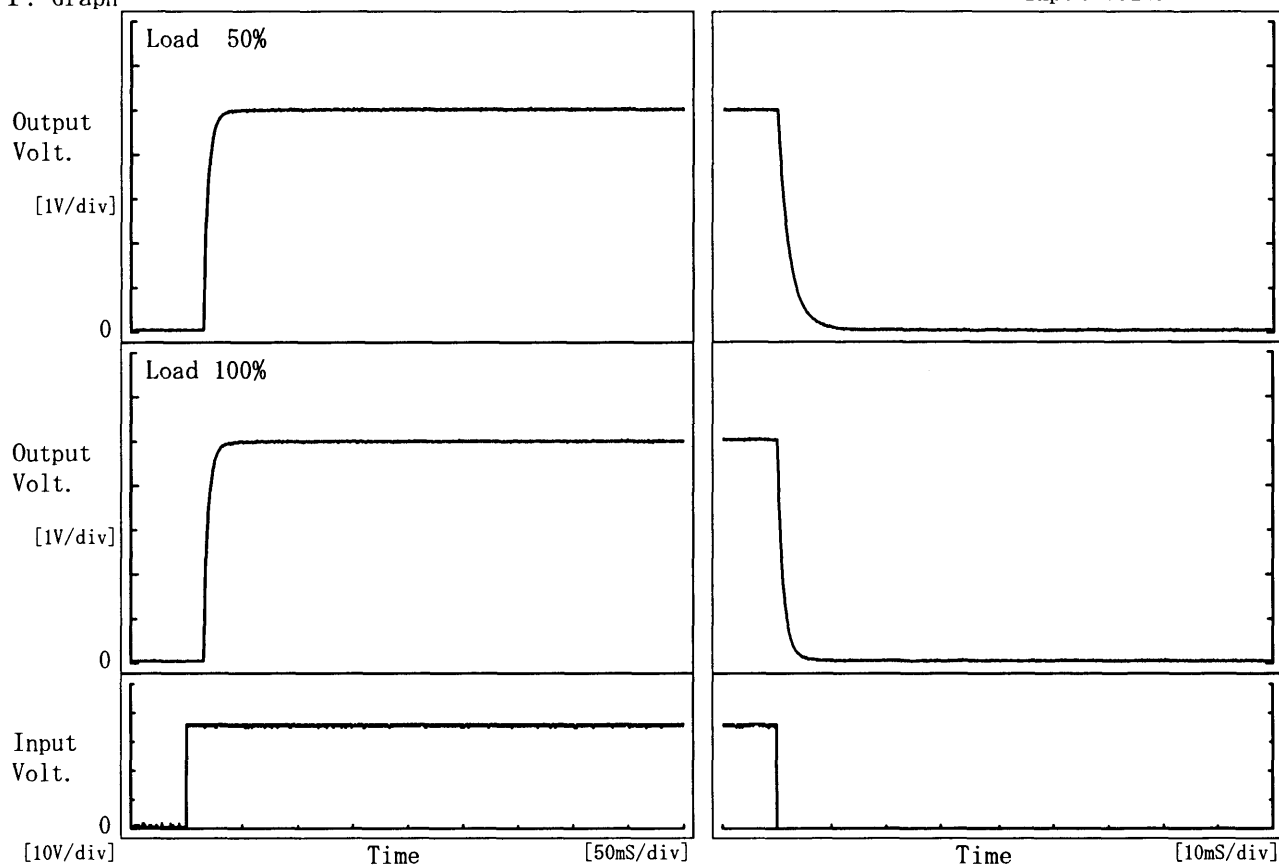
5 ms/div

COSEL

Model	CBS504805	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+5V10A		

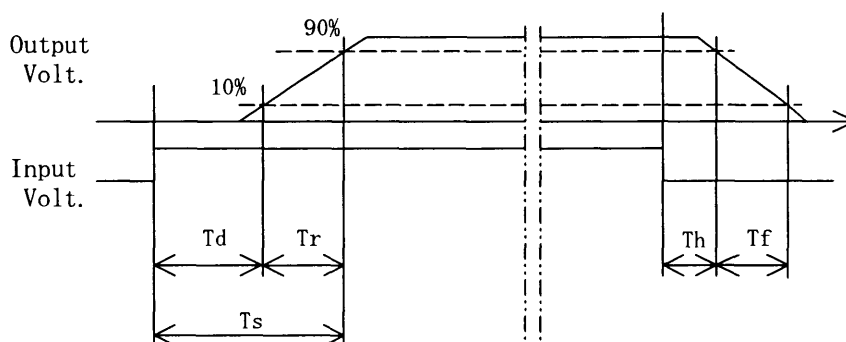
1. Graph

Input Volt. 36 V



2. Values

		[mS]				
Load	Time	T d	T r	T s	T h	T f
50 %		15.3	9.0	24.3	0.3	4.9
100 %		15.3	9.0	24.3	0.2	2.5



COSEL

Model		CBS504805	
Item		Ambient Temperature Drift 周囲温度変動	
Object		+5V10A	

1. Graph

—△—

Input Volt. 36V

---□---

Input Volt. 48V

---○---

Input Volt. 76V

Output Voltage [V]

Ambient Temperature [°C]

Load 100%

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-50	5.068	5.068	5.068
-40	5.071	5.071	5.071
-20	5.076	5.076	5.076
0	5.082	5.082	5.082
25	5.085	5.085	5.085
40	5.083	5.083	5.083
60	5.080	5.080	5.080
85	5.074	5.074	5.074
100	5.070	5.070	5.069
105	5.067	5.067	5.067
--	-	-	-

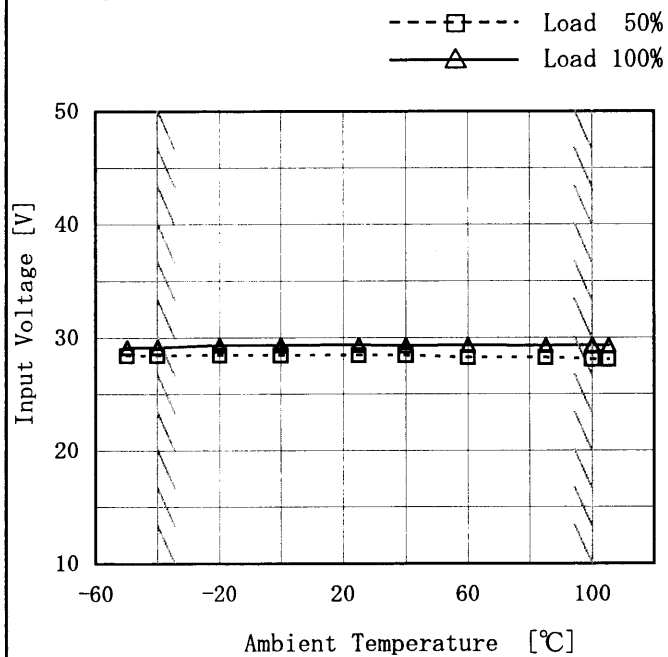
Note: Slanted line shows the range of the rated ambient temperature.

(注) 斜線は定格周囲温度範囲を示す。

COSEL

Model	CBS504805
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5V10A

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

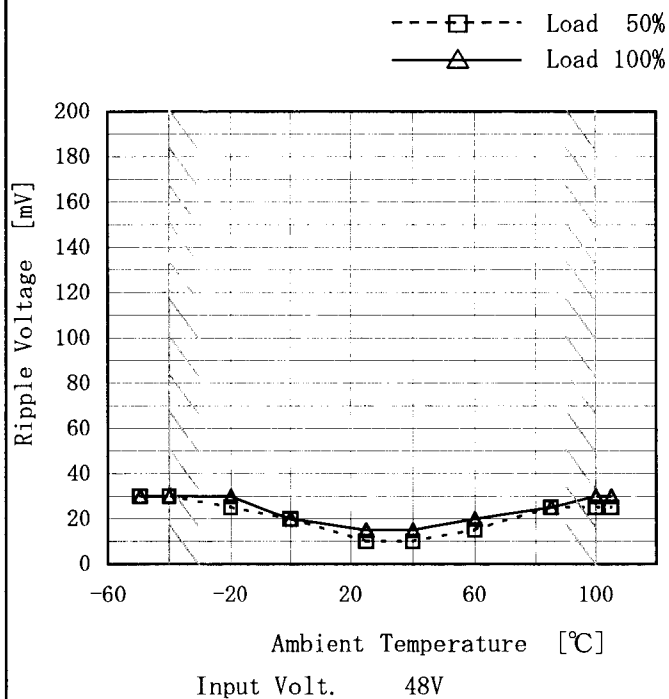
2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	28.4	29.1
-40	28.4	29.1
-20	28.5	29.3
0	28.5	29.3
25	28.5	29.4
40	28.4	29.3
60	28.2	29.4
85	28.2	29.3
100	28.1	29.3
105	28.1	29.3
--	-	-

COSEL

Model	CBS504805
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+5V10A

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	30	30
-40	30	30
-20	25	30
0	20	20
25	10	15
40	10	15
60	15	20
85	25	25
100	25	30
105	25	30
--	—	—

COSEL

Model		CBS504805		Temperature		25℃	
Item		Time Lapse Drift 経時ドリフト		Testing Circuitry		Figure A	
Object		+5V10A					
1. Graph				2. Values			
<div><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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Model	CBS504805		
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry	Figure A
Object	+5V10A		

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℃

Input Voltage : 36 ~ 76V

Load Current : 0 ~ 10A

* Output Voltage Accuracy = ± (Maximum of Output Voltage - 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 : -40 ~ 100℃

入力電圧 : 36 ~ 76V

負荷電流 : 0 ~ 10A

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

2. Values

Item	Temperature [℃]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	36	0	5.084	±9	±0.2
Minimum Voltage	100	76	10	5.067		

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BC-3322

COSEL

Model		CBS504805	Testing Circuitry Figure A
Item		Condense 結露特性	
Object		+5V10A	

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]	5.082	Input Volt. : 48V, Load Current. : 10A
Line Regulation [mV]	1	Input Volt. : 36~76V, Load Current. : 10A
Load Regulation [mV]	1	Input Volt. : 48V, Load Current. : 0~10A

COSEL

Model	CBS504805	Temperature 25°C Testing Circuitry Figure B
Item	Line Noise Tolerance 入力雑音耐量	
Object	+5V10A	

1. Conditions

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

2. Results

Pulse Width [ns]	MODE		No protection failure should occur	DC-like Regulation of Output Voltage
		POLARITY	保護回路の誤動作がない	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

COSEL

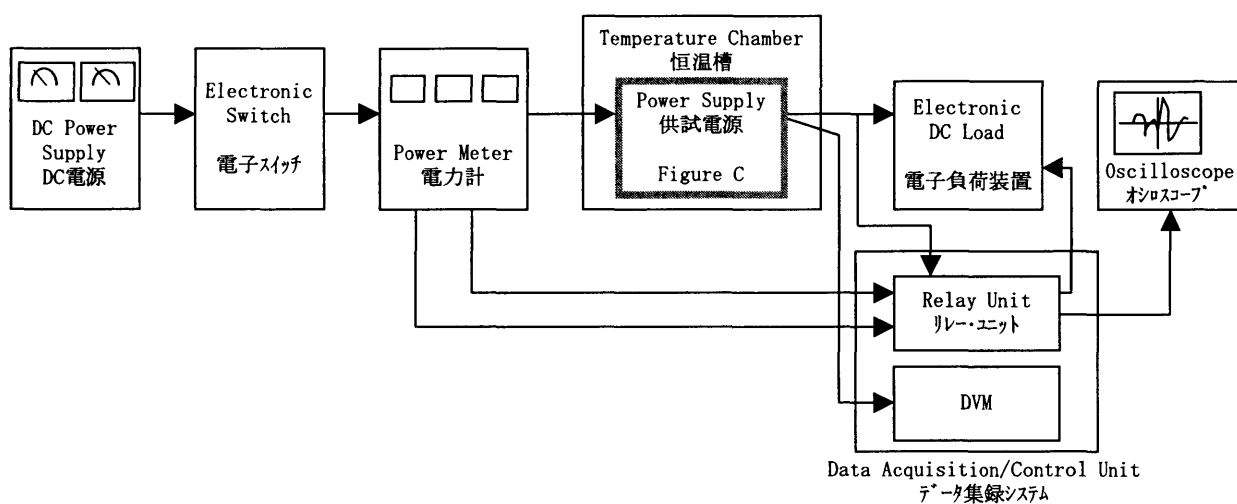


Figure A

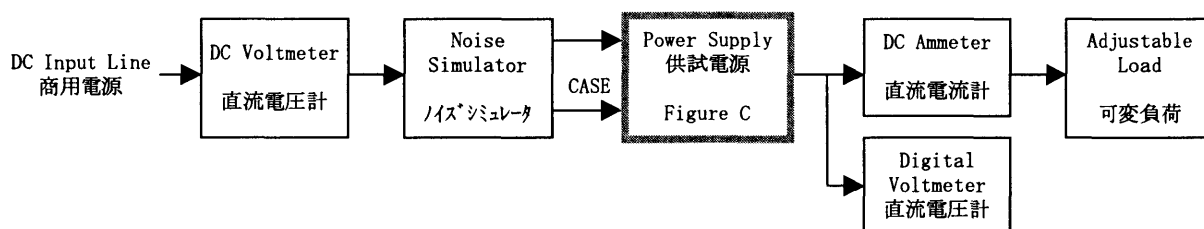


Figure B

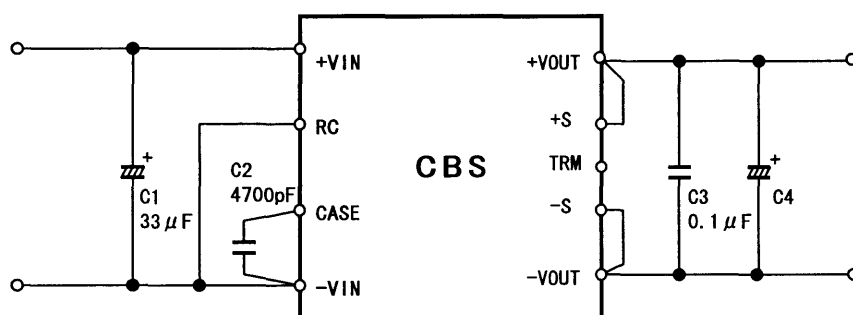


Figure C

C1 : 100V 33 μ F

C2 : 4700pF

C3 : 50V 0.1 μ F $(-40^{\circ}\text{C} \leq T_B \leq -20^{\circ}\text{C})$ C4 : CBS504803, 05 10V 2200 μ F $\times 2$ CBS504812, 15 35V 470 μ F $\times 2$ CBS504824, 28 35V 220 μ F $\times 2$ $(-20^{\circ}\text{C} < T_B \leq 100^{\circ}\text{C})$ C4 : CBS504803, 05 10V 2200 μ FCBS504812, 15 35V 470 μ FCBS504824, 28 35V 220 μ F T_B : Base Plate Temp.