



TEST DATA OF CDS4004815

(48V INPUT)

Regulated DC Power Supply
Apr. 2, 2002

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コーセル株式会社
COSEL CO.,LTD.

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Model		CDS4004815																																																																								
Item	Input Current (by Input Voltage) 入力電流 (入力電圧特性)																																																																									
Object																																																																										
1. Graph		2. Values																																																																								
<div><div>—△— Load 100%</div><div>---□--- Load 50%</div><div>---○--- Load 0%</div></div> <p>Input Current [A]</p> <p>Input Voltage [V]</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Load 0%</th><th>Load 50%</th><th>Load 100%</th></tr><tr><td>0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>25</td><td>0.017</td><td>0.015</td><td>0.016</td></tr><tr><td>30</td><td>0.094</td><td>9.886</td><td>18.222</td></tr><tr><td>33</td><td>0.089</td><td>8.805</td><td>17.837</td></tr><tr><td>36</td><td>0.085</td><td>7.998</td><td>16.233</td></tr><tr><td>40</td><td>0.080</td><td>7.171</td><td>14.512</td></tr><tr><td>48</td><td>0.069</td><td>6.012</td><td>12.074</td></tr><tr><td>54</td><td>0.065</td><td>5.361</td><td>10.715</td></tr><tr><td>60</td><td>0.063</td><td>4.838</td><td>9.664</td></tr><tr><td>68</td><td>0.060</td><td>4.295</td><td>8.528</td></tr><tr><td>76</td><td>0.059</td><td>3.868</td><td>7.645</td></tr><tr><td>80</td><td>0.057</td><td>3.688</td><td>7.271</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>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0	0.000	0.000	0.000	25	0.017	0.015	0.016	30	0.094	9.886	18.222	33	0.089	8.805	17.837	36	0.085	7.998	16.233	40	0.080	7.171	14.512	48	0.069	6.012	12.074	54	0.065	5.361	10.715	60	0.063	4.838	9.664	68	0.060	4.295	8.528	76	0.059	3.868	7.645	80	0.057	3.688	7.271	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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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		CDS4004815	
Item		Input Current (by Load Current) 入力電流 (負荷特性)	
Object			
1. Graph		2. Values	

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Model		CDS4004815	
Item		Efficiency (by Input Voltage) 効率 (入力電圧特性)	
Object			

1. Graph

□

Load 50%

—

△

—

Load 100%

Efficiency [%]

96

92

88

84

80

76

72

20

40

60

80

100

Input Voltage [V]

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	89.7	87.8
36	90.6	88.5
40	91.0	89.0
48	90.8	89.1
54	90.4	89.2
60	90.0	89.1
68	89.5	89.0
76	88.8	88.8
80	88.5	88.6

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。

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Model		CDS4004815	
Item		Efficiency (by Load Current) 効率 (負荷特性)	
Object			

1. Graph

—△—

Input Volt. 36V

---□---

Input Volt. 48V

-·-○-·-

Input Volt. 76V

Efficiency [%]

Load Current [A]	36V Efficiency [%]	48V Efficiency [%]	76V Efficiency [%]
6.0	86.0	86.4	81.1
12.0	90.0	90.2	87.3
18.0	90.6	90.8	89.0
24.0	90.2	90.5	89.4
30.0	89.3	89.8	89.2
34.0	88.6	89.2	88.8
37.4	87.7	88.6	88.4

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。

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	—	—	—
6.0	86.0	86.4	81.1
12.0	90.0	90.2	87.3
18.0	90.6	90.8	89.0
24.0	90.2	90.5	89.4
30.0	89.3	89.8	89.2
34.0	88.6	89.2	88.8
37.4	87.7	88.6	88.4
--	—	—	—
--	—	—	—
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Model		CDS4004815	
Item	Ripple Voltage (by Load Current) リップル電圧 (負荷特性)		Temperature 25℃ Testing Circuitry Figure A
Object	+15V34A		

1. Graph

—△— Input Volt. 36V

- -○- - Input Volt. 76V

Ripple Voltage [mV]

140

120

100

80

60

40

20

0

0

10

20

30

40

Load Current [A]

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

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	10	20
6.0	20	25
12.0	20	30
17.0	25	30
23.0	25	30
29.0	25	30
34.0	25	30
37.4	25	30
—	—	—
—	—	—
—	—	—

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	10	20
6.0	20	25
12.0	20	30
17.0	25	30
23.0	25	30
29.0	25	30
34.0	25	30
37.4	25	30
—	—	—
—	—	—
—	—	—

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Model	CDS4004815	Temperature	25°C
Item	Ripple-Noise リップルノイズ	Testing Circuitry	Figure A
Object	+15V34A		

1. Graph

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

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。

Ripple Noise[mVp-p]




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

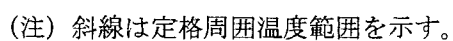
2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	20	25
6.0	40	30
12.0	50	45
17.0	50	45
23.0	55	50
29.0	55	50
34.0	55	55
37.4	60	60
—	—	—
—	—	—
—	—	—

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Model	CDS4004815																																																													
Item	Overcurrent Protection 過電流保護	Temperature	25℃																																																											
Object	+15V34A	Testing Circuitry	Figure A																																																											
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<div><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></div> <div>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。</div> <div>Intermittent operation occurs when the output voltage is from 9V to 0V. 9V~0V間は、間欠モードとなる。</div>		<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>15.00</td><td>40.81</td><td>40.60</td><td>41.22</td></tr><tr><td>14.25</td><td>40.77</td><td>40.74</td><td>41.53</td></tr><tr><td>13.50</td><td>40.75</td><td>40.84</td><td>41.80</td></tr><tr><td>12.00</td><td>40.83</td><td>41.05</td><td>42.26</td></tr><tr><td>10.50</td><td>41.08</td><td>41.24</td><td>42.66</td></tr><tr><td>9.00</td><td>41.20</td><td>41.37</td><td>43.06</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]	15.00	40.81	40.60	41.22	14.25	40.77	40.74	41.53	13.50	40.75	40.84	41.80	12.00	40.83	41.05	42.26	10.50	41.08	41.24	42.66	9.00	41.20	41.37	43.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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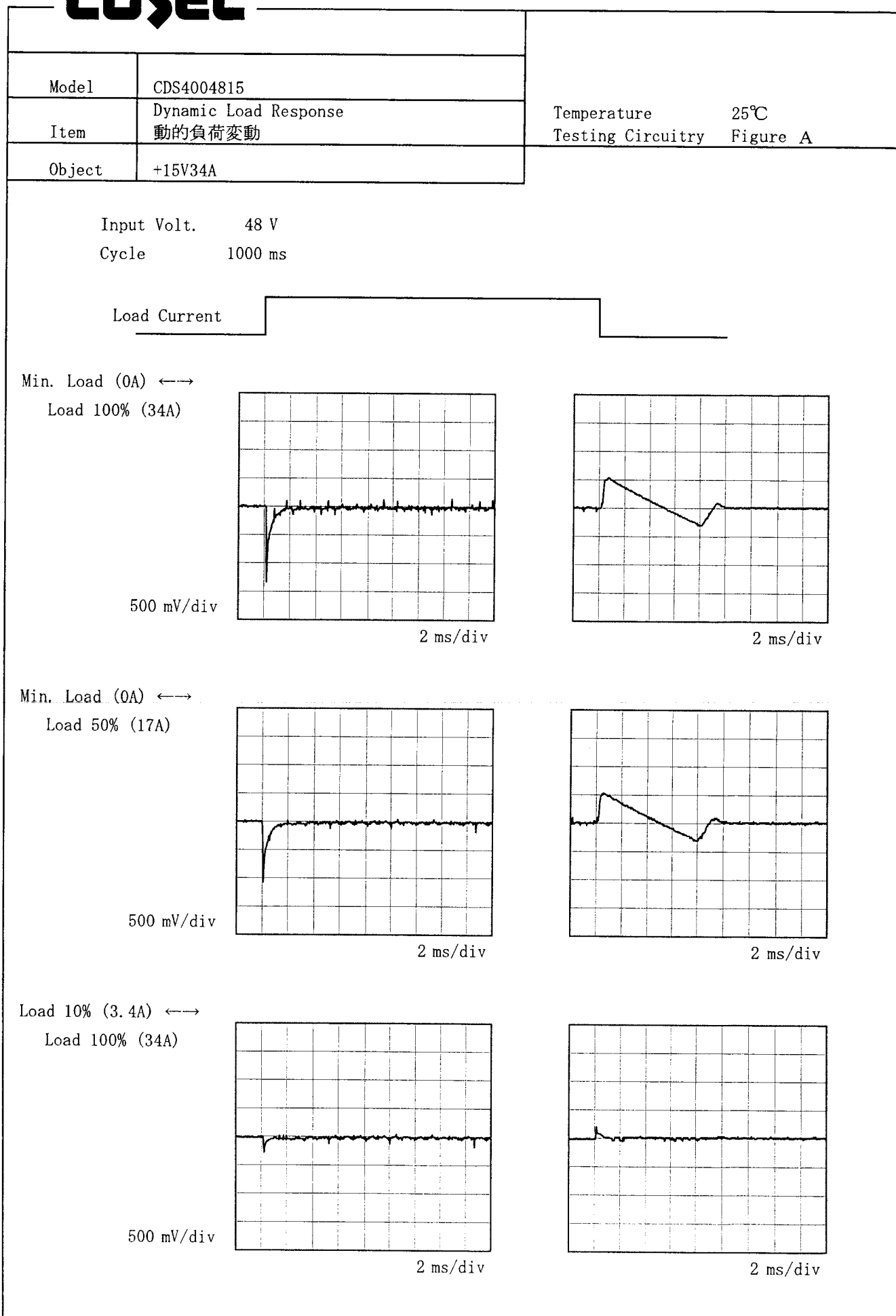
1. Graph		Input Volt. 36V
		Input Volt. 48V
		Input Volt. 76V



2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-35	19.15	19.15	19.15
-20	19.26	19.15	19.15
0	19.26	19.26	19.26
15	19.38	19.38	19.38
25	19.44	19.44	19.44
40	19.44	19.44	19.44
55	19.55	19.56	19.56
70	19.67	19.67	19.67
85	19.73	19.73	19.73
90	19.72	19.73	19.73
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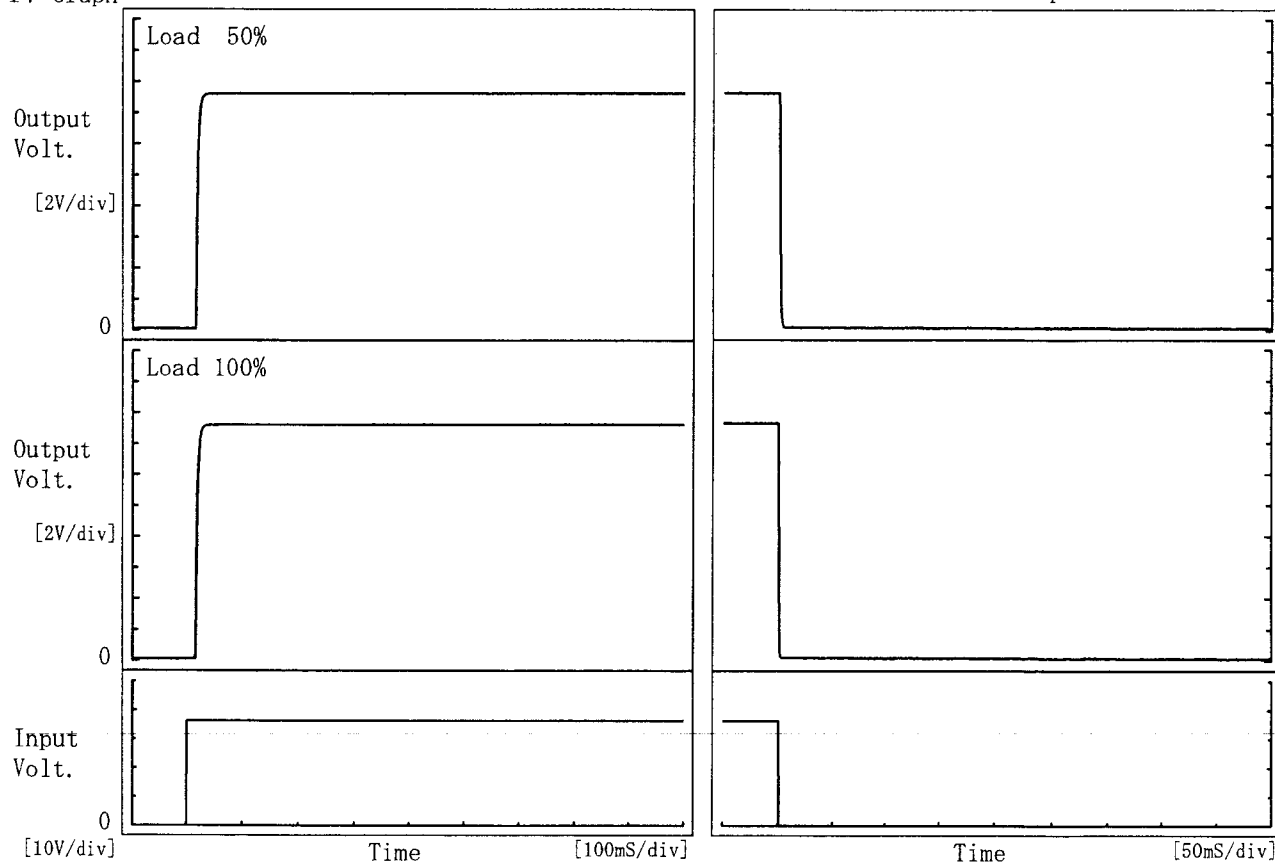


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Model	CDS4004815	Temperature	25℃
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+15V34A		

1. Graph

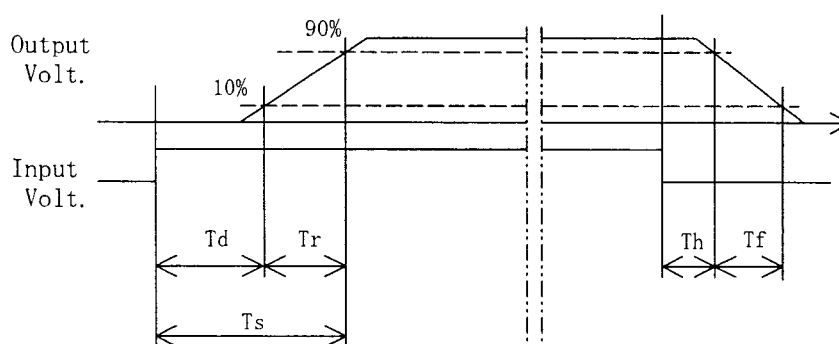
Input Volt. 36 V



2. Values

[mS]

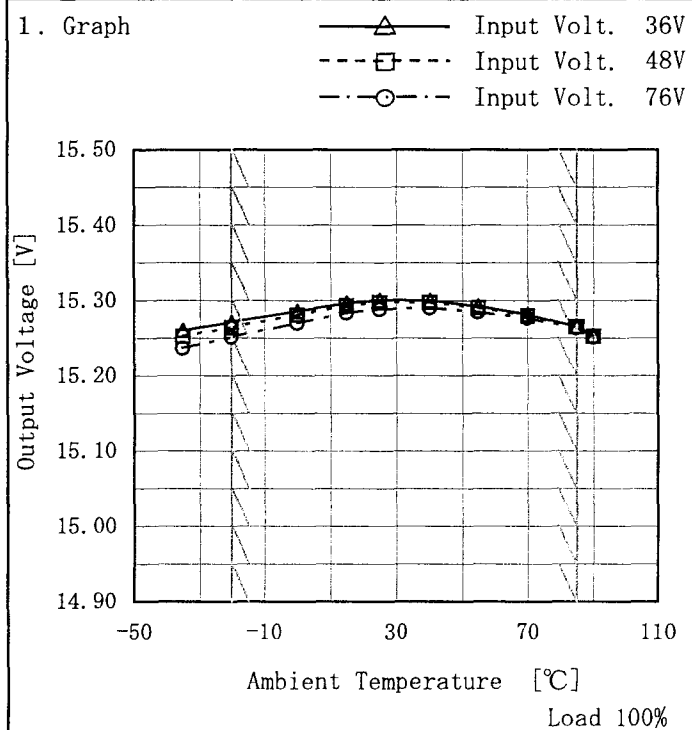
Load \ Time	T d	T r	T s	T h	T f
50 %	15.5	5.5	21.0	0.5	1.5
100 %	15.5	5.5	21.0	0.3	1.0



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Model	CDS4004815
Item	Ambient Temperature Drift 周囲温度変動
Object	+15V34A

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]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-35	15.261	15.252	15.236
-20	15.271	15.265	15.251
0	15.286	15.281	15.270
15	15.297	15.293	15.283
25	15.301	15.297	15.288
40	15.300	15.297	15.290
55	15.293	15.290	15.285
70	15.282	15.280	15.277
85	15.266	15.265	15.263
90	15.253	15.253	15.252
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Model		CDS4004815	
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)	
Object		+15V34A	

1. Graph

---□---

Load 50%

—△—

Load 100%

140

120

100

80

60

40

20

0

50

100

150

0

20

40

60

80

100

120

140

0

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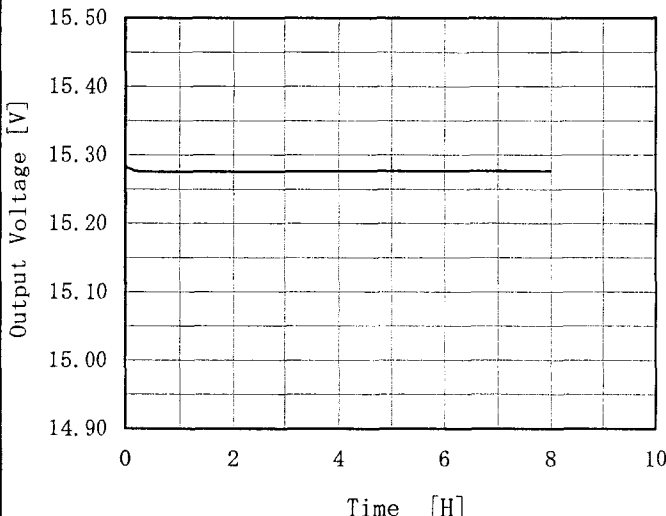
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COSEL

Model	CDS4004815																								
Item	Time Lapse Drift 経時ドリフト	Temperature	25℃																						
		Testing Circuitry	Figure A																						
Object	+15V34A																								
1. Graph		2. Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 48V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>15.287</td></tr><tr><td>0.5</td><td>15.276</td></tr><tr><td>1.0</td><td>15.276</td></tr><tr><td>2.0</td><td>15.276</td></tr><tr><td>3.0</td><td>15.276</td></tr><tr><td>4.0</td><td>15.277</td></tr><tr><td>5.0</td><td>15.277</td></tr><tr><td>6.0</td><td>15.277</td></tr><tr><td>7.0</td><td>15.277</td></tr><tr><td>8.0</td><td>15.277</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	15.287	0.5	15.276	1.0	15.276	2.0	15.276	3.0	15.276	4.0	15.277	5.0	15.277	6.0	15.277	7.0	15.277	8.0	15.277
Time since start [H]	Output Voltage [V]																								
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BC-3419

COSEL

Model	CDS4004815	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+15V34A	

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°C

Input Voltage : 36 ~ 76V

Load Current : 0 ~ 34A

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

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

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°C

入力電圧 : 36 ~ 76V

負荷電流 : 0 ~ 34A

* 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	25	76	0	15.317	±33	±0.2
Minimum Voltage	-20	76	34	15.252		

COSEL

Model		CDS4004815	Testing Circuitry Figure A
Item		Condense 結露特性	
Object		+15V34A	

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]	15.270	Input Volt. :48V, Load Current. :34A
Line Regulation [mV]	13	Input Volt. :36~76V, Load Current. :34A
Load Regulation [mV]	20	Input Volt. :48V, Load Current. :0~34A

COSEL

Model		CDS4004815	Temperature 25°C Testing Circuitry Figure B	
Item		Line Noise Tolerance 入力雑音耐量		
Object		+15V34A		

1. Conditions

- Input Voltage : 48 V
- Pulse Voltage : 2000 V
- Pulse Cycle : 10 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

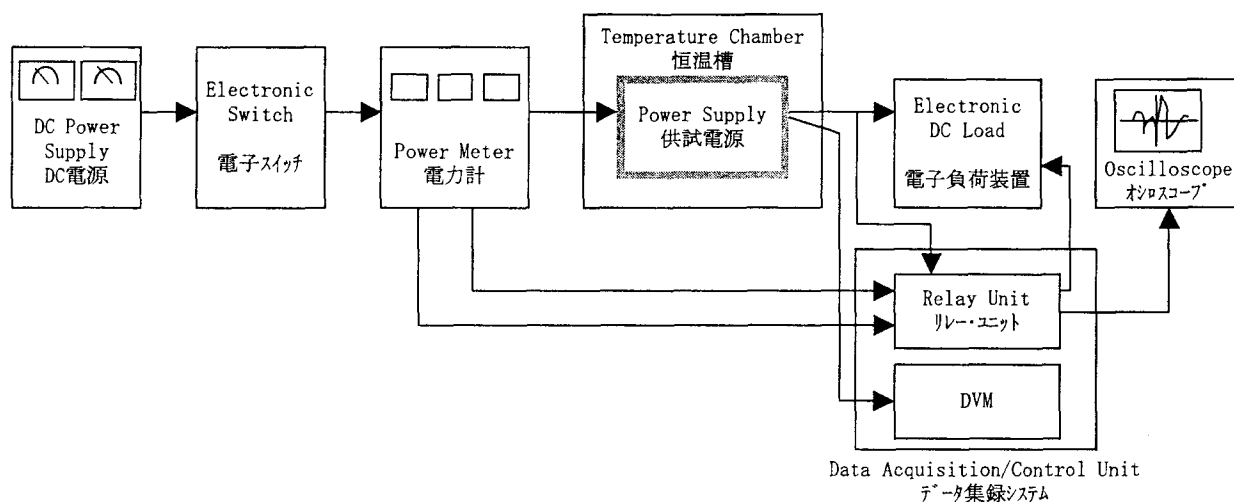


Figure A

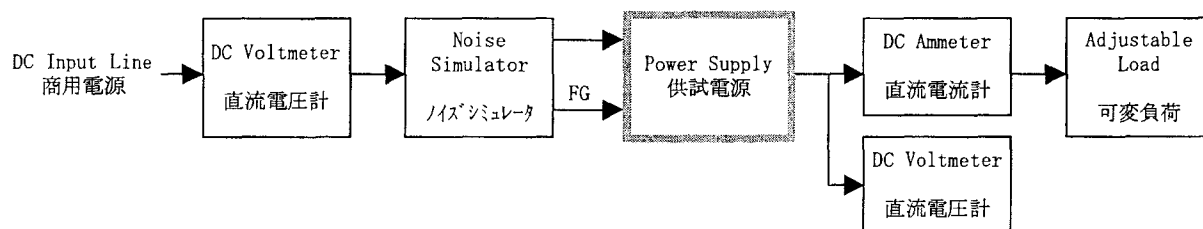


Figure B

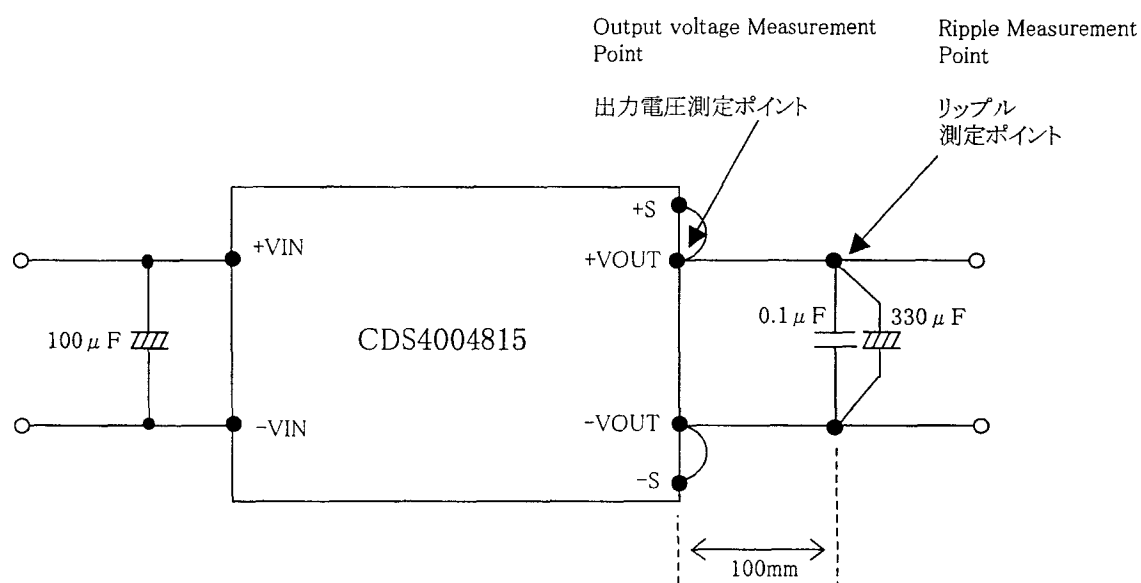


Figure C (General Electric Characteristic)
一般電気特性