

TEST DATA OF CDS6002428H

(24V INPUT)

Regulated DC Power Supply
July 16. 2002

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Kiyokazu Tajima Design Engineer

コーセル株式会社
COSEL CO.,LTD.

CONTENTS

1. Line Regulation	1
静的入力変動	
2. Input Current (by Input Voltage)	2
入力電流 (入力電圧特性)	
3. Input Current (by Load Current)	3
入力電流 (負荷特性)	
4. Input Power (by Load Current)	4
入力電力 (負荷特性)	
5. Efficiency (by Input Voltage)	5
効率 (入力電圧特性)	
6. Efficiency (by Load Current)	6
効率 (負荷特性)	
7. Load Regulation	7
静的負荷変動	
8. Ripple Voltage (by Load Current)	8
リップル電圧 (負荷特性)	
9. Ripple-Noise	9
リップルノイズ	
10. Overcurrent Protection	10
過電流保護	
11. Overvoltage Protection	11
過電圧保護	
12. Dynamic Load Response	12
動的負荷変動	
13. Rise and Fall Time	13
立上り、立下り時間	
14. Ambient Temperature Drift	14
周囲温度変動	
15. Minimum Input Voltage for Regulated Output Voltage	15
最低レギュレーション電圧	
16. Ripple Voltage (by Ambient Temperature)	16
リップル電圧 (周囲温度特性)	
17. Time Lapse Drift	17
経時ドリフト	
18. Output Voltage Accuracy	18
定電圧精度	
19. Condensation	19
結露特性	
20. Line Noise Tolerance	20
入力雑音耐量	
21. Figure of Testing Circuitry	21
測定回路図	

(Final Page 21)

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Model	CDS6002428H
Item	Line Regulation 静的入力変動
Object	+28V22A

1. Graph

Output Voltage [V]

Input Voltage [V]

Legend: ---□--- 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。

Temperature	25°C
Testing Circuitry	Figure A

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
19	28.008	28.013
21	28.016	28.013
24	28.022	28.014
27	28.029	28.018
30	28.035	28.019
33	28.040	28.020
36	28.043	28.021
39	28.046	28.022
—	—	—

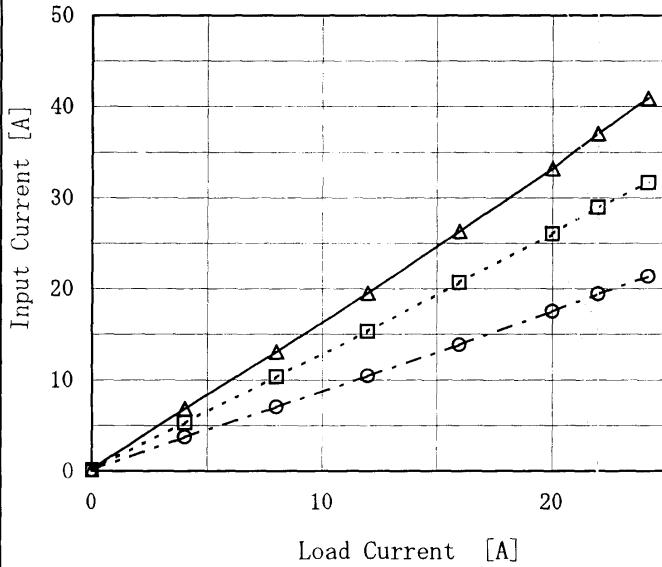
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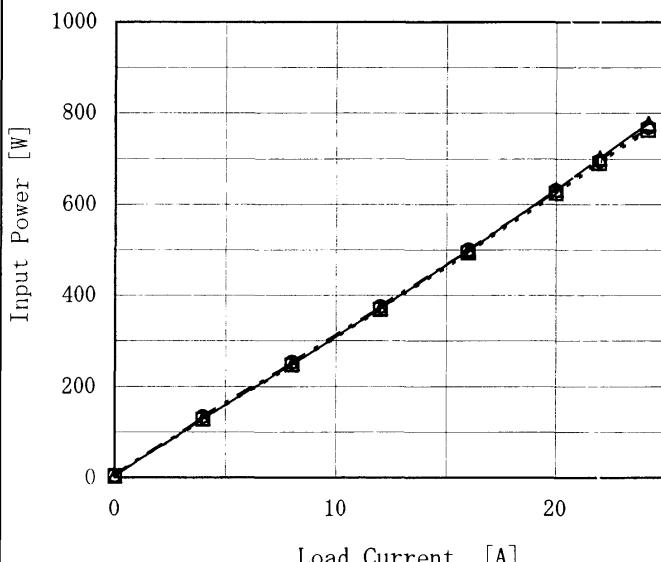
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Model	CDS6002428H
Item	Input Power (by Load Current) 入力電力 (負荷特性)
Object	_____
1. Graph	
<p style="text-align: center;"> △— Input Volt. 19V □--- Input Volt. 24V ○--- Input Volt. 36V </p> 	
<p>Note: Slanted line shows the range of the rated load current.</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p>	

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	2.8	3.0	3.8
4.0	129.4	127.5	133.0
8.0	248.7	246.9	253.4
12.0	371.0	368.5	374.9
16.0	498.7	494.2	500.3
20.0	632.4	623.5	630.0
22.0	701.4	690.2	695.7
24.2	777.5	762.5	769.1
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

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Item	Efficiency (by Input Voltage) 効率(入力電圧特性)	Temperature 25°C Testing Circuitry Figure A																																
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Note: Slanted line shows the range of the rated load current.

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CDS6002428H	
Model	CDS6002428H
Item	Load Regulation 靜的負荷變動
Object	+28V22A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

Legend:

- Input Volt. 19V (Open triangle)
- Input Volt. 24V (Open square)
- Input Volt. 36V (Open circle)

Load Current [A]	Output Voltage [V] (19V Input)	Output Voltage [V] (24V Input)	Output Voltage [V] (36V Input)
0	27.99	27.99	27.99
5	27.99	27.99	27.99
10	27.99	27.99	27.99
15	27.99	27.99	27.99
20	27.99	27.99	27.99
25	27.99	27.99	27.99

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

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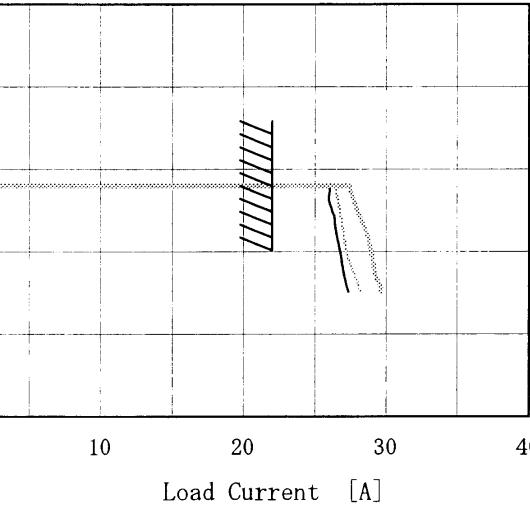
Load Current [A]	Output Voltage [V]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0. 0	27. 980	27. 984	27. 984
4. 0	27. 995	27. 997	27. 998
8. 0	27. 999	28. 013	28. 026
12. 0	27. 999	28. 010	28. 034
16. 0	28. 002	28. 009	28. 023
20. 0	28. 007	28. 012	28. 022
22. 0	28. 005	28. 010	28. 019
24. 2	28. 000	28. 006	28. 017
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COSEL

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Item	Ripple Voltage (by Load Current) リップル電圧 (負荷特性)	Temperature 25°C Testing Circuitry Figure A																																					
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<p>Ripple [mV_{p-p}]</p> <p>Fig. Complex Ripple Wave Form 図 リップル波形詳細図</p>																																							

COSEL

Model	CDS6002428H	Temperature	25°C																																						
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Object	+28V22A																																								
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COSEL

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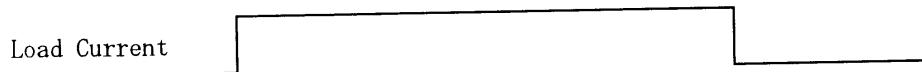
Note: Slanted line shows the range of the rated ambient temperature.

(注) 斜線は定格周囲温度範囲を示す。

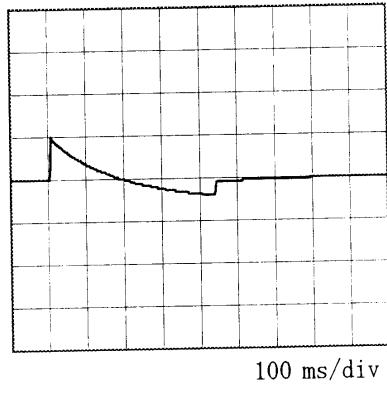
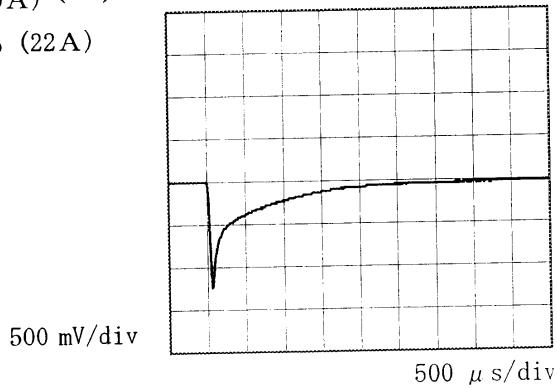
COSEL

Model	CDS6002428H	Temperature Testing Circuitry	25°C Figure A
Item	Dynamic Load Response 動的負荷変動		
Object	+28.0V 22A		

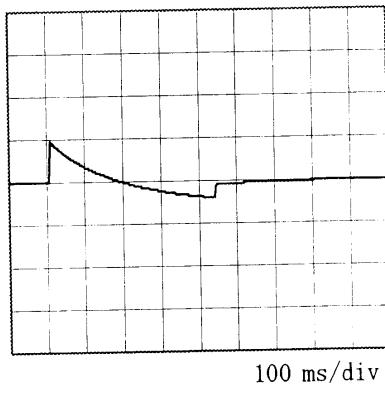
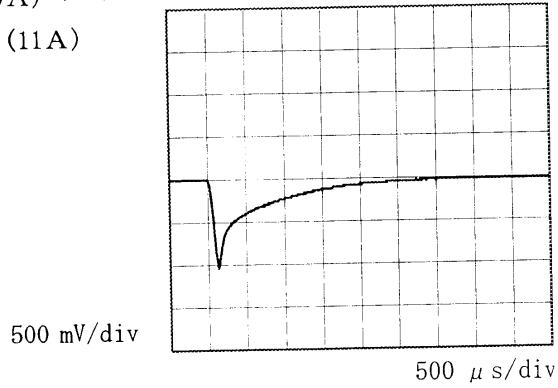
Input Volt. 24 V
Cycle 1000 ms



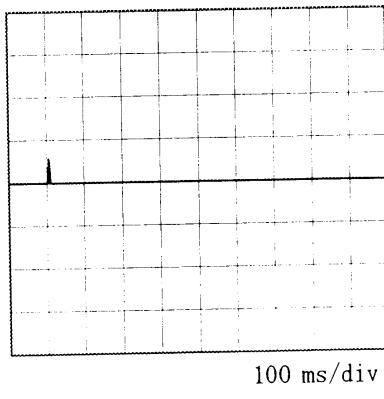
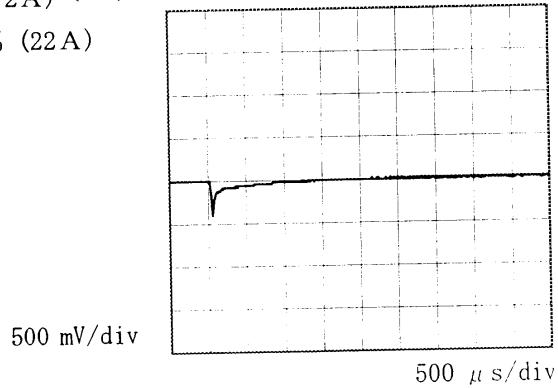
Min. Load (0A) ↔
Load 100% (22A)



Min. Load (0A) ↔
Load 50% (11A)



Load 10% (2.2A) ↔
Load 100% (22A)



COSEL

Model CDS6002428H

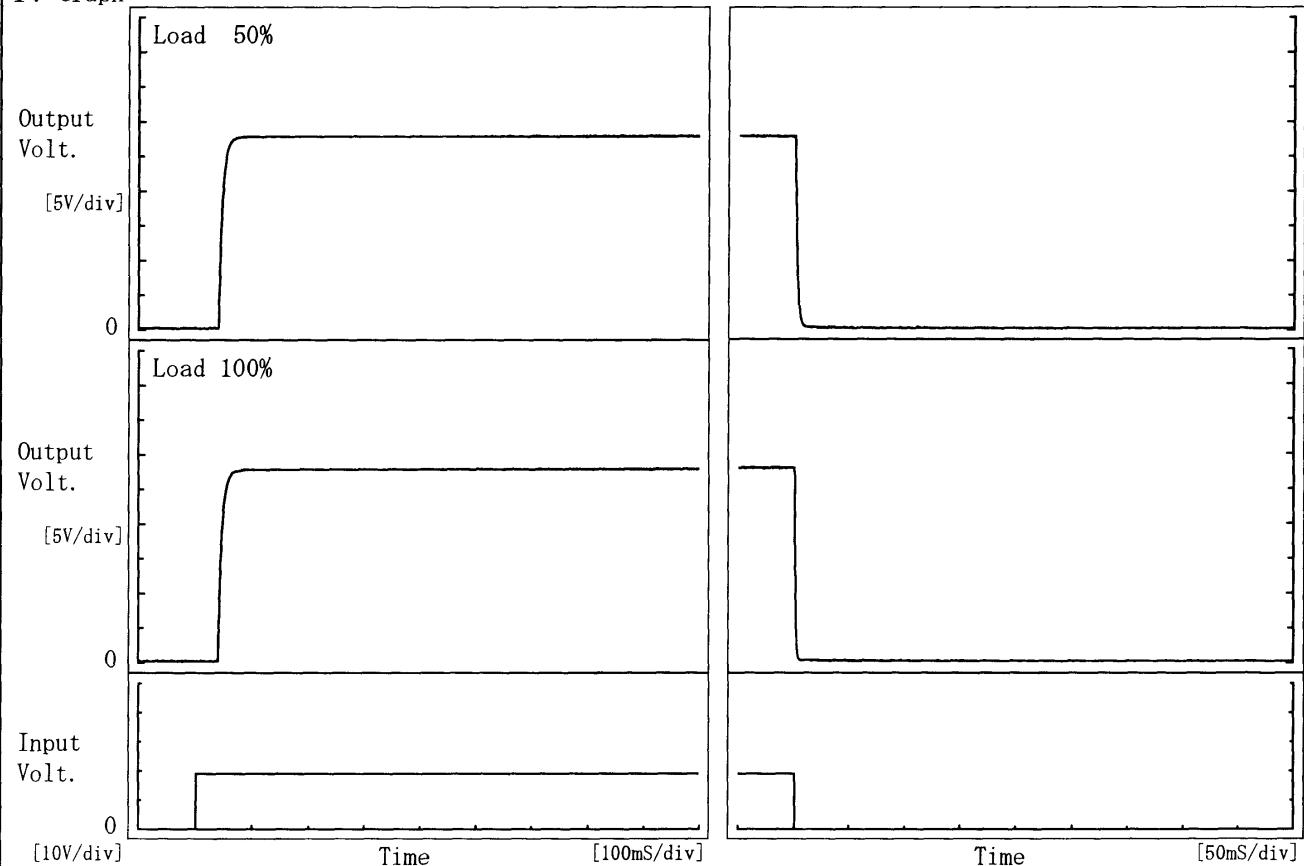
Item Rise and Fall Time
立上り、立下り時間

Object +28V22A

Temperature 25°C
Testing Circuitry Figure A

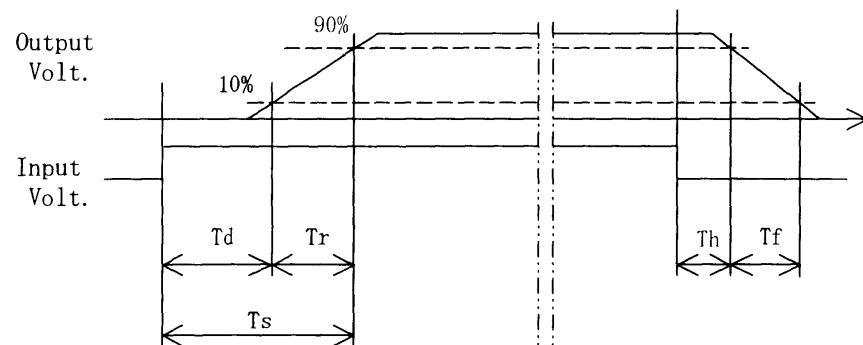
1. Graph

Input Volt. 19 V



2. Values

Load	Time	T _d	T _r	T _s	T _h	T _f
50 %		40.5	14.5	55.0	0.5	3.8
100 %		40.5	14.5	55.0	0.5	2.0



COSEL

Model	CDS6002428H	Testing Circuitry Figure A																																																						
Item	Ambient Temperature Drift 周囲温度変動																																																							
Object	+28V22A																																																							
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<p style="text-align: center;"> —△— Input Volt. 19V ---□--- Input Volt. 24V ---○--- Input Volt. 36V </p> <p>The graph plots Output Voltage [V] on the Y-axis (27.60 to 28.30) against Ambient Temperature [°C] on the X-axis (-40 to 80). Three data series are shown for Input Voltages of 19V, 24V, and 36V. All series show a downward trend. A slanted line is drawn through the data points, representing the rated ambient temperature range.</p> <table border="1"> <thead> <tr> <th>Ambient Temperature [°C]</th> <th>19[V]</th> <th>24[V]</th> <th>36[V]</th> </tr> </thead> <tbody> <tr><td>-40</td><td>28.107</td><td>28.118</td><td>28.150</td></tr> <tr><td>0</td><td>28.084</td><td>28.091</td><td>28.110</td></tr> <tr><td>25</td><td>28.059</td><td>28.062</td><td>28.071</td></tr> <tr><td>40</td><td>28.029</td><td>28.030</td><td>28.037</td></tr> <tr><td>55</td><td>27.991</td><td>27.992</td><td>28.001</td></tr> <tr><td>70</td><td>27.949</td><td>27.953</td><td>27.975</td></tr> <tr><td>85</td><td>27.906</td><td>27.917</td><td>27.948</td></tr> <tr><td>90</td><td>27.887</td><td>27.901</td><td>27.933</td></tr> <tr><td>100</td><td>27.867</td><td>27.884</td><td>27.919</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>	Ambient Temperature [°C]	19[V]	24[V]	36[V]	-40	28.107	28.118	28.150	0	28.084	28.091	28.110	25	28.059	28.062	28.071	40	28.029	28.030	28.037	55	27.991	27.992	28.001	70	27.949	27.953	27.975	85	27.906	27.917	27.948	90	27.887	27.901	27.933	100	27.867	27.884	27.919	—	—	—	—												
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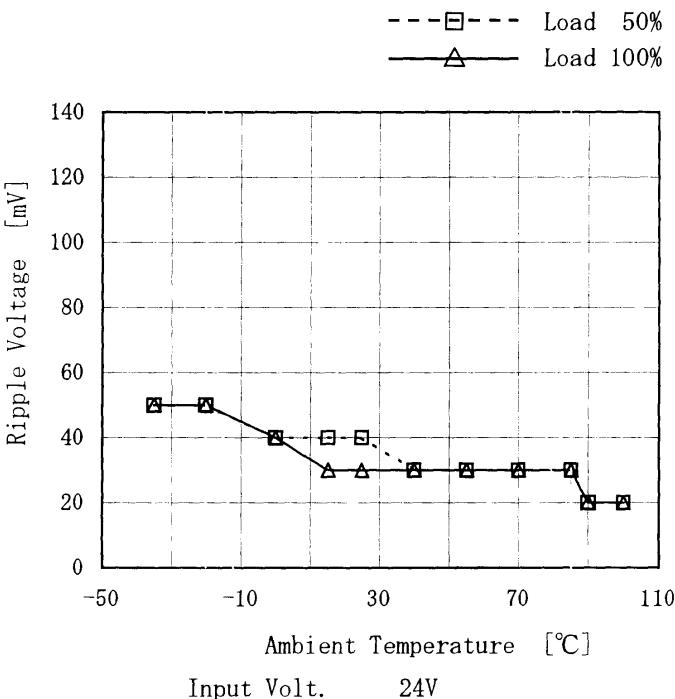
COSEL

Model	CDS6002428H																																								
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧	Testing Circuitry Figure A																																							
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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	CDS6002428H
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+28V22A

1. Graph



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

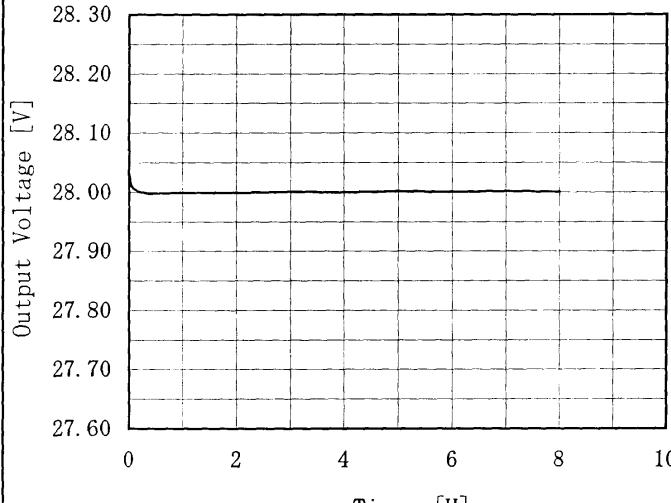
(注) 斜線は定格周囲温度範囲を示す。

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-35	50	50
-20	50	50
0	40	40
15	40	30
25	40	30
40	30	30
55	30	30
70	30	30
85	30	30
90	20	20
100	20	20

coSEL

Model	CDS6002428H	Temperature	25°C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	+28V22A																								
1. Graph			2. Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 24V</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>28.035</td></tr> <tr><td>0.5</td><td>27.998</td></tr> <tr><td>1.0</td><td>27.999</td></tr> <tr><td>2.0</td><td>27.999</td></tr> <tr><td>3.0</td><td>28.000</td></tr> <tr><td>4.0</td><td>28.000</td></tr> <tr><td>5.0</td><td>28.001</td></tr> <tr><td>6.0</td><td>28.000</td></tr> <tr><td>7.0</td><td>28.001</td></tr> <tr><td>8.0</td><td>28.001</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	28.035	0.5	27.998	1.0	27.999	2.0	27.999	3.0	28.000	4.0	28.000	5.0	28.001	6.0	28.000	7.0	28.001	8.0	28.001
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Model	CDS6002428H	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+28V22A	

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 : 19 ~ 36V

Load Current : 0 ~ 22A

* 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 : -20 ~ 85°C

入力電圧 : 19 ~ 36V

負荷電流 : 0 ~ 22A

* 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	-20	24	22	28.204	±115	±0.5
Minimum Voltage	85	36	0	27.976		



Model	CDS6002428H	Testing Circuitry Figure A
Item	Condense 結露特性	
Object	+28V22A	

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]	28.071	Input Volt.:24V, Load Current.:22A
Line Regulation [mV]	2	Input Volt.:19~36V, Load Current.:22A
Load Regulation [mV]	40	Input Volt.:24V, Load Current.:0~22A



Model	CDS6002428H	Temperature Testing Circuitry	25°C Figure B
Item	Line Noise Tolerance 入力雑音耐量		
Object	+28V22A		

1. Conditions

- Input Voltage : 24 V
- Pulse Input Duration : 1 min. or more
- Pulse Voltage : 2000 V
- Load : 100 %
- Pulse Cycle : 10 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		
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

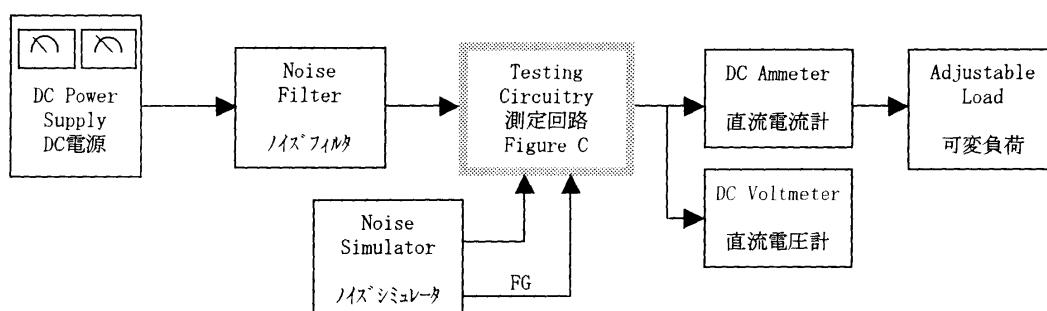
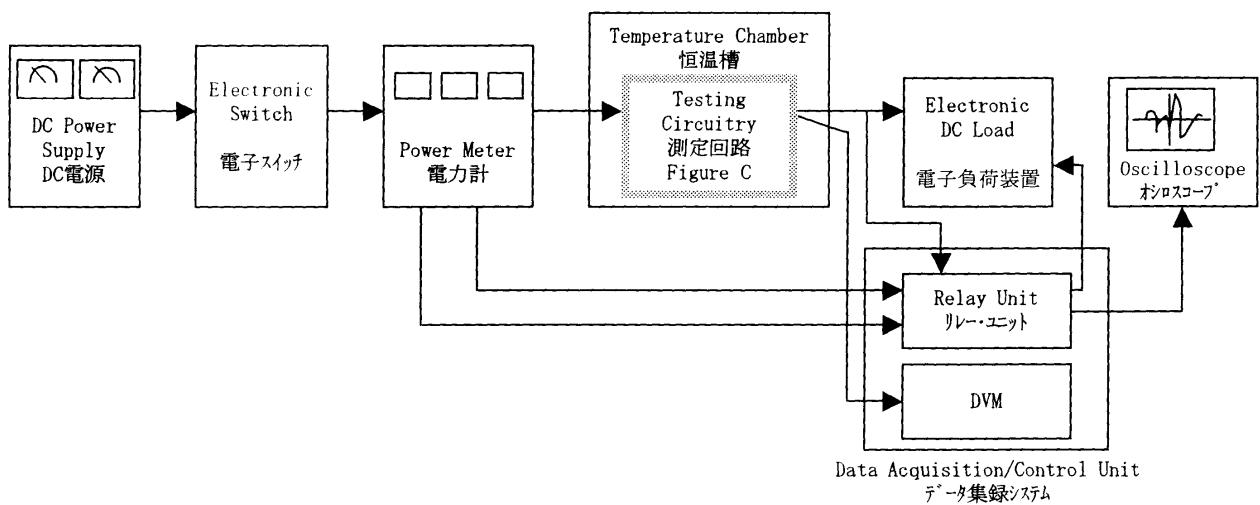
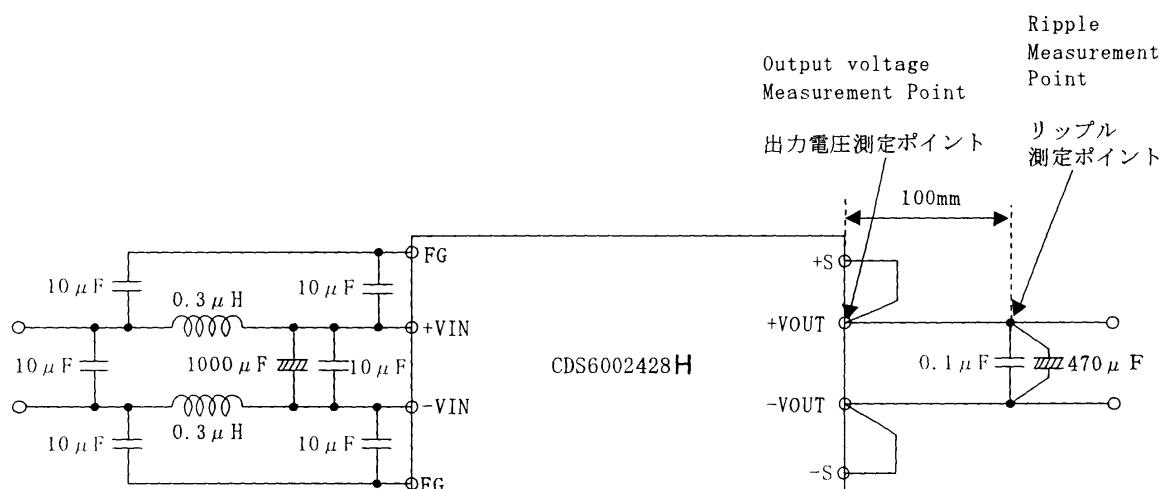


Figure B

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