COSEL

参考資料

TEST DATA OF CDS6002428H

(24V INPUT)

Regulated DC Power Supply
July 16. 2002

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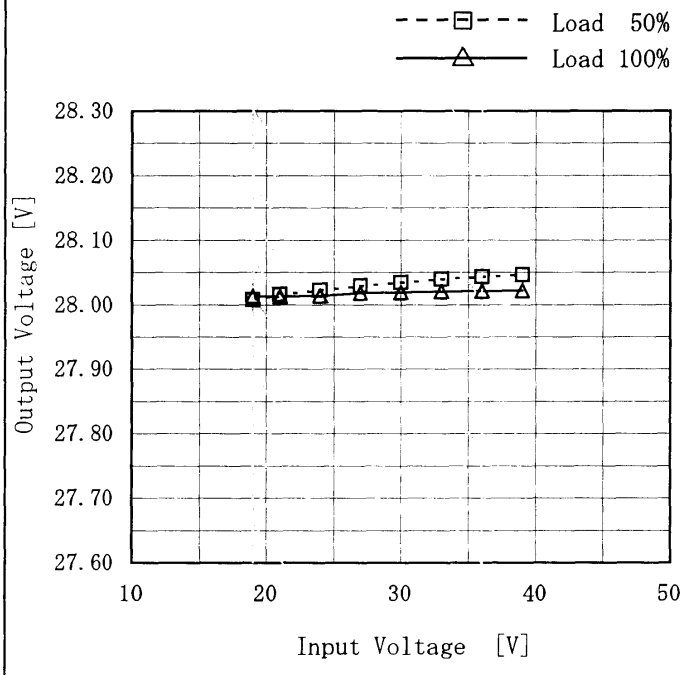


Note: Slanted line shows the range of the rated input voltage.

（注）斜線は定格入力電圧範囲を示す。

2. Values

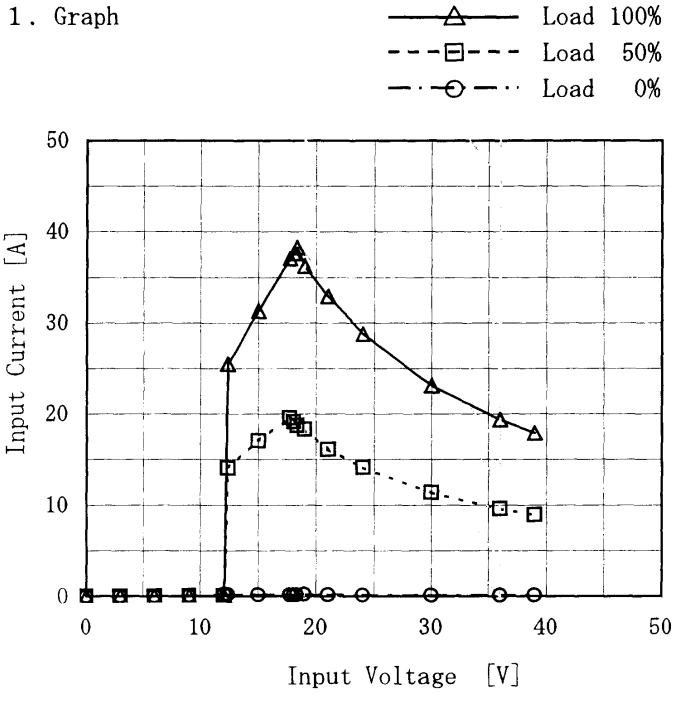
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
19	28.008	28.013
21	28.016	28.013
24	28.022	28.014
27	28.029	28.018
30	28.035	28.019
33	28.040	28.020
36	28.043	28.021
39	28.046	28.022
—	—	—

COSEL

Model	CDS6002428H
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



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

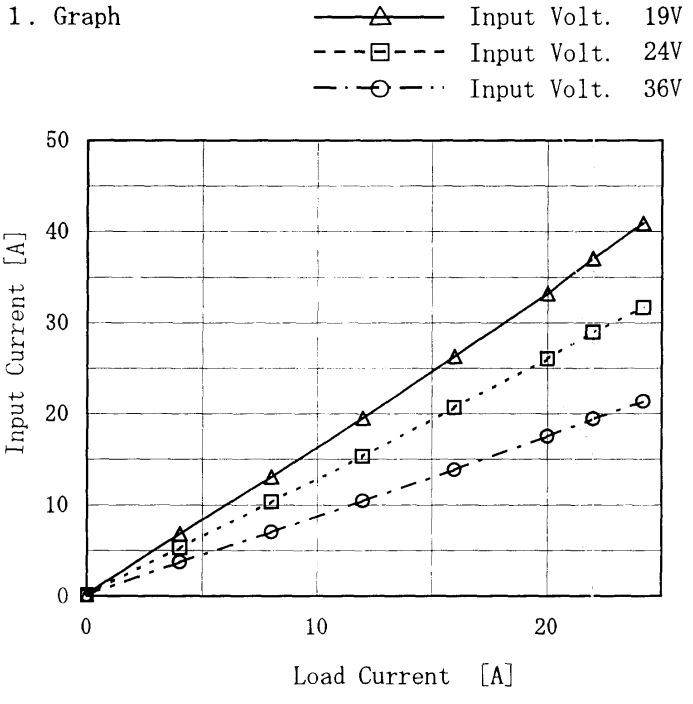
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
3.0	0.000	0.000	0.000
6.0	0.000	0.000	0.000
9.0	0.059	0.058	0.058
12.0	0.188	0.049	0.048
12.3	0.186	14.097	25.454
15.0	0.158	17.073	31.301
17.7	0.148	19.613	37.062
18.0	0.145	19.151	37.670
18.3	0.142	18.767	38.287
19.0	0.189	18.322	36.223
21.0	0.135	16.107	32.935
24.0	0.127	14.137	28.791
30.0	0.119	11.416	23.114
36.0	0.109	9.619	19.399
39.0	0.102	8.919	17.934

COSEL

Model	CDS6002428H
Item	Input Current (by Load Current) 入力電流（負荷特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

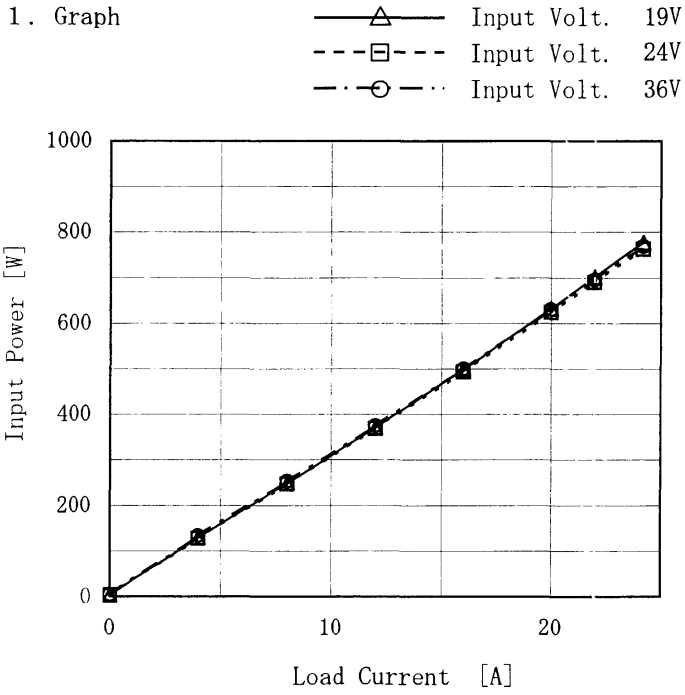
Load Current [A]	Input Current [A]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.147	0.124	0.106
4.0	6.812	5.321	3.707
8.0	13.089	10.371	7.048
12.0	19.541	15.335	10.457
16.0	26.301	20.715	13.891
20.0	33.185	26.062	17.549
22.0	37.050	28.915	19.409
24.2	40.918	31.663	21.379
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6002428H
Item	Input Power (by Load Current) 入力電力（負荷特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

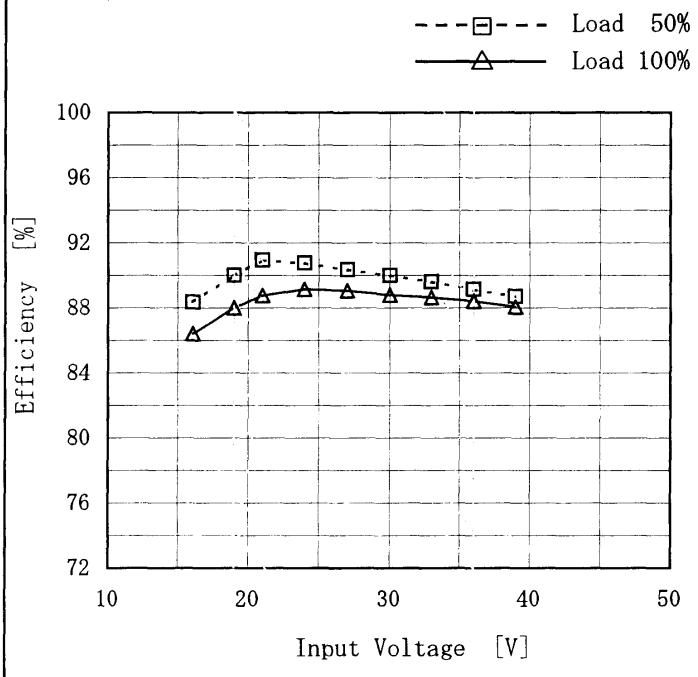
Load Current [A]	Input Power [W]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	2.8	3.0	3.8
4.0	129.4	127.5	133.0
8.0	248.7	246.9	253.4
12.0	371.0	368.5	374.9
16.0	498.7	494.2	500.3
20.0	632.4	623.5	630.0
22.0	701.4	690.2	695.7
24.2	777.5	762.5	769.1
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6002428H
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

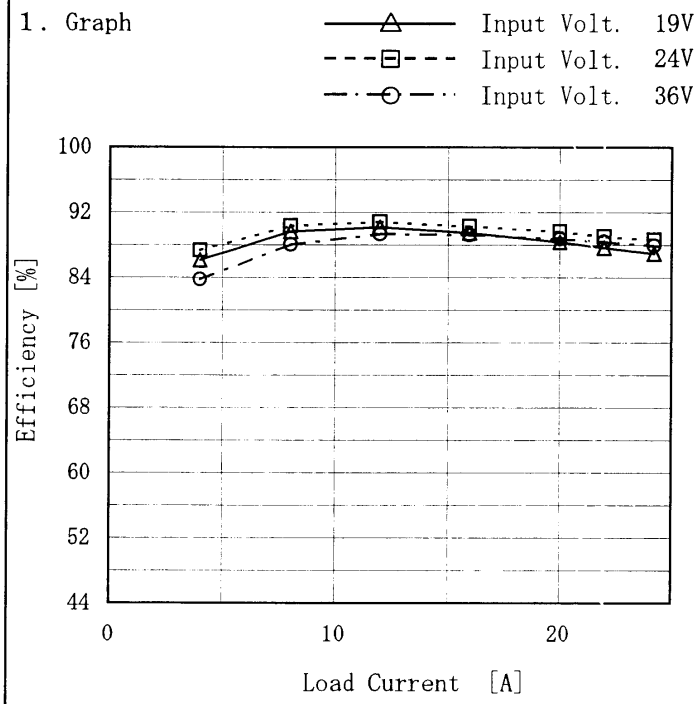
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	88.3	86.4
19	90.0	88.0
21	90.9	88.8
24	90.8	89.2
27	90.4	89.1
30	90.0	88.8
33	89.6	88.6
36	89.1	88.4
39	88.7	88.1

COSEL

Model	CDS6002428H
Item	Efficiency (by Load Current) 効率（負荷特性）
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

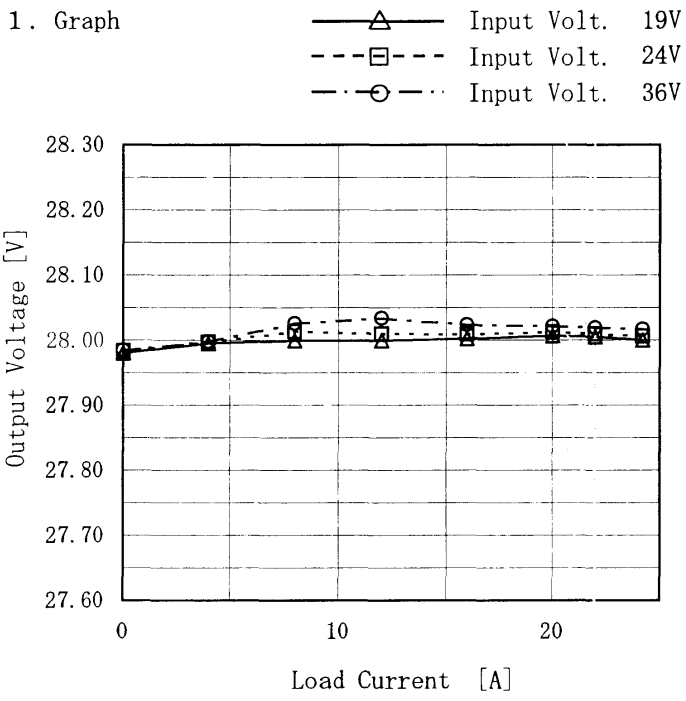
Load Current [A]	Efficiency [%]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	—	—	—
4.0	86.1	87.3	83.8
8.0	89.6	90.4	88.1
12.0	90.2	90.8	89.3
16.0	89.5	90.3	89.2
20.0	88.4	89.6	88.7
22.0	87.6	89.1	88.4
24.2	86.9	88.7	87.9
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6002428H
Item	Load Regulation 静的負荷変動
Object	+28V22A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

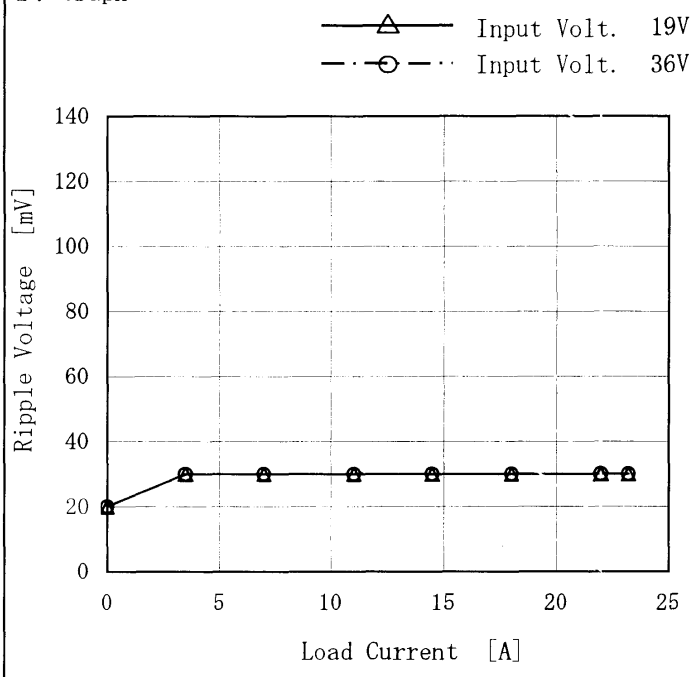
Load Current [A]	Output Voltage [V]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	27.980	27.984	27.984
4.0	27.995	27.997	27.998
8.0	27.999	28.013	28.026
12.0	27.999	28.010	28.034
16.0	28.002	28.009	28.023
20.0	28.007	28.012	28.022
22.0	28.005	28.010	28.019
24.2	28.000	28.006	28.017
--	—	—	—
--	—	—	—

COSEL

Model	CDS6002428H
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	+28V22A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

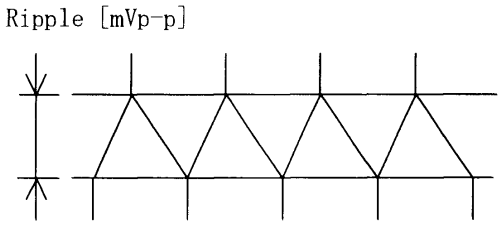


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2. Values

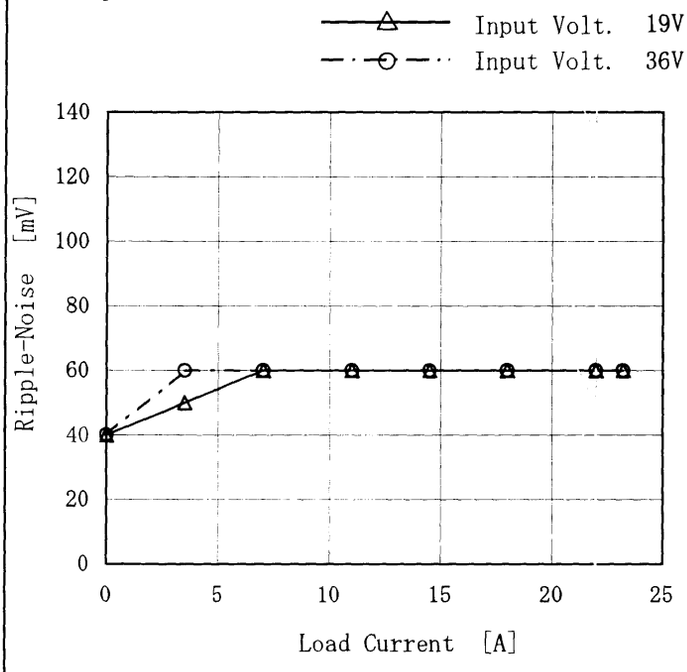
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 19 [V]	Input Volt. 36 [V]
0.0	20	20
3.5	30	30
7.0	30	30
11.0	30	30
14.5	30	30
18.0	30	30
22.0	30	30
23.2	30	30
—	—	—
—	—	—
—	—	—

COSEL

Model	CDS6002428H
Item	Ripple-Noise リップルノイズ
Object	+28V22A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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。

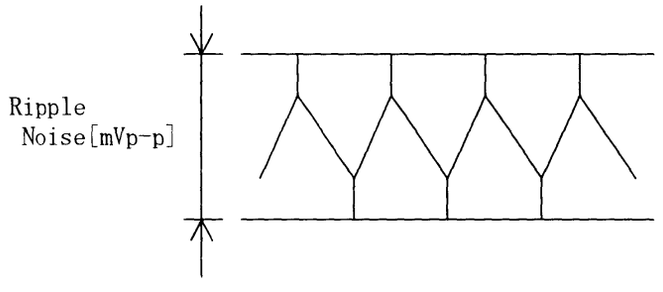


Fig. Complex Ripple Noise Wave Form
図　リップルノイズ波形

2. Values

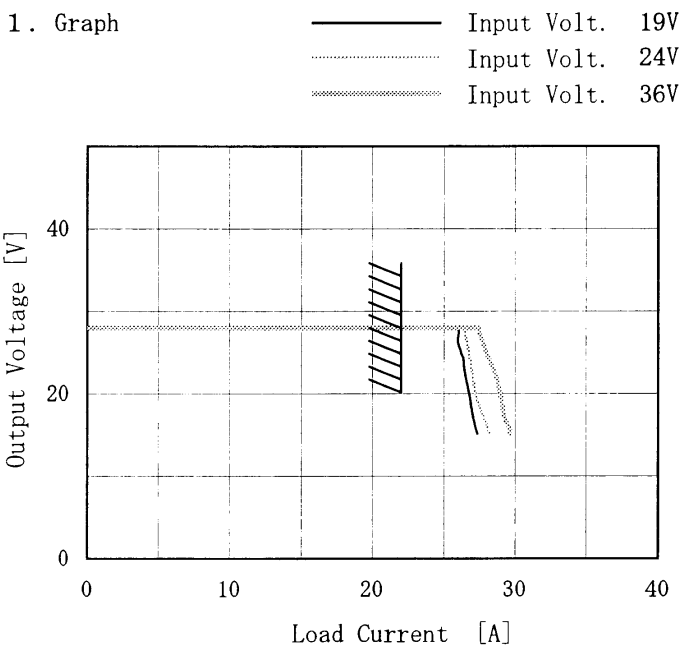
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 19 [V]	Input Volt. 36 [V]
0.0	40	40
3.5	50	60
7.0	60	60
11.0	60	60
14.5	60	60
18.0	60	60
22.0	60	60
23.2	60	60
—	—	—
—	—	—
—	—	—

COSEL

Model	CDS6002428H
Item	Overcurrent Protection 過電流保護
Object	+28V22A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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 15V to 0V.
15V～0V間は、間欠モードとなる。

2. Values

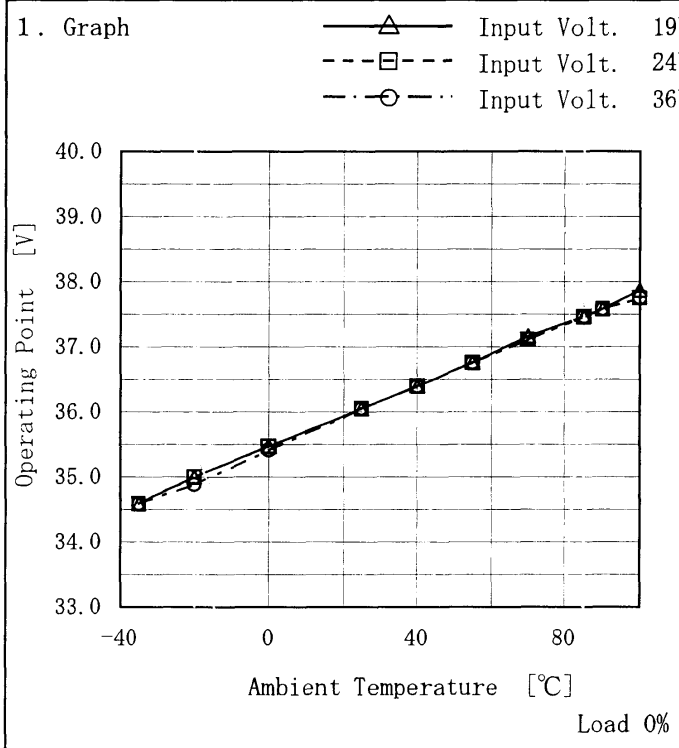
Output Voltage [V]	Load Current [A]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
28.0	25.93	26.37	27.41
26.6	25.94	26.54	27.63
25.2	26.14	26.70	27.93
22.4	26.46	26.96	28.61
19.6	26.80	27.28	29.03
16.8	27.06	27.85	29.35
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6002428H
Item	Overvoltage Protection 過電圧保護
Object	+28V22A

Testing Circuitry Figure A

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。

2. Values

Ambient Temperature [℃]	Operating Point [V]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
-35	34.59	34.59	34.59
-20	35.00	35.00	34.88
0	35.47	35.47	35.41
25	36.05	36.05	36.05
40	36.40	36.40	36.40
55	36.76	36.76	36.76
70	37.16	37.11	37.11
85	37.46	37.46	37.46
90	37.58	37.58	37.58
100	37.87	37.75	37.75
--	—	—	—

COSEL

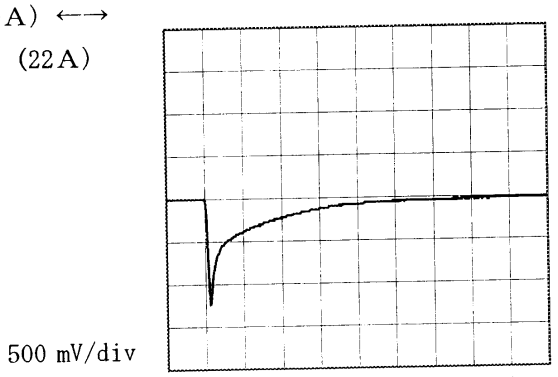
Model	CDS6002428H
Item	Dynamic Load Response 動的負荷変動
Object	+28.0V22A

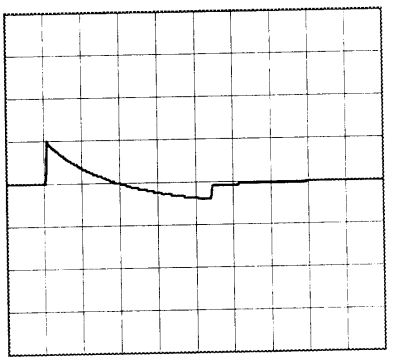
Temperature 25℃
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 1000 ms

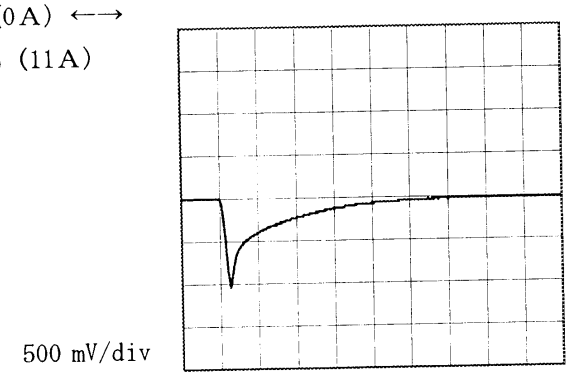
Load Current

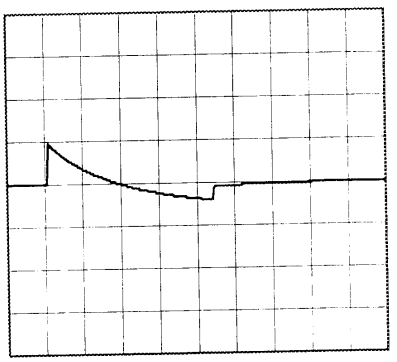
Min. Load (0A) ⟷
Load 100% (22A)



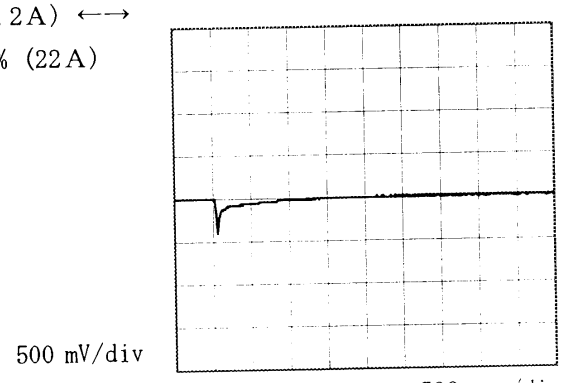


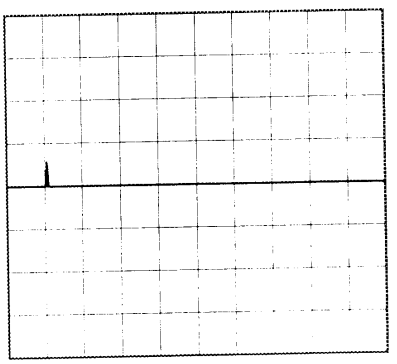
Min. Load (0A) ⟷
Load 50% (11A)





Load 10% (2.2A) ⟷
Load 100% (22A)

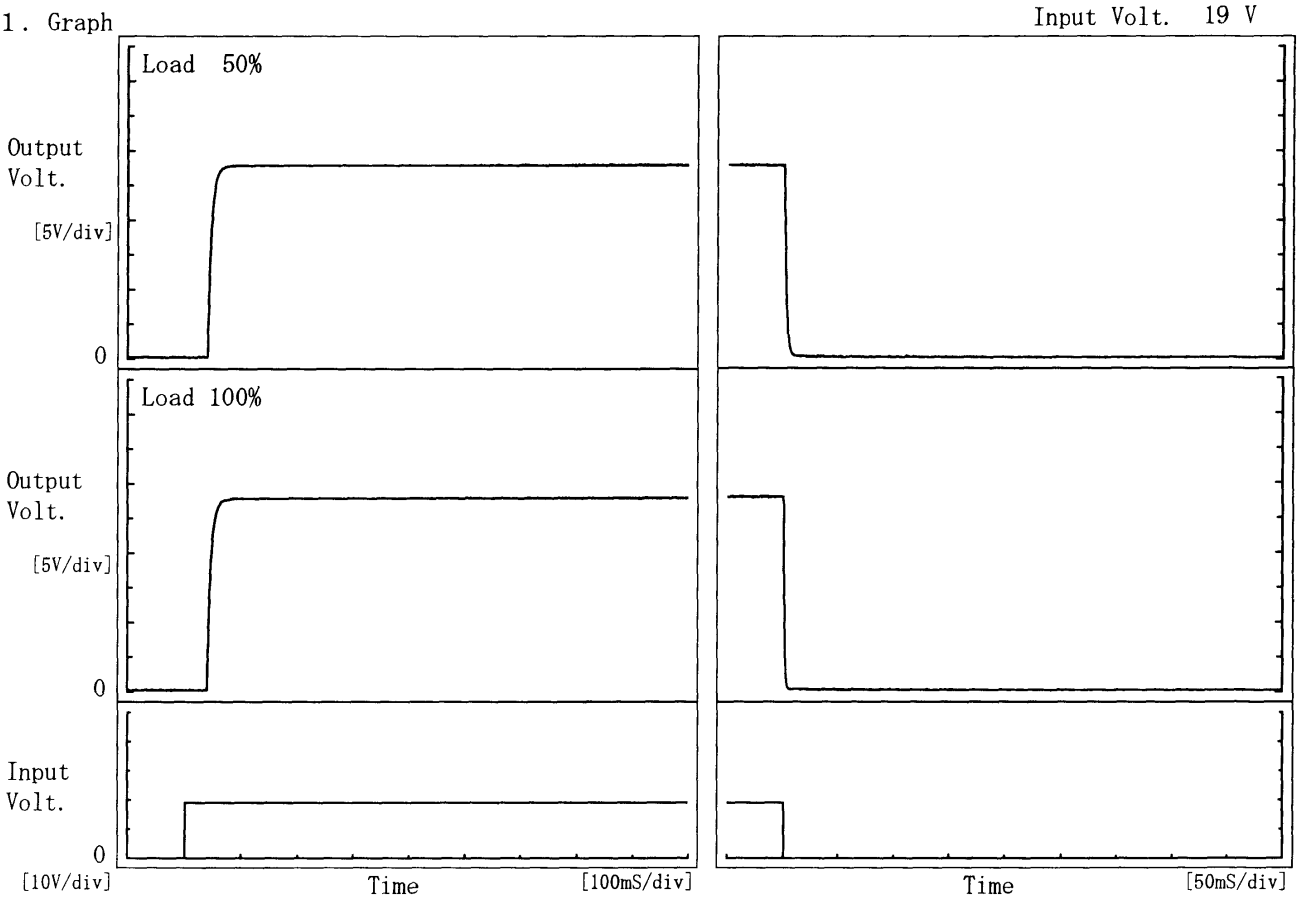




COSEL

Model	CDS6002428H	
Item	Rise and Fall Time 立上り、立下り時間	Temperature 25℃ Testing Circuitry Figure A
Object	+28V22A	

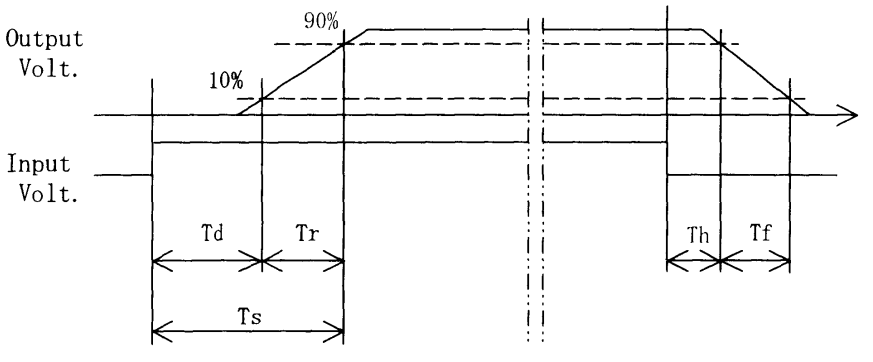
1. Graph



2. Values

[mS]

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

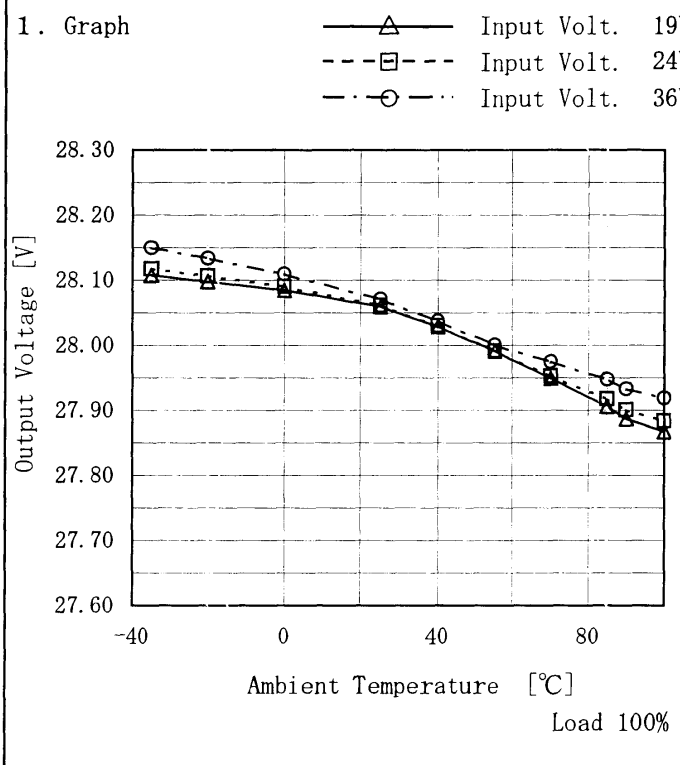


COSEL

Model	CDS6002428H
Item	Ambient Temperature Drift 周囲温度変動
Object	+28V22A

Testing Circuitry Figure A

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。

2. Values

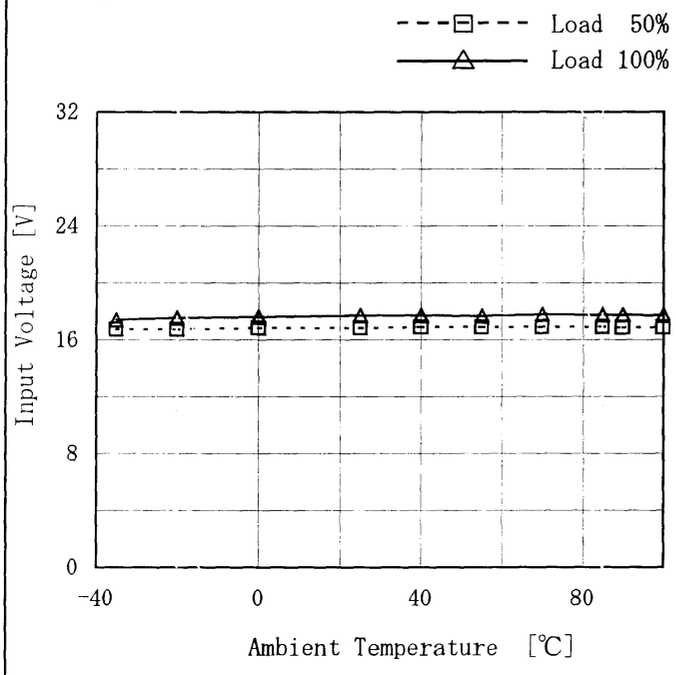
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 19[V]	Input Volt. 24[V]	Input Volt. 36[V]
-35	28.107	28.118	28.150
-20	28.098	28.107	28.134
0	28.084	28.091	28.110
25	28.059	28.062	28.071
40	28.029	28.030	28.037
55	27.991	27.992	28.001
70	27.949	27.953	27.975
85	27.906	27.917	27.948
90	27.887	27.901	27.933
100	27.867	27.884	27.919
—	—	—	—

COSEL

Model	CDS6002428H
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+28V22A

Testing Circuitry Figure A

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。

2. Values

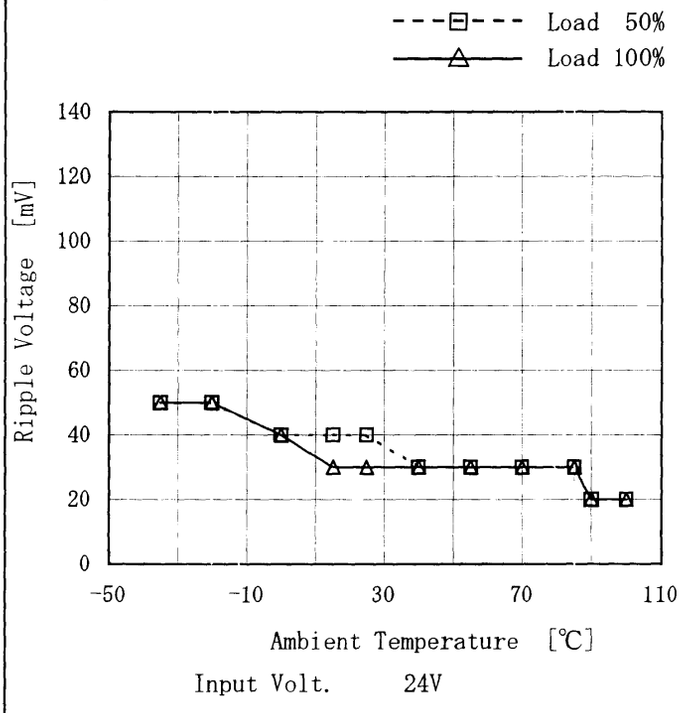
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	16.8	17.5
-20	16.8	17.6
0	16.9	17.7
25	16.9	17.8
40	17.0	17.7
55	17.0	17.7
70	17.0	17.8
85	17.0	17.8
90	16.9	17.8
100	16.9	17.8
—	—	—

COSEL

Model	CDS6002428H
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+28V22A

Testing Circuitry Figure A

1. Graph



Input Volt. 24V

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

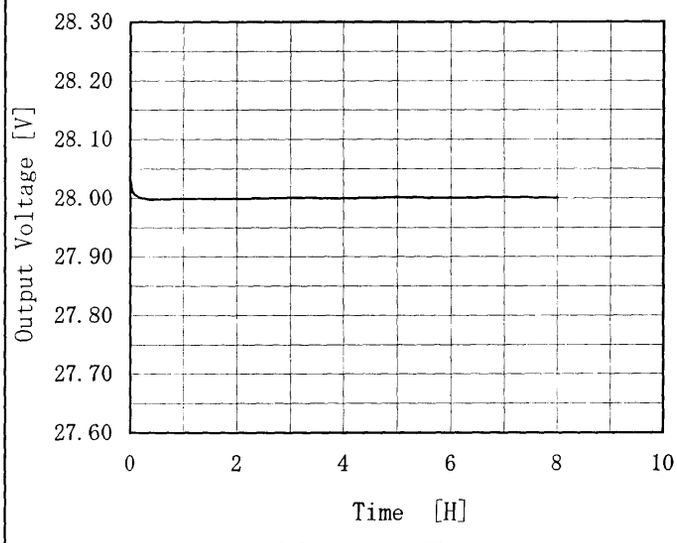
Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-35	50	50
-20	50	50
0	40	40
15	40	30
25	40	30
40	30	30
55	30	30
70	30	30
85	30	30
90	20	20
100	20	20

COSEL

Model	CDS6002428H
Item	Time Lapse Drift 経時ドリフト
Object	+28V22A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 24V
Load 100%

2. Values

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

COSEL

Model	CDS6002428H	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
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℃

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℃

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 [℃]	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		

COSEL

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

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]	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

COSEL

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

1. Conditions

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

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

COSEL

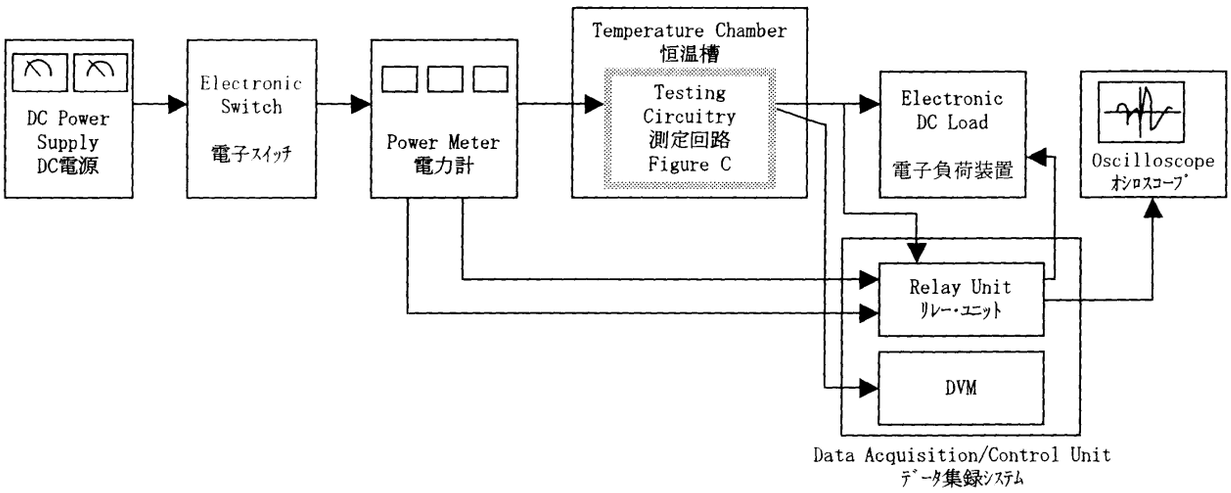


Figure A

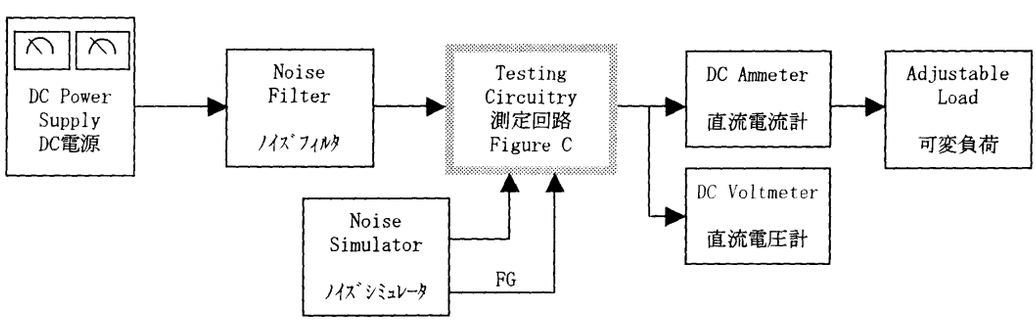


Figure B

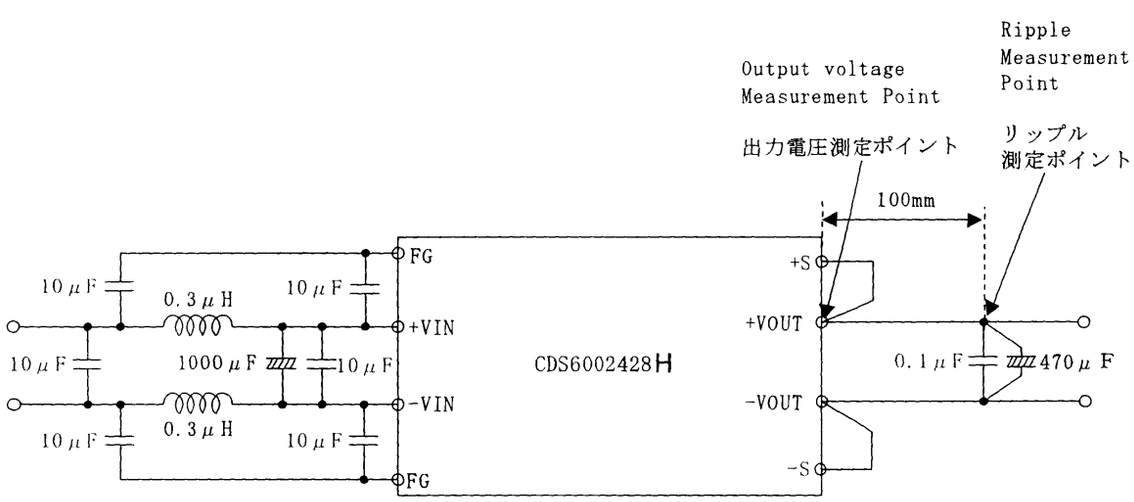


Figure C (General Electric Characteristic)
一般電気特性